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Türkiye Public Finance Review: Leveraging Fiscal Resources for Stability and Resilience



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List of abbreviations

A&S	Administration and Support
AGI	The Minimum Subsistence Allowance Program
AISBL	Association internationale sans but lucratif (International Non-Profit Organization)
ALMP	Active Labor Market Policy
ALMP	Active labor market program
ASPIRE	The Atlas of Social Protection Indicators of Resilience and Equity
B2B	Business to Business
BAU	Business-as-Usual
BEPS	Base Erosion and Profit Shifting
BIP	Basic Income for the Poor
BIP	Basic Income for The Poor
BK	Baxter King
BO	Build-Operate
BOT	Build-Operate-Transfer
CASE	Center for Social and Economic Research
CBAM	Carbon Border Adjustment Mechanism
CBAM	Carbon Border Adjustment Mechanism
CBRT	Central Bank of the Republic of Türkiye
CCT	Conditional Cash Transfer
CDS	Credit Default Swap
CEM	Country Economic Memorandum
CEQ	Commitment to Equity
CEQ	Commitment to Equity
CF	Christiano Fitzgerald
CG	Central Government
CGE	Computable General Equilibrium
CGF	Credit Guarantee Fund
CI	Corporate Income
CIT	Corporate Income Tax
CL	Contingent Liability
COICOP	The Classification of Individual Consumption According to Purpose
CPI	Consumer Price Index
DAC	Debt Assumption Commitments
DACs	Debt Assumption Commitments
DEA	Data Envelopment Analysis
DHMI	General Directorate of State Airports Authority
DMU	Decision-Making Unit
DSA	Debt Sustainability Analysis
EBA	(Eğitim Bilişim Ağı)-Education Informatics Network
EBRD	European Bank for Reconstruction and Development

ECA	Europe and Central Asia
ECLAC	Economic Commission for Latin America and the Caribbean
EIB	The European Investment Bank
EIS	Entrepreneur Information System
EMDE	Emerging and Developing Economies
EMTR	Effective Marginal Tax Rate
EPEC	The European PPP Expertise Centre
ESCS	Economic, Social and Cultural Status
ETR	Effective Tax Rate
ETR	Effective Tax Rates
ETS	Emissions trading system
EU	European Union
EV	Electric Vehicle
EV	Electric Vehicles
FDI	Foreign Direct Investment
FX	Foreign Exchange
GDoSA	The General Directorate of Social Assistance
GDP	Gross Domestic Product
GER	Germany
GFC	Global Financial Crisis
GFCF	Gross Fixed Capital Formation
GFCF	Gross Fixed Capital Formation
GFN	Gross Financing Needs
GG	General Government
GHG	Greenhouse Gas
GMM	Generalized Method of Moments
GNI	Gross National Income
GTAP	Global Trade Analysis Project
HBS	Household Budget Survey
HCI	Human Capital Index
HHC	Household Final Consumption
HIC	High Income Country
HP	Hodrick Prescott
IBRD	International Bank for Reconstruction and Development
IC	Intermediate Consumption
ICT	Information and Communications Technology
ICTD	Information and Communication Technology Department
ILO	International Labor Organization
IMF FAD	International Monetary Fund Fiscal Affairs Department
IMF	International Monetary Fund

IPSAS32	International Public Sector Accounting Standard Number 32
IRF	Impulse Response Functions
ISAS	Integrated Social Assistance Information System
ISAS	Social Assistance Service Information System
ISKUR	Türkiye İş Kurumu-Turkish National Employment Agency
LFRP	Labor Force Participation Rate
LIC	Low Income Country
MFMod	Macroeconomic and Fiscal Model
MIC	Middle-Income Country
MNCs	Multinational Corporations
MoFSP	Ministry of Family and Social Policies
MoFSS	Ministry of Family and Social Services
MoH	Ministry of Health
MoIT	Ministry of Industry and Technology
MoNE	Ministry of National Education
MoTF	the Ministry of Treasury and Finance
MRV	Monitoring, Reporting and Verification
MTFF	Medium-Term Fiscal Framework
MTFP	Medium Term Fiscal Plan
MTP	Medium-Term Program
MVT	Motor Vehicle Tax
NCD	Non-Communicable Diseases
NEET	Not in Employment, Education or Training
NEP	New Economic Program
NGO	Non-Governmental Organizations
NPIs	Non-pharmaceutical Interventions
NPISH	Non-Profit Institutions Serving Households
OECD	Organization for Economic Cooperation and Development
OJT	On-the-job Training
P-FRAM	Public-Private Partnership Fiscal Risk Assessment Model
PE	Pension Expenditures
PFR	Public Finance Review
PHC	Primary Health Care
PIM	Public Investment Management
PISA	Programme for International Student Assessment
PIT	Personal Income Tax -Payroll Income Tax
PPI	Private Participation in Infrastructure
PPP	Public Private Partnerships
PRWP	Policy Research Working Paper
PSB	The Presidency of Strategy and Budget
R&D	Research and Development
SA	Social Assistance
SASF	Social Assistance and Solidarity Foundation

SCT	Special Consumption Tax
SFA	Stochastic Frontier Analysis
SME	Small and Medium-Sized Enterprises
SOE	State-Owned Enterprise
SOT	Scientific Occupation and Technical
SPA	Special Provincial Administrations
SSC	Social Security Contributions
SSI	Social Security Institution
SSS	Social Security System
SUT	Supply and Use Tables
SVAR	Structural Vector Autoregression
TBI	Tapered Basic Income
TEM	Türkiye Economic Monitor
TFP	Total Factor Productivity
TKI	General Directorate of Turkish Coal Enterprises
TKYB	Development and Investment Bank of Türkiye
TL	Turkish Lira
TOBB	Union of Chambers and Commodity Exchanges of Türkiye
TOKI	Mass Housing Administration
TOR	Transfer of Operational Rights
TPO	Turkish Patent Office
TSKB	Industrial Development Bank of Turkey
TTK	Turkish Hard Coal Enterprises
TURKSTAT	Turkish Statistical Institute
TUSIAD	Türkiye Industry and Business Association
UHI	Universal Health Insurance
UMIC	Upper Middle-Income Country
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNFCCC	United Nations Framework Convention on Climate Change
VAR	Vector Autoregression
VAT	Value Added Tax
VEFA	Elderly and Disabled Care Projects
VT	Vocational and Technical
VTTL VAT	Total Tax Liability
WB	World Bank
WBG	World Bank Group
WDI	World Development Indicators
WEO	World Economic Outlook
WGI	Worldwide Governance Indicators
WITS	AFAD Türkiye's Disaster and Emergency Management Presidency
YSS	Bridge Yavuz Sultan Selim Bridge

Executive Summary |

A fiscal transition interrupted

Reforms since the early 2000s have helped transition Türkiye's fiscal policies and institutions from obstacle to enabler of development.¹ At the end of the nineties, fiscal policy was hostage to the large inefficiencies of an SOE dominated public sector. The drain on the budget was financed by the central bank and short-term external credit. External debt levels were unsustainable and interest obligations crowded out development expenses. These fueled macroeconomic instabilities and were a drag on sustainable growth. Fast forward ten years to 2010. A robust macro-fiscal framework was providing a stable platform relieved from the pressures of high debt. This helped accelerate revenue collection, whilst enabling a reprioritization of spending towards development priorities. Fiscal buffers helped Türkiye recover quickly from the Global Financial Crisis and provided cushion for further shocks in the 2010s.

This fiscal transition told the story of an Upper Middle-Income Country (UMIC) preparing to deal with High Income Country (HIC) challenges. A rolling medium-term fiscal program provided a strong anchor for economic stability and five-year development plans. Deepening domestic financial markets enabled affordable, long-term public sector financing. Until 2016, Türkiye's sovereign credit was investment grade. Major tax reforms in the early 2000s together with strong growth supported base broadening and more buoyant revenues. This together with a drop in interest expenses created space to significantly reallocate budget resources towards social expenditures. This was also driven by a rapid increase in social security contributions, which expanded Türkiye's social security system. The public sector became more responsive to evolving health, pension, and other social protection concerns.

Fast forward another ten years to 2020, and a series of economic and political challenges, coupled with institutional changes, have interrupted this transition. Macroeconomic conditions since 2016 have stretched countercyclical fiscal policies. Revenue gaps have started to rise as economic volatility has contributed to reduced compliance and base erosion. Sharper downturns are stretching short-term spending, especially public transfers, which are crowding out longer-term development expenditures. Yet Türkiye's transition to becoming an HIC will require more fiscal space for long-term development expenditures. This has to come from a mix of more efficient spending and higher revenues. As countries develop, spending on healthcare, long term care, and state pension also increase. HICs spend more on social expenditures relative to MICs or LICs. The public sector also has the added responsibility of adapting the economy to rising impacts of climate change and supporting the transition to a low carbon economy.

This Public Finance Review (PFR) analyzes fiscal policy and performance trends in Türkiye, current challenges, and priority reforms to restart long-term fiscal reforms. Whilst the PFR inevitably touches on COVID-19 related challenges and fiscal policy responses, the report is about longer-term fiscal issues. The last PFR conducted by the World Bank in Türkiye was in 2014. This PFR is divided into six chapters. The first reviews macro-fiscal trends and their implications for Türkiye's medium-term macro-fiscal strategy. The second reviews tax policy reforms and tax performance, focusing on priority issues to plug a rising tax gaps. The third looks at the trajectory and efficiency of public sector spending, and areas requiring more attention to correct course. The fourth drills down into social spending trends and proposes a life-cycle view of public expenditures targeted at improving human capital. Within this, the fifth chapter analyzes possible improvements to social assistance programs to strengthen household resilience. Finally, the sixth chapter looks options for strengthening Türkiye's fiscal framework to support climate adaptation and mitigation objectives.²

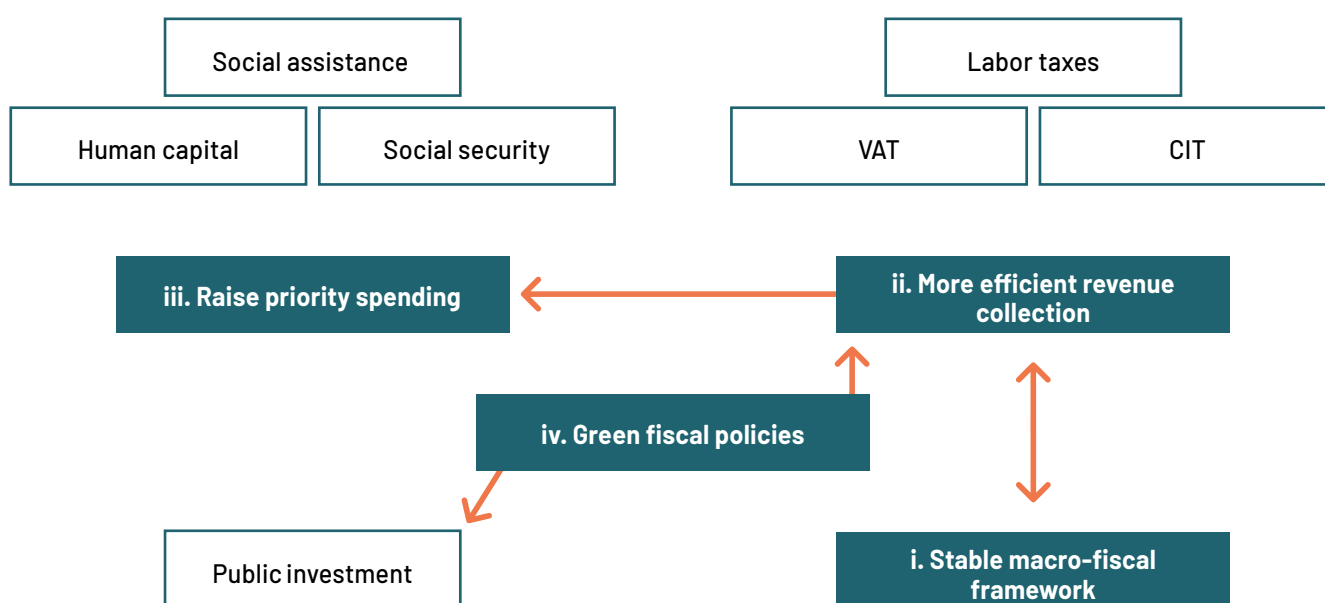
The six parts of the PFR are interrelated. A consistent, credible, and well communicated macro-fiscal framework (i) is critical to improving the efficiency of VAT, CIT, and labor tax collections (ii). This is necessary to raise priority spending (iii). The PFR focuses

¹ This transformation was driven by fiscal consolidation, privatizations, elimination of extra budgetary funds, and Public Finance Management reforms. For an overview of reforms, please see WBG (2014), "Türkiye's Transitions: Integration, Inclusion, Institutions"

² The analysis in the Public Finance Review is based on data up to March 2021. Subsequent data releases have not fed into the analysis. The conclusions and recommendations of the PFR therefore need to be read and interpreted with this qualification.

on raising social spending, including through efficiency gains in education and health. A big part of social spending includes the social security system (SSS), pressures on which are rising with an ageing population. This warrants closer attention to improving payroll taxes that finance the SSS (ii). The PFR also argues that there is scope to increase public investments, which have suffered due to macro instability. More and better public investments can be enabled through green fiscal policies (vi), which can also bolster revenue collections (ii). The coverage of issues here is partial, based on the analysis of this report. There are other important topics relating to Public Finance Management that will be covered separately.

Türkiye PFR framework



The PFR can be summarized in six key messages:

- Macroeconomic instability warrants a change in policy mix, so that fiscal relative to monetary policy can play a bigger role to stimulate short-term growth.
- Despite modernization of the tax system, economic instability and tax complexity have reduced the efficiency of tax collections, warranting increased effort to plug gaps in labor taxes, VAT, and Corporate Income Tax.
- Despite the gradual alignment of spending with development needs, there is not only scope to spend better but also more given Türkiye’s labor market challenges, evolving health needs, ageing population, and social security demands.
- Türkiye has built strong human capital foundations but moving to the next stage will require an approach to public expenditures and human capital that integrates social expenditures more systematically.
- Within this, social assistance expenditure has supported the poor and vulnerable households’ access to basic income and services, and cope with adverse situations, but there is scope to improve adequacy and coverage.
- More comprehensively taxing pollution, including greenhouse gases, will raise revenue to help compensate poor households from the effects of those pollution taxes.

The PFR highlights several short and medium-term reform options across the six areas summarized in the table below.

	Short-Term Options	Medium-Term Options
Macro-fiscal adjustment	Supporting short-term health system and social protection needs.	Rebalancing expenditures from transfers to capital expenses.
	Enhancing fiscal-monetary policy coordination with clear trigger points for policy adjustment to achieve macro stability.	Increasing focus on improving tax efficiency and plugging tax gaps
Plugging tax gaps	CIT: review sources of compliance gaps, distribution of tax incentives (large firms vs. SMEs).	Reduce labor tax wedge.
	Tax simplification analysis.	VAT: eliminate reduced VAT rate, adopt single standard VAT rate.
Spending efficiency	Spending discipline and efficiency in non-discretionary items (e.g., wage bill adjustments, public pension)	Enhance coverage of unemployment insurance.
		Explore further decentralization of spending responsibilities (and local revenue autonomy).
Human capital spending	Introducing new competency assessments and incentives for teacher training and performance to level the playing field across regions	Strengthening investments in secondary education through dedicated job counseling and training.
		Expanding coverage and more strategic design of demand-driven active labor market training programs and wage subsidies to address female labor force participation, digital transformation, and green jobs
		Improving coverage of the poorest households and informal workers to social security through a consolidated, universal social security system
Social assistance	Ensuring the sustainability of "Family Support Program" put into practice as of June 2022 by Türkiye Improve approach for labor incentive compatibility e.g., by eliminating 'working in the formal sector' as a criterion for making households ineligible to receive social assistance benefits.	Strengthening the relation between social assistance programs and employment.
		Assessing the effectiveness of "Family Support Program".
Green fiscal policies		Taxing pollution including greenhouse gases.
		Removing tax exemption and subsidies encouraging use of fossil fuels.

A just macro-fiscal adjustment

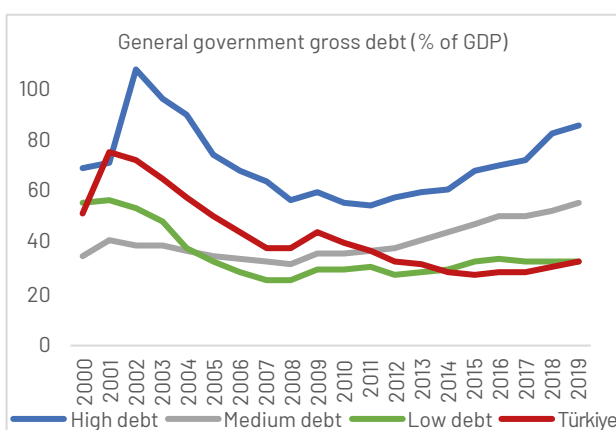
Policy and performance trends: Türkiye’s fiscal prudence since the early 2000s has helped reduce government debt and generate positive fiscal dynamics. Fiscal prudence has provided a critical anchor for economic stability and confidence. Strong tax buoyancy until 2018 and reasonably good levels of revenue collection have supported fiscal discipline. Countercyclical spending around a low average deficit has also helped to contain government debt levels and cushion the impacts of large business cycles. Fiscal multiplier analysis illustrates the short-term growth impact of public transfers and the long-term growth impact of public investments. On the social equity side, a recent analysis based on Commitment to Equity (CEQ) methodology shows that Türkiye’s overall tax and social spending policy reduces income inequality, driven by social spending on education and health, and complemented by direct taxes and transfer schemes that countervail the inequality-increasing impact of indirect taxes. Explicit contingent liability risks have been kept under control though contingent liabilities from PPP projects have expanded rapidly.

Current challenges: Türkiye’s strong record of fiscal prudence in 2002–2017 has been negatively affected by a series of shocks, culminating with the COVID-19 pandemic. Exogenous shocks aside, rising inflation and financial turbulence have exacerbated stresses on fiscal space. The analysis of macro-fiscal trends highlights four stresses in particular: (i) increased financing costs due to perceived weaknesses in the macro policy framework; (ii) widened tax inefficiencies and gaps due to tax relief measures to compensate for the effects of macro instability; (iii) increased pressures to increase countercyclical expenditures in light of larger credit-fueled boom-bust cycles, particularly since 2017; and (iv) sharp cuts to public investments, which have high long-term multiplier effects on growth, to create fiscal space for short-term public transfers.

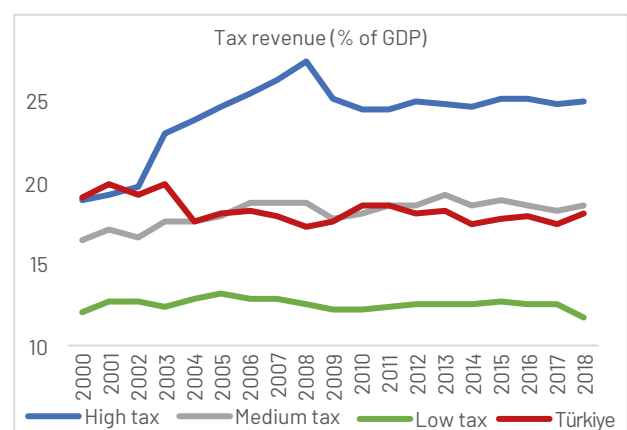
Reform options: These developments warrant an adjustment to Türkiye’s macroeconomic policy framework, which allows for tight monetary policy and countercyclical, growth enhancing fiscal policy. A misalignment in the macro policy framework, which includes monetary loosening, may exacerbate internal and external imbalances. This could also lead to a negative impact on government debt dynamics because macroeconomic instability could fuel higher borrowing costs, currency depreciation further, which would add to external debt servicing costs, and lower growth, which together with higher financing costs would raise the interest-growth differential.

The PFR recommends sequencing of fiscal policy adjustments on the basis of four objectives: (i) supporting short-term health system and social protection needs; (ii) gradually rebalancing expenditures from transfers to capital expenses based on clear trigger points including relaxation of non-pharmaceutical interventions for COVID-19 and improvements in labor market conditions; (iii) enhancing coordination with monetary policy such that a stabilizing macro environment and improvements in domestic demand conditions enable eventual monetary policy adjustment; and (iv) as the economy recovers, increasing focus on improving tax efficiency and plugging tax gaps.

Uptick in debt after long period of sustained decline

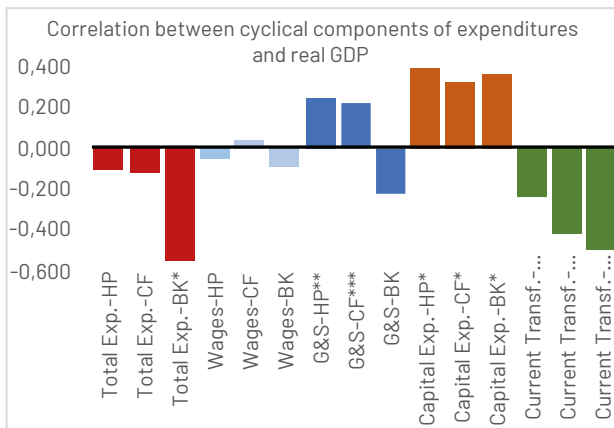


Stable taxes with scope to increase



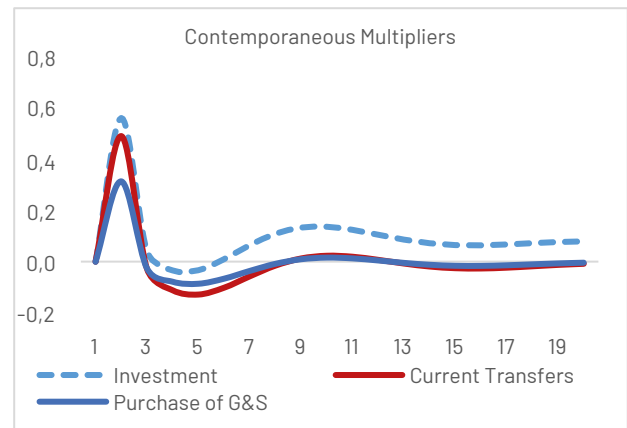
Sources: Kose et al (2017), WB Staff estimates. Notes: High debt: Argentina, Brazil, Jordan; medium debt: China, Ecuador, Malaysia, Mexico, South Africa; low debt: Georgia, Belarus, Thailand, Türkiye, Indonesia, Guatemala, Paraguay, Bulgaria

Rising short-term countercyclical spending



Source: Haver Analytics, WB Staff estimates (+ve = procyclical).

Reprioritize capital expense for growth



Source: Haver Analytics, WB Staff estimates

Minding the tax gaps

Policy and performance trends: Türkiye in the early 2000s adopted a series of reforms to modernize tax policy, whilst recent changes have been more marginal and reactive to economic shocks. The PFR finds that tax policy reforms (tax base and rate changes) reflect a longer-term shift in tax liability from income, particularly that of corporates, to consumption. Tax levels are in the middle range among middle-income countries. But it is an outlier relative to MICs when it comes to composition of taxes: there is relatively high dependence on labor taxes, both personal income tax (PIT) and social security contributions (SSC), and relatively low dependence on corporate income taxes (CIT). Despite this, the number of registered PIT payers is very low whilst CIT collections are well below potential. VAT has been the workhorse of the Turkish tax system though have been trending down in recent years. On the equity side, direct taxes are progressive and broadly inequality-reducing. Among direct taxes, payroll income tax (PIT) is the most inequality-reducing. In contrast, indirect taxes have inequality-increasing impact.

Current challenges: Frequent tax policy changes, some driven by long-term development priorities though many by economic shocks, have made the tax system more complex. This has led to increased non-compliance and reduced the efficiency of tax collections. Whilst there have been commendable efforts to bring down compliance costs, much of the effort has been piecemeal and relatively ad hoc rather than comprehensive and strategic. As a result, whilst tax to GDP is comparable to other countries, the PFR highlights that tax gaps have been rising: (i) the impact of the rising labor tax wedge³ on increased informality and tax avoidance is a topic that has been touched on above but merits further analysis; (ii) there is evidence of rising VAT compliance gaps⁴; and (iii) CIT tax incentives whilst impacting positively on firms' performance, does account for a large share of an overall low CIT tax collection.

Reform options: These challenges warrant some policy efforts to help broaden the tax base and reduce the complexity of the tax system. For example, targeted reductions in the labor tax wedge could help increase SSC by: (i) reducing informality and tax avoidance; (ii) encouraging greater labor force participation, especially among women. It could also reduce social security liabilities by accelerating job creation particularly for the youth that suffer disproportionately high unemployment.

Several provisions in the VAT Law warrant review to try and reduce compliance gaps. For example, the use of the reduced VAT rate of 1 percent exposes the system to evasion and fake invoices fraud, leading to lower revenue collection. The application of such a low reduced rate to domestic consumption of goods marks Türkiye out across its peers. Secondly, multiple VAT rates are applied for similar products that increases the complexity of VAT and increases opportunities of tax evasion due to misclassification. It

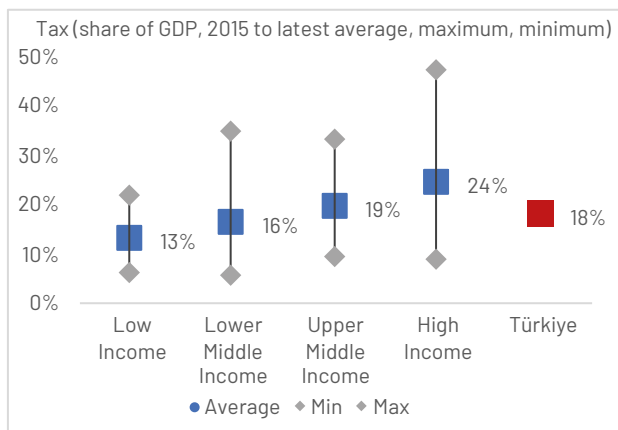
³ The tax wedge is the difference between the employer's labor costs and the employee's net take-home pay.

⁴ The PFR does not go into equity and distributional issues. These are covered in more detail in Cuevas, P. Facundo; Lucchetti, Leonardo; Nebiler, Metin. 2020. What Are the Poverty and Inequality Impacts of Fiscal Policy in Türkiye?. Policy Research Working Paper; No. 9300. World Bank, Washington, DC

would be more efficient to have a single standard rate with compensation for poor households through targeted transfers. More generally, economic and consumption growth may be outpacing the increase in resources available to the Revenue Administration Department to enforce compliance. This would need to be assessed separately.

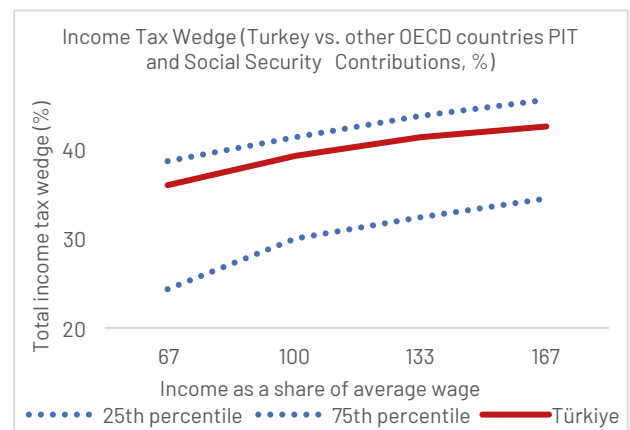
CIT incentives are assessed to be effective in promoting firm performance, but overall CIT collections remain very low. Tax expenditures account for nearly a quarter of gross CIT collections. Outside of official incentives, there are likely compliance issues that warrant closer investigation. On the incentives themselves, the fact that larger and older firms benefit most from the tax incentives may be raising tax leakage. Small and young firms, which already have less access to finance, do not seem to catch up with the CIT tax incentive schemes analyzed in this chapter. This may be harming competition and leading to economic distortions. The design of the incentive schemes may be making the large and the old firms more eligible; the administrative costs associated with the incentives may be too much for the small and the young firms or there may be information asymmetry between different firm types on these incentive schemes.

Tax/GDP comparable to MICs



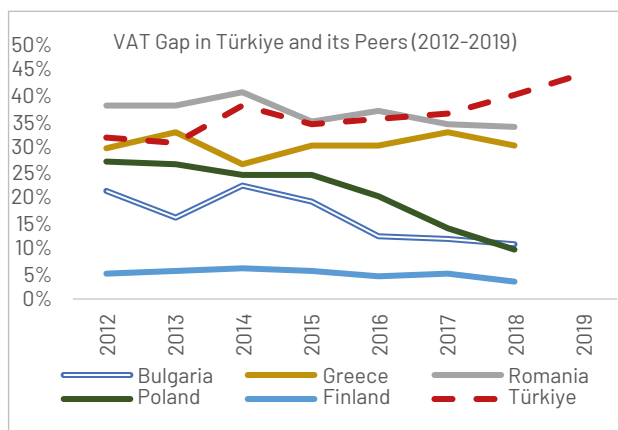
Sources: ICTD Government Revenue Dataset, WB Staff estimates

But labor tax wedge leads to non-compliance



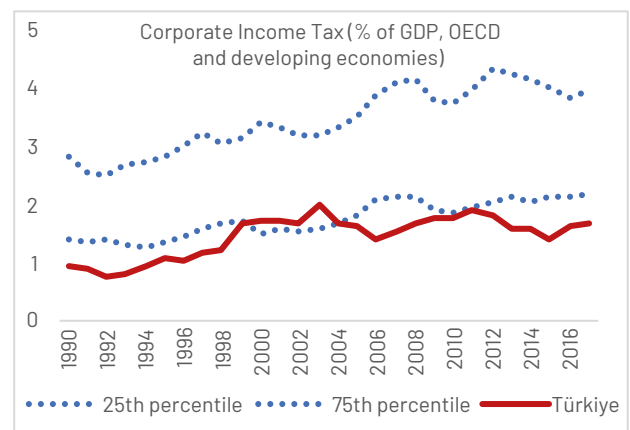
Sources: OECD Tax Database, WB Staff estimates

Whilst VAT gaps are rising



Source: EC (2020) and WB estimates

And CIT collections well below potential



Sources: OECD Tax Database, WB Staff estimates

Spending better to spend more

Policy and performance trends: Türkiye has seen major shifts in public spending over the last two decades. The reforms in the 2000s helped to generate more fiscal space largely driven by remarkable declines in interest expenditures. This space was filled by social spending (accounting for more than half of the budget) and current transfers which has contributed to important improvements in social outcomes. At the same time, an increase in public wage and pension bills have become sources of rising budget rigidity in Türkiye. Public investment has displayed a declining trend with shifting focus towards social sectors and core infrastructure. Public investments generally took the blow of adjustment in bad times to create room for social and other current expenditures. Falling public investment have been offset by one of the largest Public Private Partnership portfolios of any upper middle-income country.

Current challenges: Spending trends in Türkiye have supported a gradual alignment with development needs though there are obstacles to further progress. The analysis of public expenditure trends highlights five main challenges going forward: (i) efficiency of spending on education, health, and infrastructure may need to be strengthened in some areas relative to that of peer countries, notwithstanding the complexities with cross-country comparisons; (ii) public investment has declined despite its importance for long-term growth; (iii) a rising share of rigid expenditures has reduced the flexibility of reallocating the resources to priority areas; (iv) Türkiye is rapidly aging, exerting additional spending pressures for health and pensions; (v) high informality, low labor force participation, and low compliance threatens sustainability of social security system.

Reform options: All of these developments represent a challenging reform agenda and requires holistic approach as Türkiye heads towards high income. The PFR recommends a rebalancing towards public infrastructure investment given its high multiplier effects. Data envelopment analysis shows that there is scope for improving public investment efficiency in Türkiye. A revised Public Investment Management (PIM) framework would help improve efficiency. Public investment will also play a pivotal role in the promotion of green transformation.

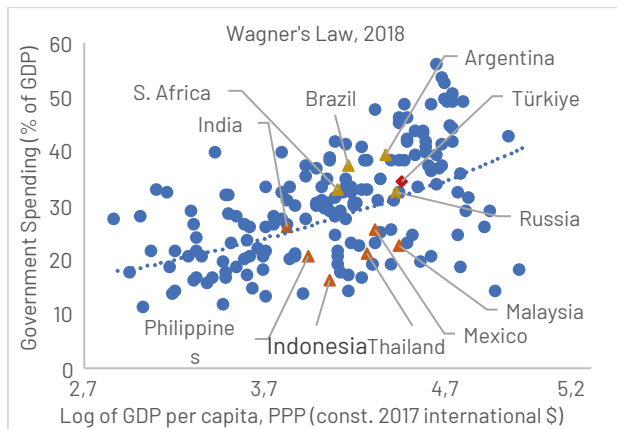
Ensuring expenditure discipline in rigid items could provide a flexibility to reallocate the resources to priority areas going forward. Rebalancing of spending towards investment and social sectors is challenged by a high and rising share of non-discretionary spending. Both cross-country and Türkiye specific analyses reaffirm increased budget rigidity and the low flexibility to reallocate public resources towards changing priorities or needs. Expenditure pressures are likely to increase with changing demographics and rising social spending needs.

Policy steps are required to ensure containment of wage and pension bills. Ensuring salary increases in line with inflation, maintaining a monetary stance consistent with price stability and completing the restructuring process in public institutions will be important for effective and sustainable wage bill management. Despite being the second youngest OECD country in demographic terms, Türkiye's pensions' bill as a share of GDP is equal to the OECD average. The rapidly aging population will pose a heavy financial burden on the government budget. In the short-term, strengthening monitoring and auditing systems to increase compliance with pension laws will be important. In the medium to long-term reducing informality, increasing labor force participation would help expand the premium base, increase the active passive ratio, and ease pressures on the system.

Focusing public sector efforts on social sectors, an important enabler for sustained and inclusive growth, will require more fiscal space going forward. Whilst the bulk of social expenditures goes to pensions, direct income support (e.g., social assistance and unemployment benefit system) which has been on an increasing trend, accounts for a low share of GDP relative to peers. The low coverage of unemployment insurance in Türkiye, as in other developing economies, is a drag on the effectiveness of automatic stabilizers. Cross country comparison shows that the unemployment insurance program has a low effectiveness in Türkiye.

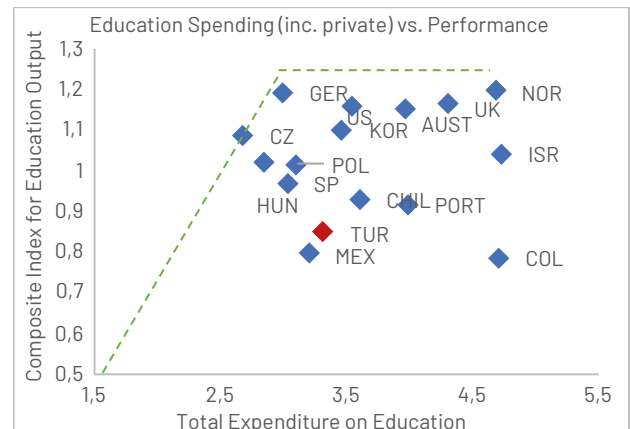
There could be some expenditure efficiency gains through decentralization. Local administrations have limited spending responsibilities. Türkiye has low level of subnational revenue and the degree of spending power is limited through regulations and transfers. While Turkish subnational authorities have some room for expansion in the short term, over the long run, as local administration capacity expands, there would likely need to be a further devolution of service responsibilities from the central to local administrations. This calls for efforts on reducing local administrations dependence on the central government and improving local revenue collection and administrative capacity.

Spending close to predicted levels



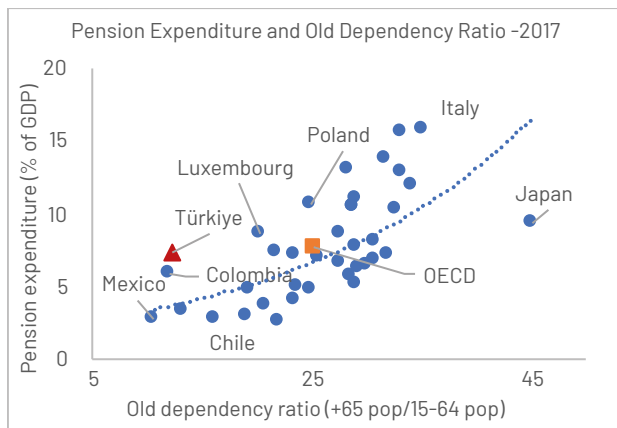
Source: World Bank WDI and IMF WEO

Scope to improve efficiency



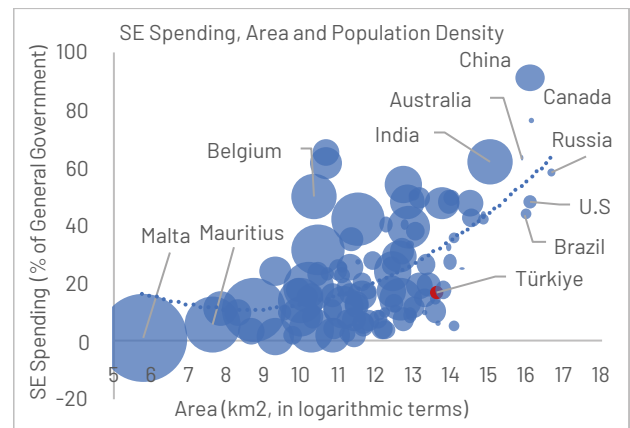
Sources: WB Staff, various sources (see chapter 3)

Big pressures from pensions



Source: WDI World Bank and OECD

Decentralization could help improve efficiency



Source: OECD and WB staff calculations

Resetting the human capital investments trajectory

Policy and performance trends: Public spending on human capital and the social sectors over past decades has played a strong role in reducing population-wide infectious disease, averting premature mortality, boosting basic literacy, and creating opportunities to allow a middle-class to emerge in Türkiye. Türkiye currently spends a significant share of GDP on social investments at approximately 16 percent using a methodology adopted for this analysis which approximates official data that reports 15.4 percent, with pensions accounting for the big bulk of social expenditures. Other big ticket social expenditures are education and health. Public education expenditures account for almost one fourth of total public social expenditures, followed a stable pattern over the last decade. Nearly 80 percent of spending finances wages and benefits of the teacher workforce, with the remainder spent on capital and other current expenditures. In terms of expenditure components, emphasis on secondary education has been decreasing while that on tertiary education has been increasing since 2013, given an increase in anticipated demand based on the Government's strategy, although most OECD countries have seen the reverse trend. Further, in line with comparable countries which have increased investment in early childhood education significantly, Türkiye aims to continue boosting a range of investments to cover gaps in early childhood learning. While expenditures such as active labor market policies, unemployment benefits, wage subsidies and social assistance expenditures account for relatively lower shares of expenditures, their expenditures have been increasing gradually.

Current challenges: Compared to most OECD countries, Türkiye's spending on education, health and active labor market programs is still relatively modest. Moreover, at an aggregate level, for its level of social expenditures, the allocative efficiency of Türkiye's spending appears lower than comparable countries. Even though Türkiye has achieved considerable gains with respect to building strong human capital foundations, human capital index and overall labor force participation rate are lower and youth unemployment is higher than expected for its level of social spending. For its level of secondary education spending, noting that the relationship between expenditure and PISA scores is complex, PISA scores are lower than other comparable countries for the same or less secondary education expenditure, in spite of the overall improvement in Türkiye's PISA scores between 2003-2018. Recently, the COVID-19 pandemic has exacerbated underlying human capital vulnerabilities in Türkiye as in most countries, calling for renewed investments and consolidating fragmented social insurance policies. Social expenditures appear increasingly less efficient at boosting outcomes due to lagging adaptation to evolving demand. As with many countries at the crux between the youth bulge and an emerging aging population, The PFR stresses three key challenges to human capital investments and jobs for recovery: equitable coverage, fiscal capacity, and, importantly, adaptability to a changing labor market.

Reform options: Going forward, adopting an integrated approach to public spending on social investments can help set a new trajectory for human capital and jobs in Türkiye. This PFR has demonstrated the limits of policy-setting within silos, whereby high youth NEET rates, high female labor force exclusion and wide regional disparities in learning and jobs persists. Key reforms come to the forefront for improving the efficiency and equity of expenditures over the short- to long-term.

Key policy areas include:

- Over the short-term, substantively increasing investment in digital and green curricula and training, particularly in key lagging regions with lower PISA scores.
- Despite adequate basic school infrastructure and the number of teachers, in line with the first aim, introducing new competency assessments and incentives for teacher training and performance to level the playing field across regions, in close cooperation with the private sector and line agencies responsible for industry, trade, agriculture, environment and others.
- Over the mid-term, strengthening investments in secondary education through dedicated job counseling and training early on to facilitate the school-to-work transition.
- Over the mid-term, expanding coverage, new mechanisms for targeting and a more strategic design of demand-driven active labor market training programs and wage subsidies to address female labor force participation, digital transformation, and green jobs.
- Over the long-term, improving coverage of the poorest households and informal workers to social security in the face of shocks through a consolidated, universal social security system, leveraging Türkiye's experience with universal health insurance and incorporating social assistance cash benefits and unemployment mechanisms within a unified, holistic social insurance system.

Increasing adequacy and coverage of social assistance

Policy and performance trends: Within the broader human capital social expenditures, social assistance in terms of non-contributory programs in Türkiye has emerged as a critical tool in supporting the most vulnerable households. The overall set of social assistance programs shows a relatively broad level of coverage across multiple in-kind and cash measures, enhanced by one of the most sophisticated information systems. Over the past two decades in particular, the government has invested in developing robust mechanisms for evaluating basic needs of the poorest groups, targeting methodology and delivery systems for information systems connecting across agencies. As a result, today Türkiye provide support, in the majority of cases in cash, to roughly 3 million discrete households. Spending on social assistance as a share of GDP increased from 0.38 percent in 2002 to 1.37 percent in 2020 but remains low compared to other countries. There are over 45 social assistance programs or schemes in Türkiye, focusing on supporting access to 5 different dimensions of wellbeing or needs: family support, housing and food, education, health,

disability and elderly and project based.. The majority of social assistance programs are poverty-targeted. During 2020-2021, the government also announced the launch of new social assistance programs, universal birth support, electricity bill support for the poor, cash transfer for families with multiple births, natural gas consumption and family support program.

Current challenges: Türkiye already has a comprehensive social assistance policy, institutional and delivery systems framework which is far more robust than found in other comparable countries. This has put Türkiye at the forefront of global knowledge exchange, including its rapid response to supporting the most vulnerable households during the COVID-19 pandemic. For the future, evolving global and domestic economic trends suggest a need for most countries to continuously innovate to meet unpredictable shocks, particularly in terms of efficiency and equity. Globally, new methods for forecasting possible scenarios of potential economic, social, demographic or climate and environmental changes are being used to evaluate future social assistance needs in terms of policy and program design, coverage, benefit level, budget, and delivery mechanisms. In Türkiye, given an already strong foundation and possible future needs, key areas that could be further enhanced include: (i) determining how best to meet the needs of vulnerable groups not currently covered by social assistance, notably cash-based programs, in coordination with other potential human capital and development policies; (ii) examining whether benefit levels of social assistance programs can be more closely calibrated to evolving economic contexts in order to ensure continuous, effective consumption smoothing for the poorest households (iii) strengthening the resilience of the social assistance system, notably cash transfers, in the face of future potential shocks to maximize its contribution to attenuating poverty and inequality, in combination with other poverty reduction strategies. While these challenges are common to most upper-middle and high-income countries, Türkiye's advantage remains its strong foundational institutional and delivery framework, which has permitted it to rapidly scale-up in the past to meet challenges and mitigate poverty impacts.

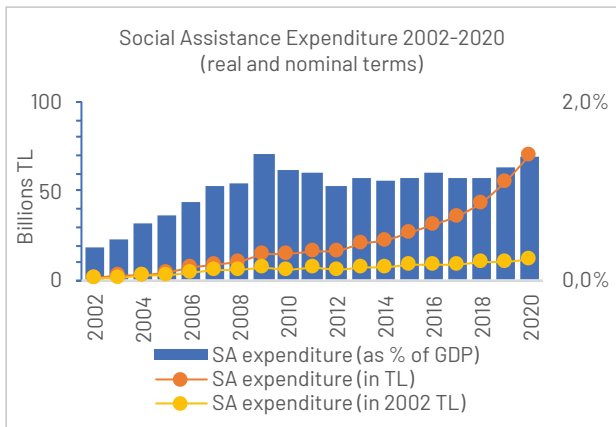
Reform options: There have been important achievements in both the program implementation and institutional fronts in social assistance system over the last two decades. Even though Türkiye performs relatively well in terms of targeting and accuracy, policy steps are required to improve the coverage and adequacy of the social assistance expenditures. The PFR highlights two main objectives in the light of detailed social assistance expenditure analysis: (i) increasing adequacy and coverage to meaningfully reduce poverty; and (ii) improving design to promote better linkages to labor market integration. Türkiye maintains to develop the social assistance system within the scope of inclusion and efficiency. In this context, Türkiye took an important step in June 2022 to launch the "Family Support Program".

Increasing coverage of the poor with adequate transfers is key to strengthen the Türkiye's SA system moving forward. The system can further promote inclusion by targeting those households that are poor but do not satisfy any categorical criteria asked by the system. Although these households are currently eligible for one-time irregular transfers, delivering regular cash transfers to those households can have positive impacts on household consumption and access to services. Among several options, two alternatives can be more suitable for Türkiye. First, a regular cash transfer program could be introduced to cover poor households that are left out of the SA system due to its categorical design. A meaningful regular cash transfer program would support those households during the time it takes to recover from income loss, i.e. job loss, health shock, natural disasters etc. The new program may also help to facilitate production capacity of those households and lead to poverty alleviation over time. The advantage of the proposed program is to have a very limited cost on management and operational systems of the Türkiye's SA. The "Family Support Program" is expected to enroll a high share of individuals that are not currently covered by the social assistance system. The Family Support Program (FSP), is designed as a means-tested income support for households, without categorical criteria (disability and old age, widow, etc.). The FSP transfer level will vary according to the per capita household income, providing higher benefits to households with lower per capita income, and assistance has already risen significantly in relation to 2021.

A program of basic income for the poor (BIP) could be a more effective approach than the current one but would require a more intensive reform of the existing system. Such program would provide periodic cash transfers to poor households to contribute to cover their basic needs and promote their exit from poverty. The program would cover all poor, and not just some demographic categories, and the transfer would be calibrated to contribute more meaningfully to basic needs. Practically all EU countries have a program of this sort.

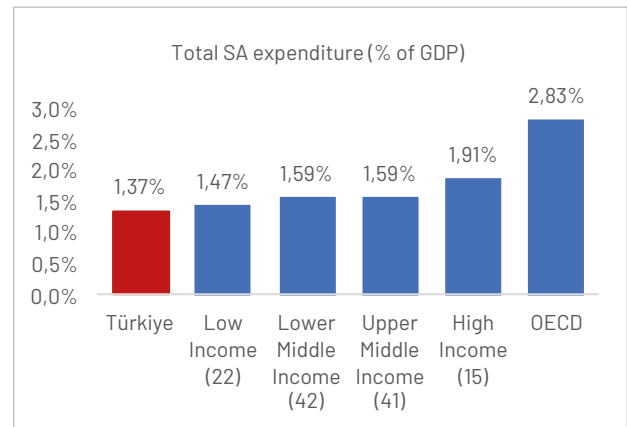
There are potential improvements to Türkiye’s existing approach for labor incentive compatibility. The first and clearest policy change to consider is to eliminate ‘working in the formal sector’ as a criterion for making households ineligible to receive social assistance benefits. Programs such as the CCT have as eligibility rule that a person cannot receive benefits if she or he has a job that is contributing to social security or for instance beneficiaries lose their CCT for health and education after one year they find a job. Another important area for potential improvement concerns the exit rules or benefit update formula. It used to be that if an individual got a formal job, he or she had to exit social assistance, that is the benefit level would be updated to zero. A less abrupt exit rule was adopted for some of the programs, keeping the benefit level at 100 percent for a year after getting a job, and reducing it to zero afterwards. This exit criterion is a secondary product of the targeting criterion. Lastly, it would be good to apply this benefit extension across all programs. Also, with an amendment made in the legislation (Law No. 3294) in 2012, needy people whose income per capita in the household is below one third of the monthly net minimum income, have been covered by the Law and it has been targeted to comply with the labor market.

Social Assistance rose significantly in monetary terms



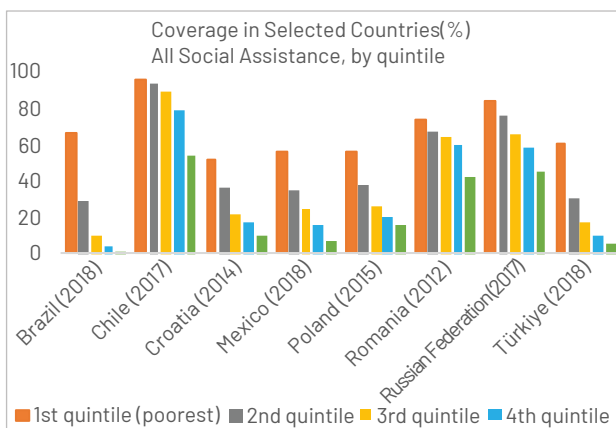
Source: MoFLS, Social Assistance Statistical Bulletin, 2016

But lags behind OECD average



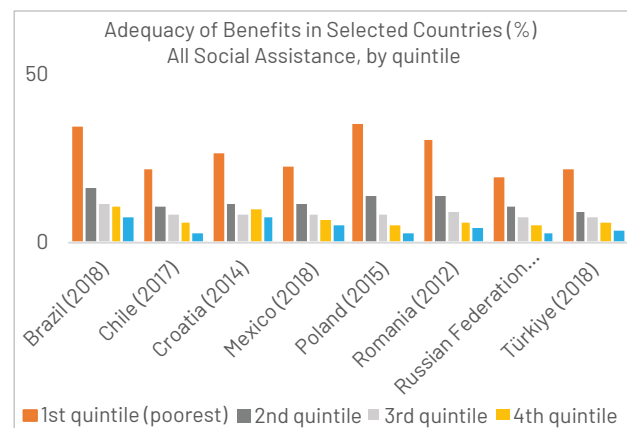
Source: The Atlas of Social Protection Indicators of Resilience and Equity, WB

Türkiye performs moderately in terms of SA coverage



Source: For Türkiye, WB satff calculations using HBS 2018. For the rest, ASPIRE database, World Bank, 2020.

Türkiye performs poorly in terms of adequacy



Green fiscal policies

Policy and performance trends: Türkiye has a carbon intensive economy, vulnerable to climate change, with implications for its economic stability and resilience. Mounting greenhouse gas emissions remain tied to the growing economy and ever-increasing energy demand. The energy sector is responsible for more than 70 percent of total emissions, with emissions in the agriculture and industrial sectors also increasing. Large energy intensive industries account for a significant share in economic growth. Even though Türkiye's share in carbon emissions is relatively small compared to the global emissions, its increase in emissions over the past decade was the largest in the OECD. While Türkiye has made some efforts for mitigation of climate change such as high level of investing on renewable energy, increasing energy efficiency and heavy taxes on vehicles, it continues to use coal. Türkiye's efforts in the transition process to low carbon economy still continue.

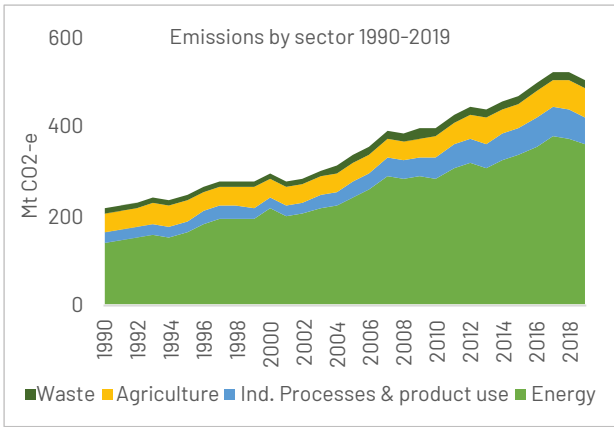
Current challenges: Türkiye is already facing an observed increase in temperatures, decrease in precipitation and an increase in the frequency and severity of extreme events. These observed impacts, and the global response to mitigation of greenhouse gas emissions, present a number of risks (physical and transition climate-related risks) to the Turkish economy. Türkiye's exposure to transition risks is increasing as the world, and particularly Europe, takes action to decarbonize their economies, which will reduce demand for fossil fuels and emissions intensive goods. The introduction of a CBAM would add a charge to certain Turkish goods exported to the EU reflective of their emissions intensity, which is important given that the EU is Türkiye's largest trading partner. The PFR highlights that Türkiye is making progress addressing climate change risks such as via its investment incentives program, which together with rich natural resources is enhancing energy security. As in most countries, Türkiye is providing incentives for the use of fossils, while aiming to put a price on carbon emissions.

Reform options: Fiscal policy can play a major role in addressing physical and transition risks and in taking advantage of the opportunities, while improving fiscal sustainability. Given the growing physical and transition climate risks in Türkiye, the PFR highlights two main green fiscal policy options in Türkiye to help promote climate risk mitigation and adaptation (i) taxing pollution including greenhouse gases (ii) removing tax exemption and subsidies encouraging use of fossil fuels.

More comprehensively taxing pollution, including greenhouse gases, will raise revenue and improve fiscal outcomes. This involves putting a carbon price on emissions from industry and energy, particularly coal and natural gas, but also addressing fossil fuel subsidies and tax exemptions that promote the use of fossil fuels. Doing so would not only improve environmental and social outcomes – reduced emissions, improved air quality, reduced road deaths, for example – but would also support broader Government objectives, increase energy security, and support industrial competitiveness. In the transport sector, revamping the motor vehicle taxes to link to vehicle efficiency, could stimulate faster turnover to cleaner vehicles – with flow on benefits for local car makers, pollution, GHG emissions and revenue from new car sales. A wider strategy, beyond the tax system, is needed to fully support EV take up.

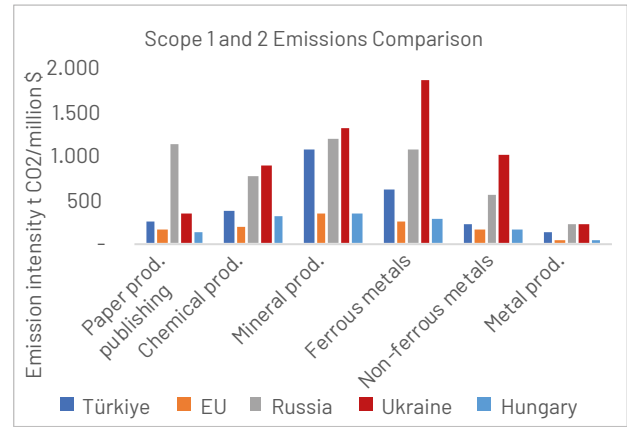
Importantly, the impacts of any fuel price increase on poorer households and businesses need to be – and can be – managed. Implementing tax reform through a staged approach (starting with a lower price and rising over time) would help, providing time for the economy to adjust while signaling the direction it needs to take. A proportion of the revenue raised could be used to compensate poorer households and to support businesses to adopt less-polluting practices and technologies. For example, CGE modelling simulations suggest that only 5 percent of the additional revenue collected from the reforms would be needed to fully offset the impact on the poorest 20 percent of households.

Energy sector accounts for 70 percent of emissions



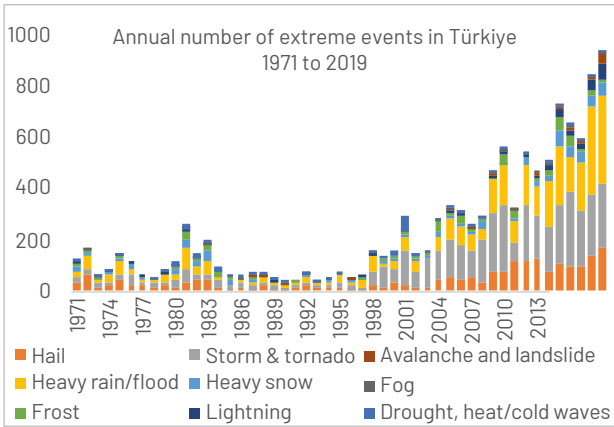
Source: Greenhouse gas emissions by sectors (CO2 equivalent), 1990 - 2018 (Türkiye Statistical Institute, 2020)

Türkiye's manufacturing industries emission intensive



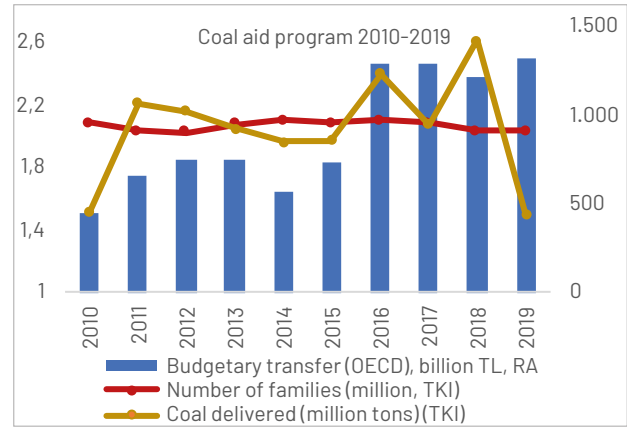
Source: World Bank staff calculations using 2014 Global Trade Analysis Project (GTAP) data

Extreme events accelerated over the last two decades



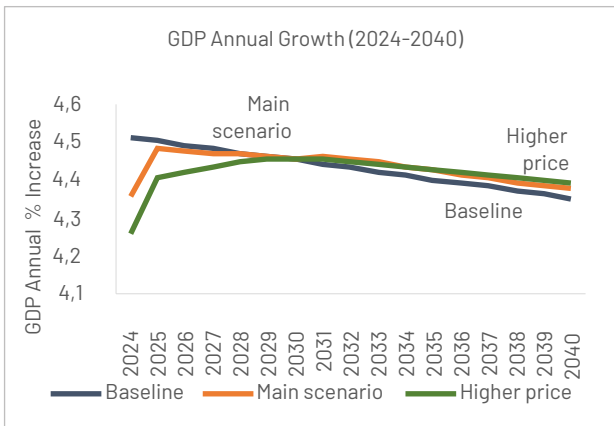
Source: Turkish State Meteorological Service, State of the Climate in Türkiye in 2019 (2020) and OECD (2019)

Coal subsidies are growing



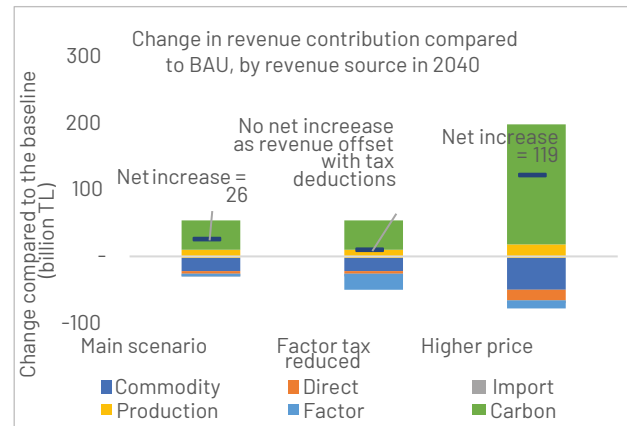
Source: UN Comtrade data from World Integrated Trade Solution data

Simulations suggesting a higher growth in the long term with introduction of decarbonizing reforms



Source: WB staff calculations

With higher net increase in tax revenue under high carbon price scenario



I. Macro-fiscal developments and outlook: A just adjustment⁵ |

Türkiye's Medium-Term Program is an opportunity to set out a macro-fiscal strategy for recovery from COVID-19 and for course correction. The objective of this chapter is to help inform such a strategy. It assesses how fiscal aggregates could evolve under different economic scenarios, the implications for debt sustainability, and the sources of fiscal risks. It considers fiscal adjustment paths, which need to balance short-term health and social assistance needs with fiscal sustainability targets and a sound fiscal-monetary policy mix for a sustainable recovery. A macro-fiscal strategy underpinned by credible assumptions and targets can play a critical role – especially if communicated transparently – in enhancing market confidence at a time of large government financing needs.

The medium-term fiscal strategy should be informed by an analysis of fiscal trends that help understand the effectiveness of past fiscal policy choices. The chapter therefore starts with a backward look at specific aspects of macro-fiscal trends over the past 15-20 years, including: the evolution and drivers of debt burden; the efficiency of government revenue collection; the cyclical nature of government expenditure; and the impact of fiscal policy on growth. These are analyzed from a macroeconomic perspective – more detailed analysis of revenue and expenditure issues appears in subsequent chapters. The objective of the macro-fiscal trend analysis here is to help develop more informed and realistic forward estimates for the macro-fiscal strategy in the second part of the chapter.

A. Macro-fiscal developments and trends

Low government debt but deterioration in macro policy framework has raised financing costs

Türkiye has been among a group of Upper-Middle Income Countries (UMICs) that have experienced a sustained reduction in government debt to GDP since the Global Financial Crisis. Across 17 non commodity dependent UMICs (divided into low, medium, and high debt categories),⁶ Türkiye had among the lowest levels of government debt thanks to strong growth and primary balances between 2010-2017 (Figures 1 and 2). Government debt reached a long-term low in 2016 (28 percent of GDP), which afforded fiscal space to respond to a series of shocks in the ensuing period (2016 failed coup attempt; 2018 currency turbulence; 2020 COVID). The resulting fiscal expansion led to a rise in public debt to GDP in 2017-2019 (32 percent of GDP), and an uptick since the COVID shock in 2020 (40 percent of GDP).

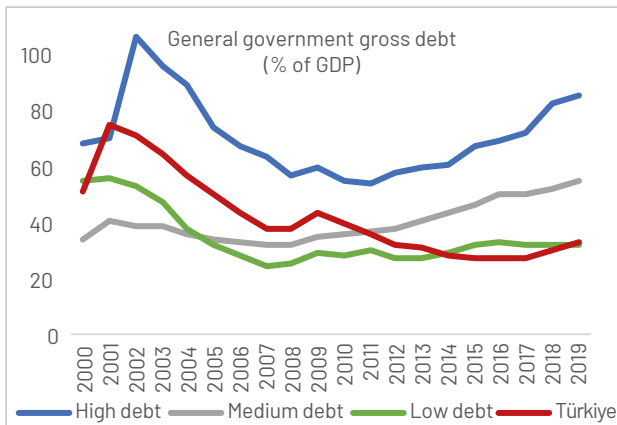
Strong growth helped reduce Türkiye's government debt burden in 2010-2017. Very low interest-growth differentials (Figure 3) contributed to positive government debt dynamics. Government spending to GDP in 2010-2017 declined relative to its long-term trend (Figure 4) whilst the private credit to GDP ratio accelerated rapidly above its long-term trend. Relative to other countries with low government debt, Türkiye since 2010 has experienced both a large drop in government debt and a big increase in private sector debt (Figure 5). Private credit growth was driven by debt creating capital inflows (Figure 6) attracted by Türkiye's robust financial system, strong growth dynamics, and large credit impulse.

Despite low debt burden, sovereign risk premia have increased due to macroeconomic conditions since 2017. Türkiye's private credit-fueled growth has come at the cost of high inflation (Figure 7) and sharp currency depreciation. Whilst inflation helps erode the value of real Lira-denominated debt and lower the debt to GDP ratio through higher nominal output; it also leads to higher interest costs, which narrow fiscal space, and further currency depreciation. Perceptions of macro-fiscal risks have increased (Figure 8) whilst sovereign credit ratings have declined, despite the low public debt burden.

⁵ The analysis in the Public Finance Review is based on data up to March 2021. Subsequent data releases have not fed into the analysis. The conclusions and recommendations of the PFR therefore need to be read and interpreted with this qualification.

⁶ Out of a list of 55 UMICs, the following were excluded: (i) 14 commodity dependent economies (according to UNCTAD: [state-commodity-dependence-2019](#)); and (ii) 24 small or small island states, which tend to have less diversified economies. The remaining 17 were divided into three tiers according to the low, medium and, high general government debt to GDP ratios.

Figure 1: Sustained decline in debt since GFC



Sources: Kose et al (2017), WB Staff estimates. Notes: High debt: Argentina, Brazil, Jordan; medium debt: China, Ecuador, Malaysia, Mexico, South Africa; low debt: Georgia, Belarus, Thailand, Türkiye, Indonesia, Guatemala, Paraguay, Bulgaria.

Figure 2: Supported by strong primary balances

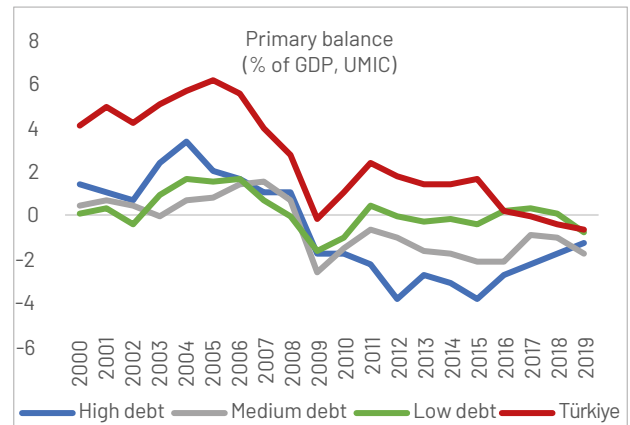
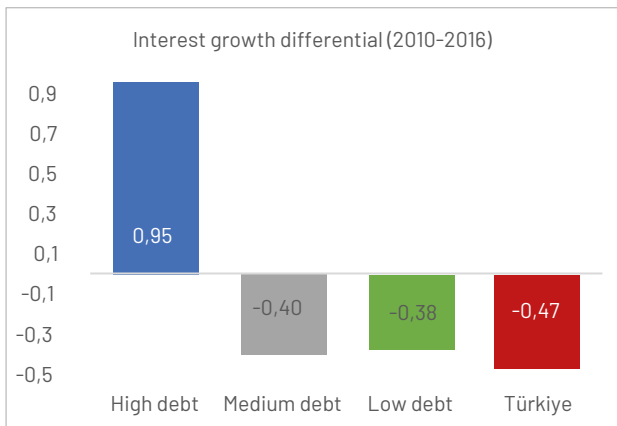
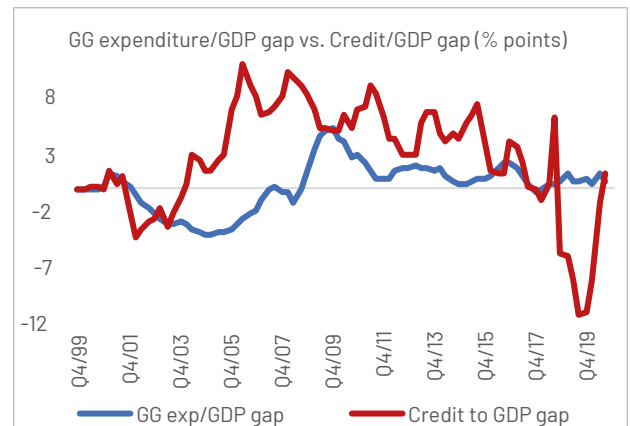


Figure 3: And low interest-growth differential



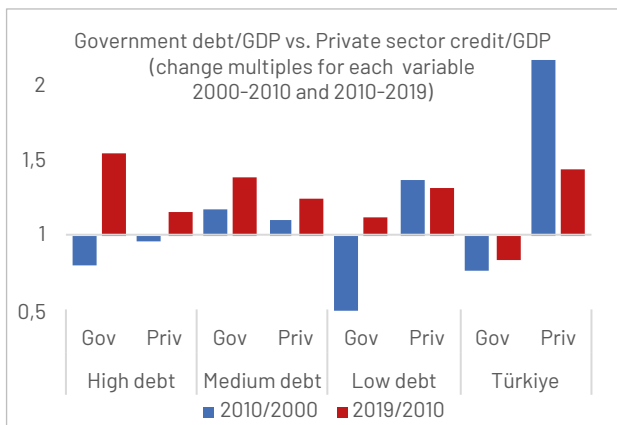
Sources: Haver Analytics, WB Staff estimates
Notes: Interest growth differential = $(r-g)/(1+g)$, where r is the ratio of interest payments over the debt of the previous period and g is nominal growth. Data for some countries is not available or incomplete.

Figure 4: Rapid growth in private credit



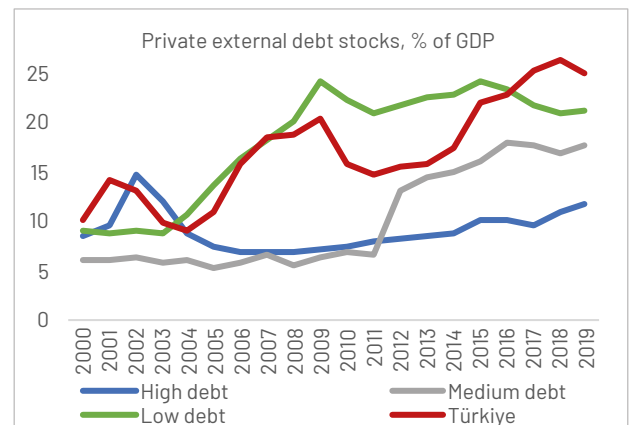
Sources: Haver Analytics, WB Staff estimates
Notes: The difference between the credit-to-GDP ratio and its long-term trend; in percentage points. The long-term trend is calculated using a one-sided Hodrick-Prescott filter with a lambda of 400,000.

Figure 5: Leading to rise in private sector debt



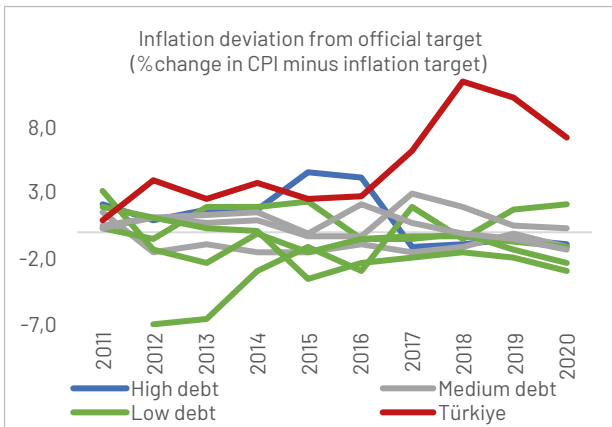
Sources: Haver Analytics, WB Staff estimates

Figure 6: Fueled by debt creating capital inflows



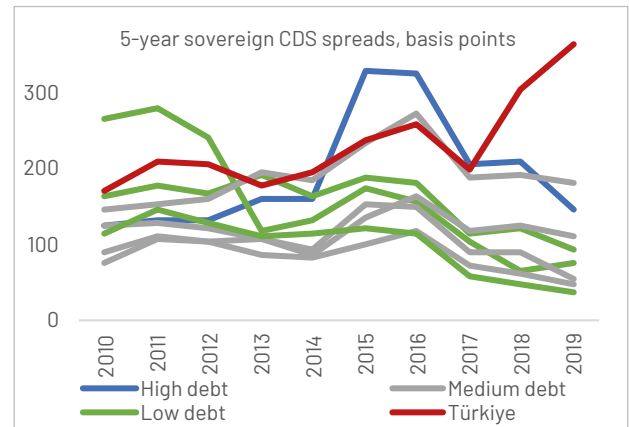
Sources: Kose et al. (2017), WB Staff estimates

Figure 7: Macro policy inconsistencies fuel inflation



Sources: Haver Analytics, WB Staff estimates

Figure 8: And raise perceptions of risk



Source: Kose et al. (2017)

Challenging macroeconomic environment has contributed to higher domestic borrowing costs for the government. Türkiye’s nominal cost of borrowing has risen sharply in 2013-2019; 10-year domestic bond yields rose from 6.5 percent in early 2013 to 21 percent by the end of 2018, while sovereign spreads followed a similar pattern (Figure 9). Therefore, despite low government debt, the interest burden as a share of GDP in Türkiye is relatively high (Figure 10). Domestic bond yields are highly correlated with inflation expectations (Figure 9). The relationship has weakened during the COVID-19 shock due to the massive injection of liquidity and other policies to help reduce the cost of domestic borrowing.⁷

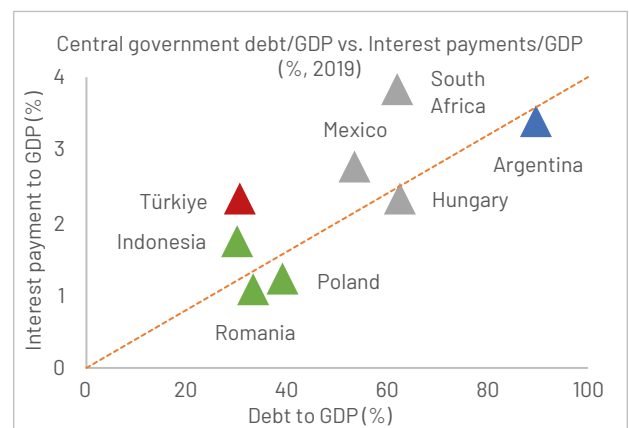
The share of FX denominated debt in total government debt has also increased, raising currency risk and external financing costs. The share of FX denominated government debt has risen from 35 percent in 2015 to around 56 percent in 2020, with an escalation in gross financing needs since 2018. The share of external debt in total government debt in 2019 is around 43 percent (Figure 11), whilst the share of FX denominated domestic debt is a further 12 percent. Emerging Market Bond Index spreads for Türkiye in late 2020 were higher than middling debt countries like South Africa and Mexico and above the EMBI global average (Figure 12). Moreover, the Lira has fallen to half its value since early 2018, which further adds to FX debt servicing costs.

Figure 9: Bond yields rose sharply with inflation expectations in 2017-2020



Source: Haver Analytics

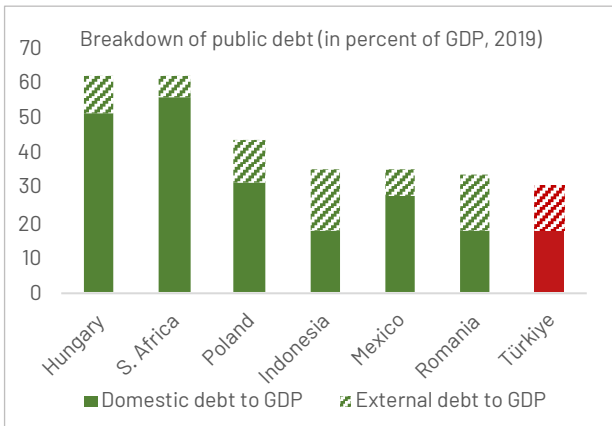
Figure 10: Despite low debt, interest payments in Türkiye are elevated



Sources: Haver Analytics, OECD

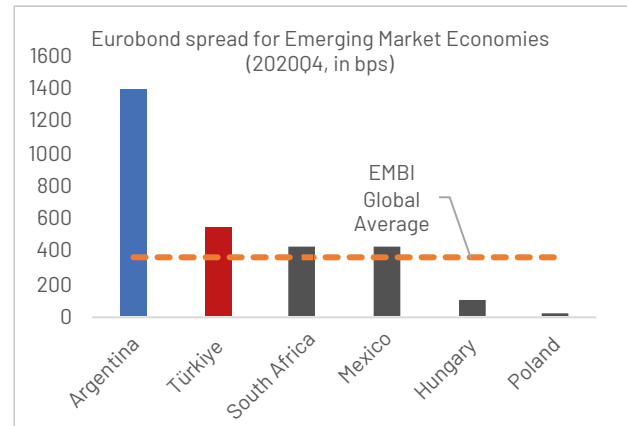
⁷ See “WBG TEM (August 2020) Adjusting the Sails”

Figure 11: Türkiye has relatively high share of external debt



Source: Haver Analytics

Figure 12: Eurobond spreads for Türkiye are exceptionally high

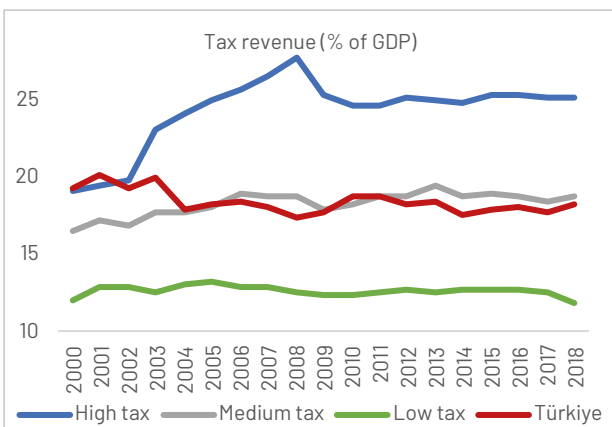


Sources: JP Morgan, Haver Analytics

Tax to GDP comparable to other UMICs, but tax effort and buoyancy are falling

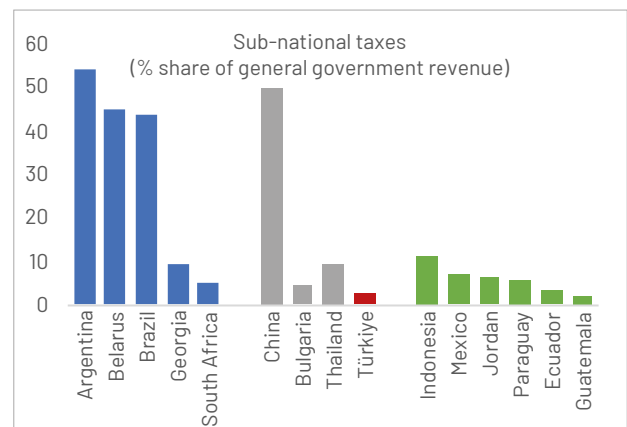
Türkiye's tax to GDP compares reasonably well relative to other UMICs, with some differences driven by the source of tax collections. Across the same 17 UMICs as in the debt section above (divided into low, medium, and high tax to GDP tiers), Türkiye's tax to GDP ratio (18 percent average p.a. 2010-2018) falls within the middle tier of peer countries (Figure 13).⁸ Some of the gap in tax to GDP between middle and upper-tier countries is driven by the level of sub-national taxes (Figure 14); countries in the upper tier, particularly those with federal or state structures, have a much higher share of sub-national taxes compared to medium and low tax to GDP UMICs.⁹ For Türkiye, a unitary and centralized state, sub-national tax in total taxes is below the average for those in the second tier, which is discussed further in chapters 2 and 3.

Figure 13: Türkiye has medium tax/GDP relative to its peers



Sources: UNU Wider Government Revenue Dataset, WB Staff estimates.
 Notes: High tax: Argentina, Belarus, Brazil, Georgia, South Africa; Medium tax: Bulgaria, China, Thailand, Türkiye; Low tax: Ecuador, Guatemala, Indonesia, Jordan, Lebanon, Malaysia, Mexico, Paraguay

Figure 14: Top tier tax/GDP countries have relatively large sub-national tax shares



Sources: World Observatory of Subnational Government Finance and Investment

⁸ UMICs divided into three tiers: high, medium, and low tax to GDP. Tax figures are: (i) general government, except for buoyancy estimates, which are based on central government taxes; and (ii) are exclusive of social security payments.

⁹ [World Observatory of Subnational Government Finance and Investment](https://www.widener.edu/research/world-observatory-of-subnational-government-finance-and-investment/)

Another important difference between mid-tier tax to GDP UMICs like Türkiye and upper-tier countries is the composition of taxes. Middle tax UMICs' share of indirect taxes is larger (60 percent) compared to high tax countries (45 percent) (Figure 15). High tax UMICs tend to rely more heavily on income taxes (45 percent) relative to Türkiye and other middle tax countries (33 percent). Progressive income taxes can strengthen automatic stabilizers and buoyancy, discussed below, by helping to smooth households' tax liability over the business cycle.⁸ Whilst consumption taxes are regressive, they are also easier to collect and the receipts can be used to expand targeted transfers and social expenditures, which supports redistribution; therefore a higher share of consumption taxes does not necessarily imply increased inequality.⁹

Though Türkiye collects less income tax overall than high tax to GDP UMICs, its share of labor taxes within income taxes is high. The share of PIT inclusive of social contributions accounts for around 87 percent of income tax collections (compared to 78 percent for high tax, 71 percent for medium tax, and 30 percent for low tax UMICs) (Figure 16).¹⁰ This could support the automatic stabilizer as noted. Yet, a high labor tax burden creates some challenges. As discussed further in chapter 2, the high labor tax wedge in Türkiye¹¹ makes it more difficult to create formal employment because of relatively high labor costs; this can be more challenging still during recovery from shocks because of economic uncertainty. The labor tax wedge encourages under the declaration of incomes and informality (see chapter 2).

Türkiye has scope to increase its tax effort, which has been on a declining trend. The tax effort, also referred to as the efficiency of tax collection, is estimated using stochastic frontier analysis in chapter 2. The SFA assesses Türkiye's collection performance relative to other countries based upon certain macro-structural characteristics that could influence revenue collection efficiency (i.e. income levels, non-agriculture share of economy, urban population, age dependency, openness to trade, and informality). Based on this, Türkiye's tax efficiency score is below that of peers. Tax efficiency has also been on a declining trend since 2010; in other words, the gap between what is collected and potential tax collections (given Türkiye's macro-structural characteristics) has grown. This could be due to a mix of tax compliance challenges and discretionary policies, which have increased over time (chapter 2). Either way, increased revenue effort could help Türkiye smooth its intertemporal budget constraint, as discussed in the next chapter.

Consistent with a declining tax effort, there is also potential to improve tax buoyancy, and the responsiveness of tax to GDP. Though long-run tax buoyancy has been close to 1 in 2010–2018, since 2018 it has fallen below this threshold (Figure 17). Tax buoyancy differs across individual tax instruments. Most recently, whilst direct tax buoyancy has kept up, perhaps due to the progressivity of personal income taxes, that of indirect taxes has fallen. The latter is due to an unusually sharp slowdown in overall private consumption since 2018, which, except for durable consumption, tends to stay resilient during shocks (as in 2008–2009). It is also due to growing consumption tax breaks; as discussed in chapter 2, the authorities have resorted to more VAT exemptions since 2018 to stimulate private consumption.

In line with declining tax effort and buoyancy, revenue has rebounded more slowly in recent shocks compared to earlier downturns. Data from past crises indicate that tax revenues rebounded more sharply in the 2001–2002 and 2008–2009 shocks than the more recent one of 2018–2019 (Figure 18), which is also related to the lack of strong recovery post-2018. Though direct taxes have been more buoyant than indirect ones in recent times, indirect taxes are expected to rebound quickly due to pent-up private consumption demand. This was evident in 2020, when overall revenue exceeded the budget by 6 percent, with two-thirds of the additional revenue coming from indirect taxes whilst direct taxes declined by 0.4 percent of GDP.

These trends reassert the need to restore macroeconomic stability, which is critical to the tax effort and buoyancy.¹² Tax relief or incentives seek to compensate investors for macroeconomic costs including price pressures and currency volatility. But, in the absence of macroeconomic stability, tax giveaways are a net long-term cost to the economy. They erode fiscal space, fuel higher debt, and do not generate incremental investment. Macro instability can also lead to falling tax compliance and increased tax evasion. A macro policy framework that anchors expectations around stability can create a virtuous cycle of high impact tax incentives and improved tax efficiency.

⁸ With a progressive income tax system, household income tends to fall (increase) relatively less during downturns (upturns), which can help smooth consumption. Similarly, corporate profits can fall more quickly than corporate revenue during downturns, leading to a sharp drop in tax payments compared to revenue, enabling sustained operations and employment.

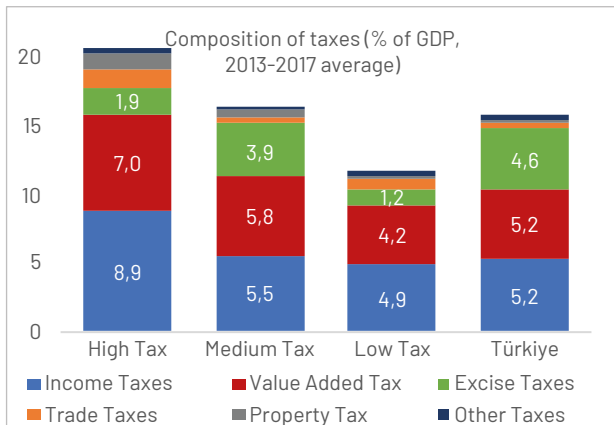
⁹ See Cuevas, P, Facundo; Lucchetti, Leonardo; Nebiler, Metin. 2020. What Are the Poverty and Inequality Impacts of Fiscal Policy in Türkiye? Policy Research Working Paper No. 9300. World Bank

¹⁰ The data in figure 13 includes PIT without social contributions, whereas in figure 14 social contributions are included to illustrate burden of labor taxes

¹¹ [OECD - tax wedge indicator](#): "The tax wedge is defined as the ratio between the amount of taxes paid by an average single worker (a single person at 100% of average earnings) without children and the corresponding total labor cost for the employer. The average tax wedge measures the extent to which tax on labor income discourages employment. This indicator is measured in percentage of labor cost."

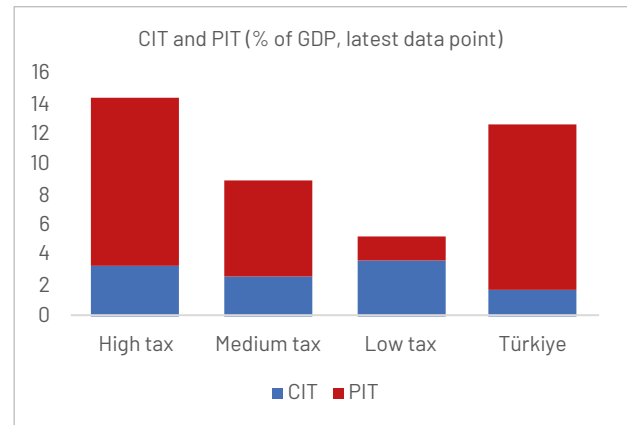
¹² Dudine, P and Tovar JJ (Jan 2017), "How Buoyant is the Tax System? New Evidence from a Large Heterogeneous Panel," IMF WP

Figure 15: Türkiye is relatively more dependent on indirect taxes



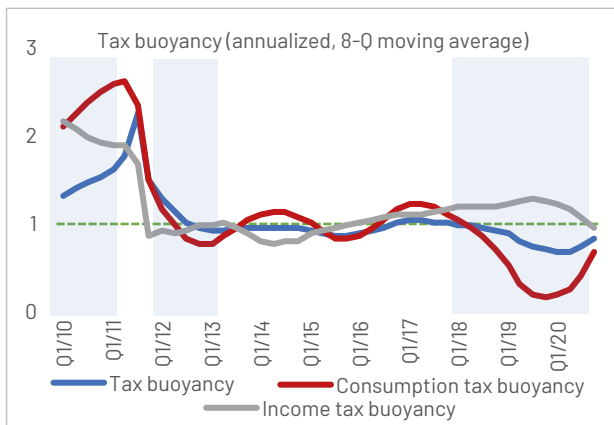
Sources: UNU Wider Government Revenue Dataset.
Notes: Income taxes include CIT and PIT, excluding social contributions

Figure 16: Within income taxes, Türkiye relies more heavily on PIT than CIT



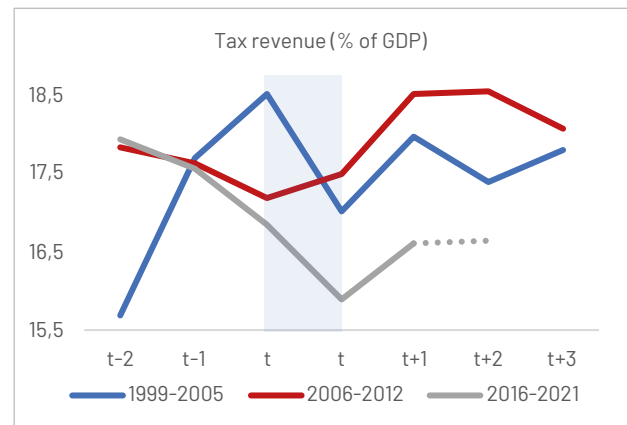
Sources: Wider Government Revenue Dataset
Notes: PIT includes social contributions

Figure 17: Tax buoyancy has also declined



Source: UNU Wider Government Revenue Dataset, WB Staff estimates

Figure 18: Contributing to a slower tax rebound from the shock



Sources: Haver Analytics, WB Staff estimates

Macro instability increases demands on countercyclical expenditure

Government expenditure in Türkiye has been somewhat countercyclical around a low average deficit, which has helped maintain a low government debt burden. Procyclical policies can lead to a spiraling of debt through depletion of savings in high growth periods and increased borrowing during low growth periods (Box 1). With procyclical policies, deficits incurred during downturns are not compensated by surpluses during upturns, which leads to higher debt. Total government expenditure in Türkiye has been slightly countercyclical (Figure 19).¹³ This has helped to maintain low government debt also because of countercyclicity around a low average budget deficit. High volatility in the Turkish business cycle is driven by procyclical credit to the private sector, which loops back to the rapid accumulation of private sector debt discussed above and Türkiye’s large private savings-investment gap.¹⁴

The ability of fiscal policy to smooth the impact of the business cycle is driven to some extent by the countercyclicity of public transfers.¹⁵ Transfers form a large share of general government spending (45 percent on average p.a. over the past five years). Unlike many developing economies, current transfer expenditures are highly countercyclical (statistically significant) in Türkiye (Figure 19),

¹³ Carneiro and Garrido (2015) found that Türkiye exhibits procyclical fiscal policies in booms and countercyclical fiscal policies in downturns based on aggregate public expenditures. Türkiye is estimated to have graduated from fiscal policy pro-cyclicality in 2000-2009 period compared to previous periods. Similar result was reported by Farenkel et al. (2013). They also found evidence that institutional quality is an important determinant of a country’s fiscal stance (subject to certain conditions).

¹⁴ Procyclicality of private sector credit and a large savings-investment gap are longstanding structural features of Türkiye’s economy, which are discussed in other reports including “WBG TEM (May 2018) - Minding the External Gap” and “WBG CEM (June 2019) - Firm Productivity and Economic Growth in Türkiye”

working as automatic stabilizers. This can have an important impact on short-term growth as discussed in the next section on fiscal multipliers. Recent studies (e.g. Galeano et al. 2020) find that whilst transfer spending is countercyclical in industrial countries, they tend to be procyclical in developing countries due to the procyclicality of social security spending. Countercyclical transfers are therefore an important and positive feature of macro-fiscal policy in Türkiye, notwithstanding the targeting, adequacy, and coverage of those transfers (chapters 3, 4, 5).

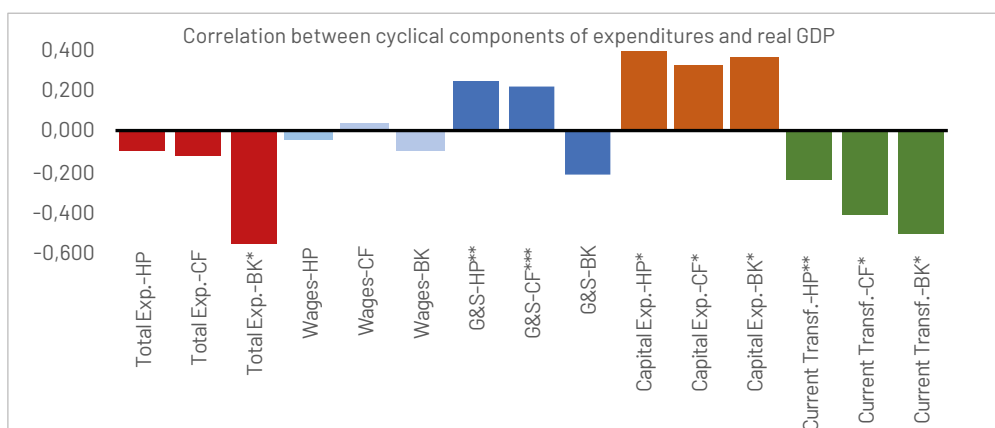
Box 1: Cyclicity of fiscal policy in developing countries

Procyclical fiscal policy is a common feature of developing countries. Several studies have shown that fiscal policy tends to be countercyclical in advanced countries and procyclical in developing countries.¹⁶ Developing countries tend to push government expenditures in the same direction as the business cycle, which can exacerbate growth volatility. Countercyclicality of fiscal policy is important to help respond to downturns through support to vulnerable households, demand stimulus, and an adequate fiscal-monetary policy mix. Countercyclical fiscal policies enable saving in good times to spend in bad times, which can help smooth the business cycle.

Several factors contribute to the procyclicality of fiscal policy in developing countries. The most cited drivers are political economy pressures for spending in good times, a lack of access to international credit markets, and shallow domestic financial markets.¹⁷ In good times, the combination of plentiful tax revenues and relatively cheap access to international credit causes fiscal authorities to engage in spending binges (Vegh et al., 2017).

Procyclicality has tended to be more pervasive in developing countries that have more volatile tax bases,¹⁸ higher corruption and weak institutions. There is evidence that fiscal rules and fiscal responsibility rules seem to enhance countercyclical fiscal policy. However, the design of the rules including flexibility and rule type matter (Guerguil et al., 2017).

Figure 19: Countercyclical transfers and procyclical capital spending



Source: Haver Analytics, WB Staff estimates.

Notes: A positive (negative) correlation indicates procyclical (countercyclical) spending. *, ** and *** indicate statistically significant at the 5%, 10% and 15%, respectively. For HP filter and CF filters, the analysis covers 2009:Q1-2020Q2. For BK filter due to lags and leads requirements, some observations are lost. The period is 2009:1-2017:2 for BK filtering.

¹⁵ To assess the cyclicity of expenditure components of central government budget, three alternative filtering methods, namely Hodrick Prescott (HP) filter, Christiano Fitzgerald (CF) filter and Baxter King (BK) are used for decomposition of trend and cycle of the series and correlation coefficients of cyclical components are estimated. The data is seasonally adjusted and deflated by GDP deflators, covering the period of 2009:1-2020:2 on a quarterly basis. Each series is decomposed into cycle and trend by 3 filtering methods and the cyclical component is standardized by dividing cycle to its trend value. The correlations between cyclical components of expenditures and GDP by using Spearman rank correlation are presented in Figure 15. Most of the data do not have normal distribution. Thus, for correlation rather than Pearson, Spearman rank order is preferred as it does not require normality assumption.

¹⁶ Kaminsky, Reinhart, and Vegh (2004) defined the procyclicality as “when it rains, it pours” phenomenon.

¹⁷ Riascos and Vegh (2003) stressed that limited financial dept and homogeneity in the type of financial assets hinders the implementation of countercyclical fiscal policy.

¹⁸ Talvi and Végh (2005) found that tax base volatility has been associated with procyclical biases.

Capital spending, on the other hand, has been highly procyclical, which is in part due to structural factors such as the procyclicality of long-term external finance. Access to external finance, which is an important source of capital expenditure due to limits on domestic savings, tends to ease during upswings, when credit ratings also tend to be better. This encourages governments to borrow for capital investment during high growth periods. There seems to be a strong correlation between the cyclical components of government capital spending and borrowing costs (both commercial and government) in Türkiye (Figure 20). The latter shows that when interest rates are above (below) their trend value, real capital expenditure is below (above) its trend value. This signals that borrowing constraints could force a tightening of capital expenditure during economic downturns.

The procyclical trend of capital spending is exacerbated by discretionary cuts, which have become deeper over time, during downturns. Capital expenditure is politically easier to cut than recurrent expenditure during downturns (Ardanaz and Izquierdo, 2017).¹⁹ But, well-targeted and managed capital expenditure has significant payoffs for long-term growth as discussed in the next section on fiscal multipliers. In all downturns (2001, 2009 and 2018), capital spending was cut most sharply in Türkiye. Those cuts were deeper in the most recent shocks (Figure 21). Though at the same time, Türkiye's Public Private Partnerships (PPP) portfolio is among the largest of any UMIC. PPPs have come to play a big role in infrastructure investments and compensated some of the decline in public capital spending

Finally, procyclical public consumption (i.e., which excludes public transfers) adds upward pressure on the cyclicity of total spending. Public consumption accounts for a significant share of total spending (45 percent on average p.a. over the past five years). Economic upswings are associated with increases in public consumption, which is in line with findings from other developing countries. Within public consumption, compensation of employees does not vary with the business cycle. Rather, it is more closely associated with political cycles and inflation trends. A simple decomposition into public employment and average real growth rate of wages per employment suggests that employment growth was the bigger driver of the government sector wage bill. Goods and services expenditures on the other hand are highly procyclical and drive the procyclicality of public consumption.

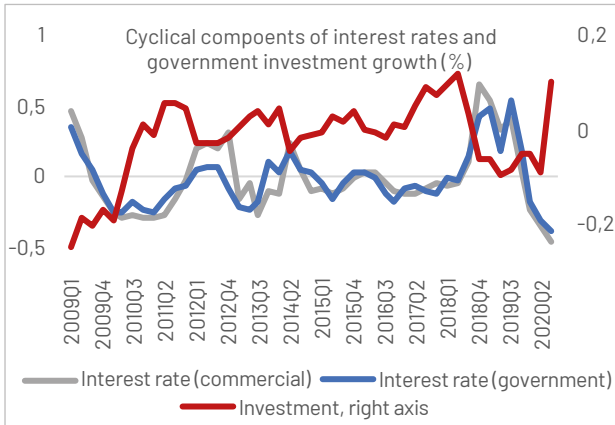
Results of the cyclicity of spending are consistent with spending adjustment paths in recent crises, which provide some pointers for the possible spending adjustment path out of COVID-19. Data from two recent shocks (2008-2009, 2018-2019) illustrates that though total spending as a share of GDP does adjust down after an initial spike in the middle of the crisis, it tends to remain between 2-3 percentage points of GDP higher than prior to the shock (Figure 22). Public consumption does accelerate post-shock (Figure 23), but what contributes most to the stickiness in post-shock expenditures is the increase in public transfers (Figure 24); they have increased by between 1-2 percentage points of GDP in recent downturns. Though this may in part reflect improved coverage of social transfers, what is of concern is the sharp downward adjustment to capital spending (Figure 25).

These trends also point to the need to adjust Türkiye's macro policy framework. Overly expansionary monetary policy²⁰ and highly procyclical private sector credit have pressured fiscal policy to provide larger countercyclical support to help smooth increasingly volatile business cycles. These pressures are evident both on the tax side – with an increasing need for tax relief that in turn reduces tax efficiency as discussed above – and on the expenditure side with large increases in public transfers mirrored by deep cuts in capital spending. Volatility in the business cycle has also been due to large exogenous shocks. But balanced and coordinated fiscal policy and monetary policy responses are essential so as not to exacerbate macro instability that subsequently erodes policy buffers.

¹⁹ Ardanaz and Izquierdo (2017) examined the reaction of government expenditures to business cycles across a large panel of emerging and developing countries. They found that economic upswings are associated with real current spending increases, and downswings are accompanied by reductions in real public investment spending for developing economies. This behavior is absent in developed countries. They also identified a new determinant of asymmetrical fiscal responses: a look at the length of time policymakers had left of their term before the next election revealed that asymmetrical response is more pronounced in countries where incumbent politicians face shorter time horizons and weak institutions.

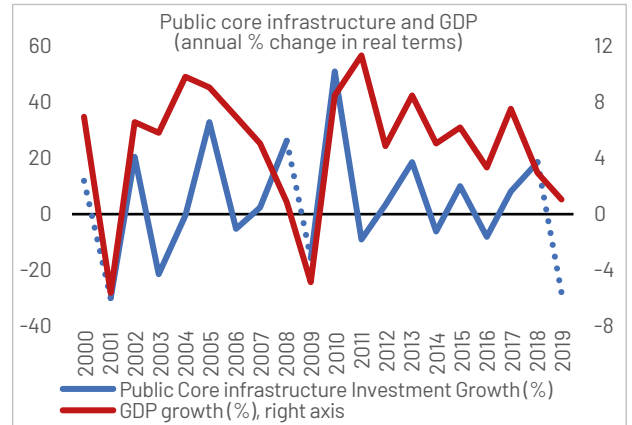
²⁰ Please see "WBG TEM (August 2019) - Adjusting the Sails" and "WBG TEM (April 2020) - Navigating the Waves"

Figure 20: Negative link between borrowing cost and public investment



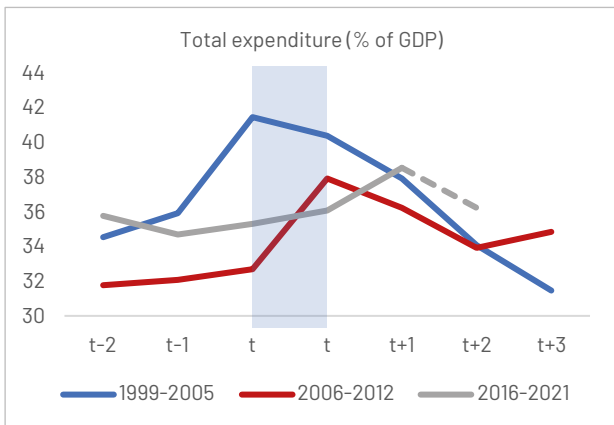
Source: Haver Analytics, WB Staff estimates
 Notes: Gross fixed capital investments are in real terms and seasonally adjusted. Commercial interest rates are nominal weighted average interest rates for bank loans and interest rates for government are the domestic cost of borrowing.

Figure 21: Forcing large capital adjustments during downturns



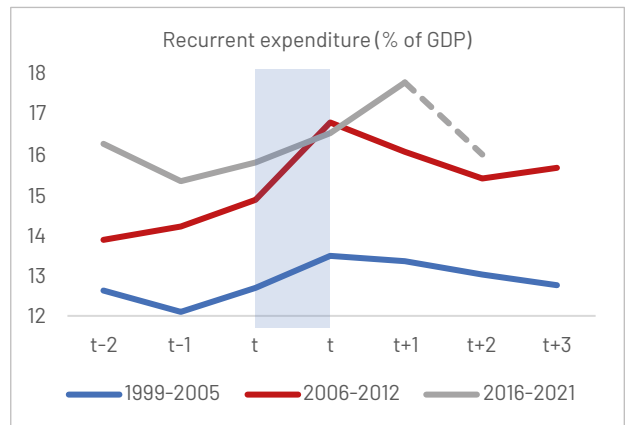
Source: Haver Analytics, Presidency of Strategy and Budget Office, WB Staff Estimates

Figure 22: Expenditure remains above pre-shock levels



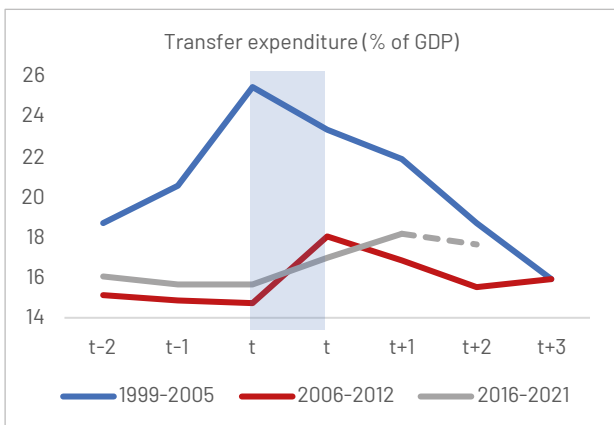
Sources: Presidency of Strategy and Budget Office, WB Staff estimates

Figure 23: In small part due to rising public consumption



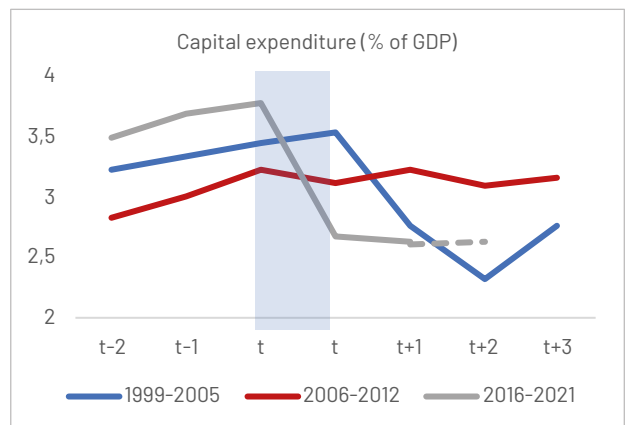
Sources: Presidency of Strategy and Budget Office, WB Staff estimates

Figure 24: But mostly due to transfers



Sources: Presidency of Strategy and Budget Office, WB Staff estimates

Figure 25: Requiring increasingly large capital cuts



Sources: Presidency of Strategy and Budget Office, WB Staff estimates

Strong short-term fiscal multipliers but weakening long-term multipliers

The impact of government spending on growth in Türkiye varies across time depending on prevailing economic conditions, which is consistent with the literature on fiscal multipliers. The size of the fiscal multiplier over the short to long-term can depend on, among other things: (i) the stage of the business cycle (Baum and Koester 2011, Auerbach and Gorodnichenko 2012, 2013, 2014 and Arin, Koray and Spagnolo 2015); (ii) structural factors such as trade openness, debt level and the exchange rate regime (Box 2); and (iii) the composition of spending.

Box 2: Research on the fiscal multiplier effect in Türkiye

Several studies have estimated the size of fiscal multipliers in Türkiye using vector autoregression (VAR) models. Cebi (2010) used a three-variable structural VAR model to estimate the size of government spending and revenue multiplier for 1987–2015 using quarterly data. He found that the government spending multiplier is less than one. Cebi (2017) estimated the size of the government spending multiplier by using a four-variable VAR model for the 2002–2014 period with reference to quarterly data. The results show that the fiscal multiplier reaches a peak value of 1.5 in the second quarter and then starts to decline; results show that government investment expenditures have a profound impact on output in the first few quarters compared to consumption expenditures. However, there is no evidence that the multiplier effect of government investment is higher than government consumption at the end of the first year.

Cebi and Ozdemir (2016) analyzed the cyclical variation of fiscal multipliers for the period of 1990–2015 by using Jorda's (2005) local projection model. The results suggest that the multiplier effects of government spending in low growth periods are considerably higher than in high growth periods. While the size of the public consumption multiplier exceeds 3 (maximum of cumulative multiplier) at times of low growth, it falls below one on impact and turn into a negative value at the end of the first year during the high growth regime. This suggests that public consumption can effectively boost growth in downturns rather than during upturns in Türkiye. The investment multiplier was found to be higher than the government consumption multiplier both in low and high growth periods.

Sen and Ayse (2017) estimated the size of fiscal multipliers for the period of 2002–2016 on a quarterly basis by employing the SVAR methodology. The results show that the size of the multiplier ranges from -0.83 to -0.27 for taxes; and from 0.02 to 0.98 for government spending. The government spending (both consumption and investment) multiplier was found to be 0.98, whilst the transfer payments multiplier was 0.02.

Public transfers have had a positive and significant impact in supporting recovery from shocks, though the effects fade within 1-2 years. Transfers can partially help to offset the fall in consumption from a loss in labor income. This can be effective in boosting short-term demand, especially as households at the lower end of the income distribution depend most on labor income, have a high propensity to consume, and have been the most adversely impacted by recent shocks (2016, 2018, and 2020). Results from econometric analysis show that a one percent increase in transfers can lead to a 0.3–0.5 percent rise in GDP, peaking at the end of the first year and fading thereafter. The impact is even higher (0.5–0.6) during negative shocks (Figure 26, Annex I.B). A similar result is achieved from an annual macro-structural model.²¹

The short-term multiplier effects of transfers are weighed down by the higher borrowing costs discussed above. Recent research shows that fiscal imbalances can impact fiscal multipliers through two channels:²² (i) the Ricardian channel, whereby a stimulus on the back of a weak fiscal position lead agents to scale back consumption and investment in the expectation that

²¹ TURMod is a macrostructural model. It builds out various interactions between fiscal and monetary policy, economic aggregates such as labor, GDP, the current account balance and prices and the supply of the economy in terms of potential GDP via capital stocks and structural employment. TURMod is a customization of MFMod (the WB Macro Model) for Türkiye.

²² Huidrom, R; Kose, MA; Lim, JJ; Ohnsorge, FL, 2019 "Why Do Fiscal Multipliers Depend on Fiscal Positions," WBG PRWP 8784.

taxes will rise in the future; and (ii) an interest rate channel, whereby high-risk premia raises overall borrowing costs, thereby crowding out investments. Though Ricardian equivalence may not be such a big issue in Türkiye, the interest rate channel is becoming more significant as discussed above. Finally, the growth impacts of public consumption do not produce significant and robust results (Figures 27)²³, which is broadly consistent with other studies (Box 2).

Government capital expenditure multipliers, on the other hand tend to be high and more sustained over time. Well-targeted investments can directly improve the productive capacity of the economy by increasing marginal product of labor and capital.²⁴ Analysis of public investment multipliers using a macro structural model shows that public investment has a bigger and longer-lasting impact on GDP than other types of government spending (Figure 28). A recent study (Izquierdo et al. 2019) highlights the importance of public investment, particularly for developing countries, where there are large infrastructure gaps. They find that that public investment multipliers in low initial public capital countries are significantly higher than in high initial public capital countries based on different samples²⁵. Based on an out of sample estimation for Türkiye by using this recent study's model²⁶, public investment multiplier²⁷ is found to be relatively high (1.2) compared to other countries. The multiplier is even higher (1.95) for core infrastructure investment (Figure 29).

These findings illustrate the importance of smoothing public investment through the business cycle to stimulate long-term growth. It also points to the need for increasing the mean of public investment to GDP over the cycle, given its high returns. This might call for a mechanism that at least protects some portion of infrastructure investment in the budget. That portion can include existing projects of high developmental impact, and that can be completed quickly (Table 1). This requires careful prioritization and selection of investment projects and further improvement in PIM efficiency to ensure good project outcomes.²⁸ But it also all goes back to ensuring a sound macro policy framework overall that minimizes volatility and therefore reduces the need for sharp cuts in public investment in the first place.

Figure 26: Short-term growth impact of transfers

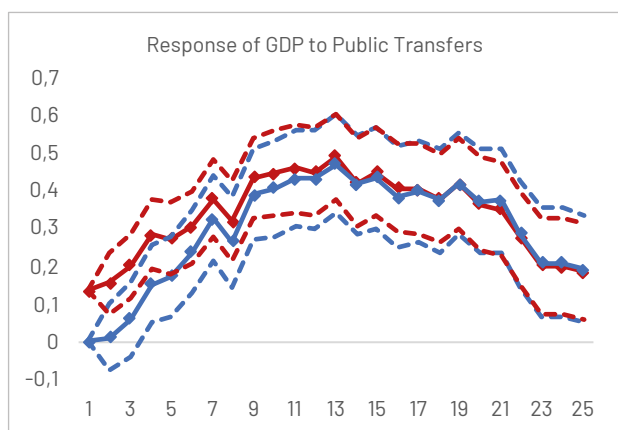
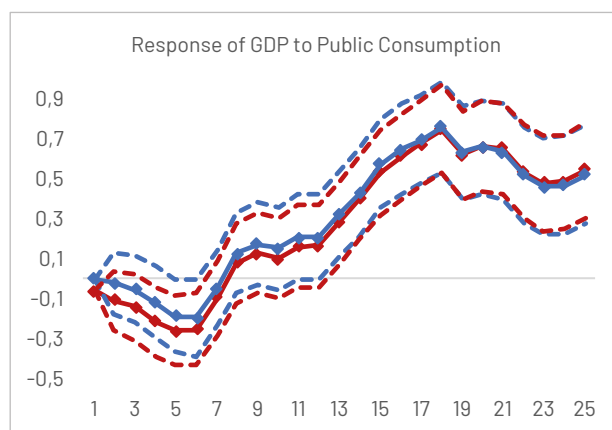


Figure 27: Public consumption not significant



Sources: Haver Analytics, WB Staff estimates.

Note: Solid blue line is the original impulse responses with conditional error bands. Red solid line is the impulse response with error bands when there is a negative demand (GDP) shock.

²³ The growth impact of public investment based on different model specifications by using quarterly figures did not produce robust results. Therefore, the results are not presented.

²⁴ Going forward, public infrastructure investment is likely to be even more critical for addressing climate risks (e.g. reducing carbon emissions).

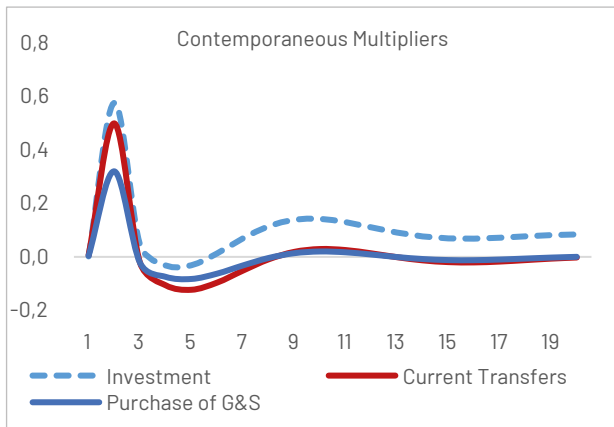
²⁵ The study is mainly based on estimations for the sample including European countries, U.S. states, and Argentine provinces but was extended for out-of-sample estimations based on their empirical models for 17 countries. Türkiye's results were obtained as a part of out of sample estimation.

²⁶ Izquierdo, A.; Lama R.; Medina, J.P; Puig, J.; Riera-Crichton, D.; Vegh, C. and G. J. Vuletin (2019), "Is the Public Investment Multiplier Higher in Developing Countries? An Empirical Exploration," IMF Working Papers 2019/289, IMF. Türkiye's investment multiplier is estimated based on the model specification using the ratio of the initial stock of public capital in the study.

²⁷ The impact of public investment on private investment and growth can be affected by borrowing costs, access to credit, financial constraints, openness to trade. Pattillo and Gueorguiev (2020) found that public investment crowds in private investment, but the effect of public investment on corporate investment is much weaker for firms that are financially constrained and highly leveraged.

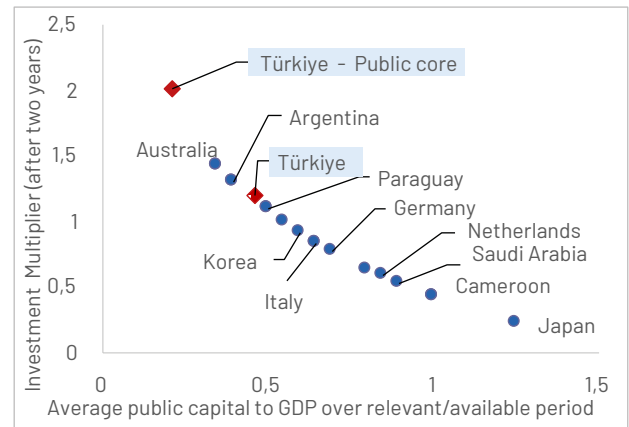
²⁸ Gupta and others (2014) found that the strength of public investment management is a significant factor in the relationship between public investment and growth.

Figure 28: Strong investment multipliers



Source: WB staff Calculations based on World Bank Türkiye Macro Fiscal Model (TURMod).

Figure 29: Even compared to other countries



Source: Izquierdo et al. (2019).

Table 1: Illustrative Criteria for Postponing or Cancelling Projects

Basic decision matrix	Postpone	Cancel
Project approved, not initiated	Yes	Yes
Project initiated, less than 10 % of the cost incurred	Yes	No
Project under implementation, B/C of completion >1.5	No	No
Project under implementation, B/C of completion <1.5	Yes	No
Project under implementation, B/C of completion <1.0	Yes	Yes
Additional considerations		
High employment creation	No	No
Significant synergies with other projects	Yes	No
High cost of project cancellation (beyond B/C)	Yes	No

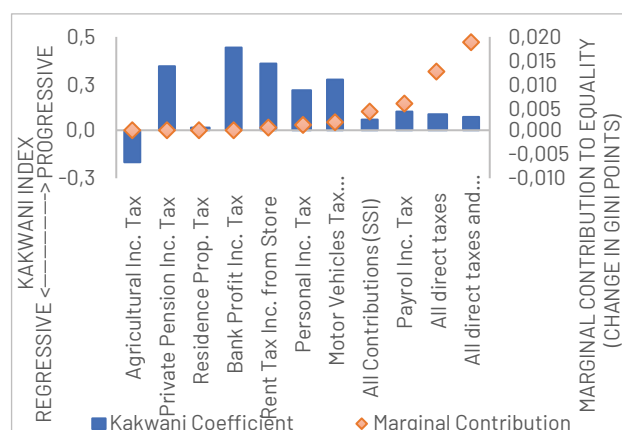
Source: IMF (2020) Managing Public Investment Spending During the Crisis

Fiscal policy helps reduce inequality in Türkiye

Fiscal policy can play an important role in fostering inclusive growth and advancing poverty and inequality reduction in a country. Progressivity of fiscal policy can achieve more equity and enhance automatic stabilizers across business cycles. It can help reduce the tax burden and increase spending when the economy slows down (and vice versa). With a progressive income tax system, household income tends to fall (increase) relatively less during downturns (upturns), which can help smooth consumption. Similarly, corporate profits can fall more quickly than corporate revenue during downturns, leading to a sharp drop in tax payments compared to revenue, enabling sustained operations and employment. On the other side of the budget, a well targeted and responsive public transfer system can help offset loss of household income. The effectiveness of Türkiye's fiscal policy in reducing poverty and inequality is assessed based on the Commitment to Equity (CEQ)²⁹ methodology (Lustig 2018).

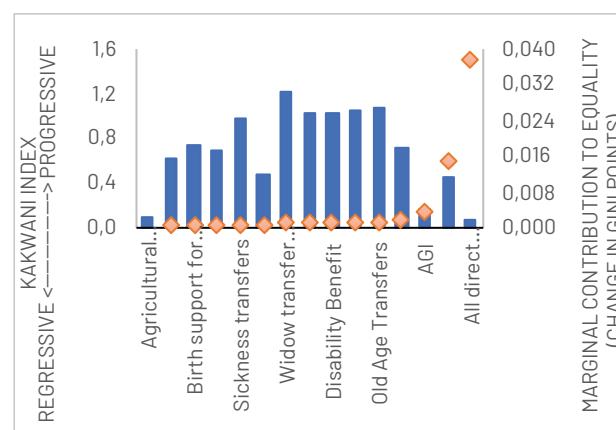
In Türkiye, direct taxes in general are progressive (Figure 30).³⁰ They are also broadly inequality-reducing as shown by a positive marginal contribution to the Gini coefficient. Payroll income tax (PIT) is progressive and the most inequality-reducing, while agricultural income tax is regressive and does not contribute to reduce inequality. Progressivity of PIT helps strengthen automatic stabilizers.

Figure 30: Direct taxes are progressive and redistributive



Source: Cuevas et al. (June 2020). Notes: Progressivity is measured using the Kakwani index (Kakwani 1977). A tax is progressive whenever its burden rises with income. For each tax the Kakwani index is calculated as the difference between the concentration coefficient of the tax and the Gini coefficient of Market income plus pensions. A Kakwani index for taxes will be positive (negative) if a tax is globally progressive (regressive).

Figure 31: ...as are public transfers in Türkiye



Notes: A benefit is progressive whenever its entitlement decreases with income. A Kakwani index for transfers is positive if a transfer is progressive in relative terms. In the case of transfers, the index is defined as the difference between the Gini coefficient of Market income plus pensions (when pensions are treated as deferred income) and the concentration coefficient of the transfers.

To analyze if a tax or transfer is equalizing, we use the marginal contribution of taxes and transfers to income inequality measured by the Gini coefficient.³¹ The marginal contribution measures the marginal reduction in inequality due to a tax or a transfer, and is the difference between the Gini coefficient without the particular fiscal intervention and the Gini coefficient of all income components together.³² The intervention is equalizing whenever the marginal contribution is positive. By comparing the marginal contribution and the Kakwani index we can determine whether a fiscal intervention is equalizing (unequalizing) despite being regressive (progressive).

²⁹ Cuevas, P. Facundo; Lucchetti, Leonardo; Nebiler, Metin. 2020. What Are the Poverty and Inequality Impacts of Fiscal Policy in Türkiye?. Policy Research Working Paper; No. 9300. World Bank, Washington, DC.

³⁰ Direct taxes amount to about a fifth of total revenues, with personal income tax raising almost two-thirds of proceeds among direct taxes. Türkiye's personal income tax (PIT) is levied on individual income from several sources. PIT consists of two main components; withholding tax (WHT) where the tax is paid at the source before the individual receives the gross amount of specific earnings, and PIT based on declaration (PITBD) where the individual is obliged to declare the annual earnings to the state.

³¹ If there was a single fiscal intervention in the system, then the Kakwani index alone could determine whether that intervention is unambiguously equalizing. However, this is no longer the case when there is more than one intervention. As Lambert (2001) shows, a tax or transfer can reduce (increase) inequality despite being regressive (progressive).

³² Since there is path dependency, the sum of the marginal contributions of each intervention is not equal to the total change in inequality (Enami, Lustig, and Aranda 2017).

Public transfers also exhibit a progressive pattern (Figure 31). These transfers are also inequality-reducing as most of the marginal contributions are also positive, but there is marked heterogeneity across them. Social assistance transfers are strongly progressive, given their poverty-targeted design.

Despite having low progressivity, the minimum subsistence allowance program (AGI) has the largest distributional impact among all programs. The reason being is that the AGI is a large government expenditure (3 percent of total, 0.9 percent of GDP). Improved targeting and progressivity of the AGI could play a major role in reducing inequality and poverty, whilst also enhancing automatic stabilizers.

In sum, Türkiye's overall tax and social spending policy significantly reduces income inequality. The observed inequality-reducing impact is driven mainly by the strong equalizing impact of social spending on education and health. Direct taxes and transfer schemes are also equalizing and help mitigate the inequality-increasing impact of indirect taxes. On the other hand, the system of direct transfers and direct taxes cannot counterweight the poverty-increasing impact of indirect taxes, and thus net increases are observed in poverty indicators.

In comparative terms, relative to other upper-middle-income countries where similar studies have been conducted, Türkiye shows a below median performance in the distributive impact of taxes and transfers. The differential performance with comparator countries is explained by, first, Türkiye's larger inequality-increasing effect of indirect taxes, and, second, Türkiye's relatively moderate inequality-decreasing impacts of direct transfers and taxes.

B. Macro-fiscal outlook and strategy

Adjusting the macroeconomic policy framework: monetary discipline and fiscal flexibility

Fiscal discipline was an important anchor for economic stability, but current economic conditions call for a change in the fiscal-monetary policy mix. Whilst low debt levels afford Türkiye some fiscal space, macroeconomic conditions have contributed to higher cost of financing, reduced tax efficiency, and the need for higher countercyclical expenses to smooth the impact of instability. Yet, to support a stable and strong recovery, fiscal policy will need to bear the burden of economic adjustment going forward to allow for tight monetary policy. The monetary policy space is constrained by: (i) high inflation, already low interest rates,³³ and corporate debt overhang;³⁴ (ii) recurring pressures on the Lira; and (iii) downside risks to external capital inflows from the US recovery. Monetary expansion in this context will exacerbate internal and external imbalances, force fiscal policy to stabilize rather than grow the economy, and lead to further deterioration in government debt dynamics because of lower growth and further currency depreciation.

Given these conditions, Türkiye's fiscal strategy needs to factor in several tradeoffs to enable a virtuous cycle of high growth and positive debt dynamics. A low debt country like Türkiye can generate positive debt dynamics more easily than high debt countries with larger gross financing needs and large positive interest-growth differentials. At the same time, Türkiye cannot spend its way out of the crisis, therefore a sound adjustment strategy could take the following into account:

- **Supporting short-term priorities:** even as the inoculation rate gathers pace, the effectiveness of the vaccination campaign will depend on the ongoing implementation of non-pharmaceutical interventions (NPIs). Fiscal policy will need to prioritize the ongoing health campaign and transfers to protect vulnerable households from the weight of NPIs on economic activity and employment. Withdrawing this support too early could have damaging consequences for growth and social welfare.
- **Rebalancing expenditures:** whilst multiplier effects from public transfers can be strong in the short-term, there is a need to gradually rebalance spending towards capital expenses and longer-term social expenditures (chapters 3, 4, 5) to sustain growth. The consolidation of transfers should be anchored in clear trigger points, including relaxation of NPIs, acceleration in private consumption, and improvements in labor market conditions.

³³ The average cost of CBRT funding increased from 7.55 percent in July 2020 to 19 percent in April 2021. Annual inflation has consistently risen since September 2020 from 12 percent (yoy) to 19 percent in June 2021.

³⁴ Please see "WBG TEM (October 2019) Charting a New Course" and "WBG TEM (August 2020) Adjusting the Sails".

- **Coordinating with monetary policy:** The above trigger points, along with (but not limited to) price pressures, exchange rate stability, foreign exchange reserves, private sector credit, and external imbalances should help coordinate fiscal and monetary adjustments. A pick-up in demand and a stabilizing macro environment could eventually enable gradual monetary policy adjustment.
- **Improving tax efficiency:** As the economy recovers, increased efforts towards improving tax efficiency and plugging tax gaps are required. The drop in tax efficiency is a drag on fiscal space, which will need to be rebuilt to sustain Türkiye's strong reputation for fiscal prudence. As discussed in chapters 3, 4 and 5, it also calls for increased spending efficiency and links to results.

A Medium-Term Fiscal Framework to support good quality revenue and expenditure adjustments

³⁵Integrating the above in a Medium-Term Fiscal Framework suggests a range of fiscal outcomes under different macroeconomic scenarios (Box 3). Under the baseline, the Central Government deficit is expected to return close to its 2010–2017 average (1.5 percent of GDP) by 2024 but remain well above this (3.5 percent of GDP) in the low case scenario (Figure 32). Medium-term gross financing needs remain very high under both scenarios (8 percent of GDP p.a. and 10 percent p.a. in the low case) (Figure 33); due to the short average maturity of debt; in the baseline, those need to remain below what they were during the Global Financial Crisis thanks to lower deficits and debt servicing needs, but the government's refinancing needs from private external creditors are higher today. Türkiye is expected to return to a primary surplus by 2023 in the baseline (0.5 percent of GDP), but not within the projection period in the low case scenario (Figure 34). The interest rate growth differential remains low, thanks to low debt stock and historically low interest rates, though slightly above the 2010–2017 average (Figure 35).

Box 3: Macroeconomic assumptions for MTFF

The Medium-Term Fiscal Framework (MTFF) is based on central government data. The MTFF projects fiscal aggregates under a baseline scenario and two alternative scenarios. The assumptions of the scenarios are as follows:

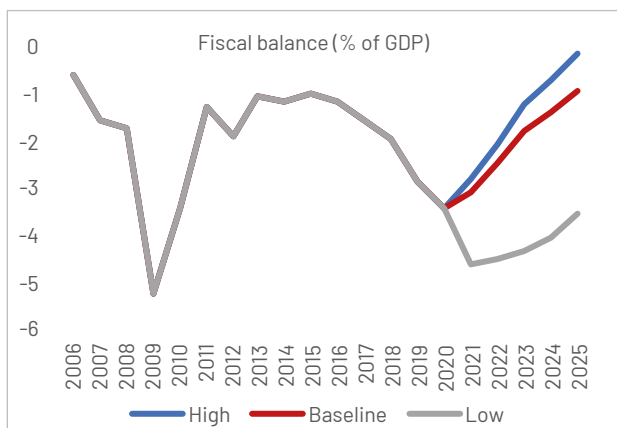
Baseline scenario: Orderly global rollout of vaccines in 2021, supporting recovery in consumer and business confidence, and positive financial market sentiment. Renewed COVID-19 outbreaks are not envisaged under this scenario. GDP is projected to rebound in 2021 (5 percent) following positive growth in 2020 (1.8 percent). With pent-up demand, the economy is projected to grow above its potential until 2025. Tight monetary policy in 2021 is assumed to ease pressure on the exchange rate and inflation in the medium term. Inflation is projected to remain at double-digit levels over the medium term and to decline gradually to the Central Bank target level over the long-term. The currency is projected to remain stable. US stimulus calls for maintaining a tight monetary policy.

Downside scenario: Materialization of COVID-19 risks – difficulty in containing the virus, delays to vaccine procurement and distribution. GDP is projected to grow more slowly in 2021 and below its potential until 2025. Inflation and exchange rate depreciation are projected to be higher compared to the baseline due to early monetary easing. This also implies higher perceptions of risk and borrowing costs. The government's reform process is assumed to be disrupted by short-term macroeconomic volatility and vulnerabilities. Large US stimulus calls for monetary tightening.

Upside scenario: Quick and effective vaccine rollouts leading to a more rapid recovery than expected in the global economy. Positive spillover from US stimulus and growth. Moreover, no new wave of COVID-19 is envisaged. Under this scenario, the Turkish economy is envisaged to recover more quickly compared to the baseline scenario. It assumes a significant boost in investor confidence due to sound and transparent macro-fiscal policies combined with a credible and ambitious reform agenda. Growth that is more balanced is expected to reduce the macroeconomic vulnerabilities of the economy.

³⁵ The data of the analysis is as of March 2021.

Figure 32: Return to 2010-17 deficit by 2024-25



Sources: WBG Fiscal Sustainability Analysis Tool, WB Staff estimates

Figure 33: GFN remains high over the medium-term

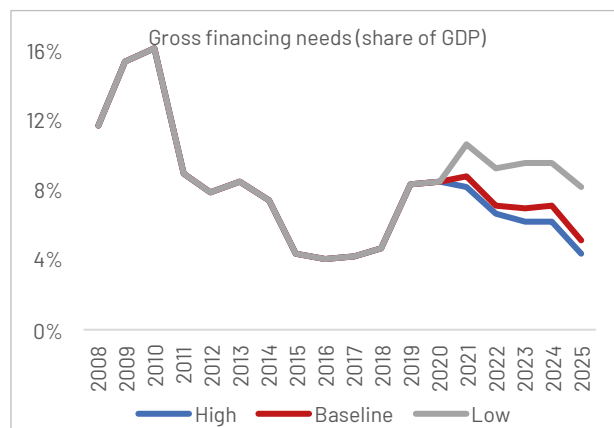
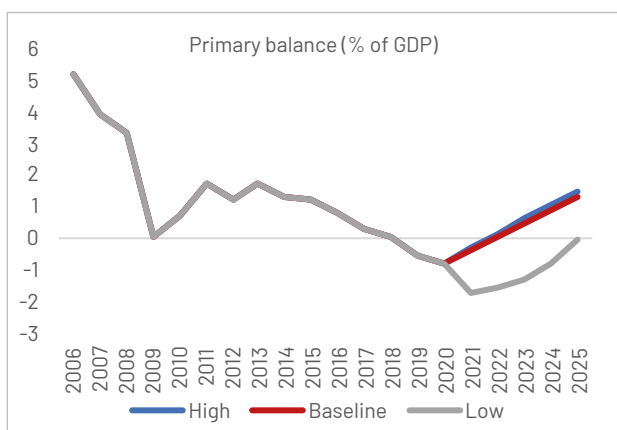
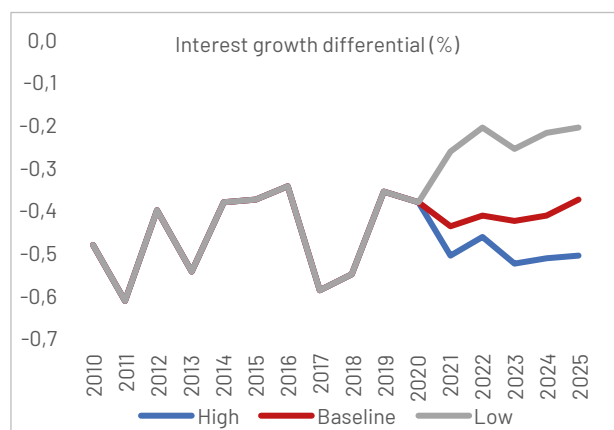


Figure 34: Return to primary surplus by 2022-23



Sources: WBG Fiscal Sustainability Analysis Tool, WB Staff estimates

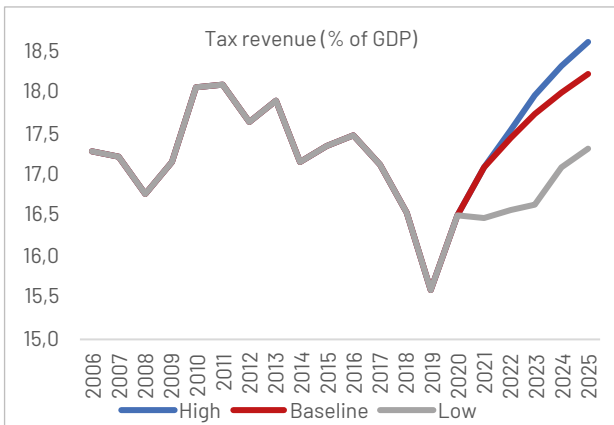
Figure 35: Interest-growth differential remains low



To achieve this path to fiscal consolidation, the baseline scenario assumes sound expenditure and revenue adjustments in line with the previous section. Tax revenue is projected to return to its 2010-2017 average (18 percent of GDP) by 2024 (Figure 36). This would be supported by: (i) gradual unwinding of tax relief measures and efforts to plug gaps in direct tax collections (Figure 37); and (ii) a rapid rebound in indirect tax collections, reflecting pent-up private consumption demand (Figure 38). Primary expenses would steadily consolidate but remain above pre-COVID averages, in line with trends from past shocks, as discussed in section A (Figure 39). Part of the stickiness in primary expenses is driven by transfer payments, which adjust only very gradually (Figure 40). This reflects in part the assumption that coverage and adequacy of transfer programs are improving as they have done in past shocks, which should help to build future resilience. It also reflects upward adjustments to capital expenses, which nevertheless remain very gradual (Figure 41).

A credible MTFF can provide the basis for setting transparent targets for sound fiscal adjustment whilst also monitoring and reporting on deviations from those targets. The targets could be set in the authorities' Medium-Term Program (MTP), with reports on progress in rolling MTPs. Given the rapidly changing economic environment, there may also be merit to reporting more frequently on progress. For example, if Türkiye finds itself in the low case scenario, the revenue and expenditure adjustments will necessarily be inferior to the baseline or high case scenario, both in terms of fiscal dynamics and longer-term growth. Reporting on how the authorities plan to change course, considering the principles set out in the section on the macro policy framework above, can provide a strong anchor for economic expectations.

Figure 36: Taxes return to 2010–2018 average by 2024



Sources: WBG Fiscal Sustainability Analysis Tool, WB Staff estimates

Figure 37: Gradual improvements in efficiency of direct tax collections

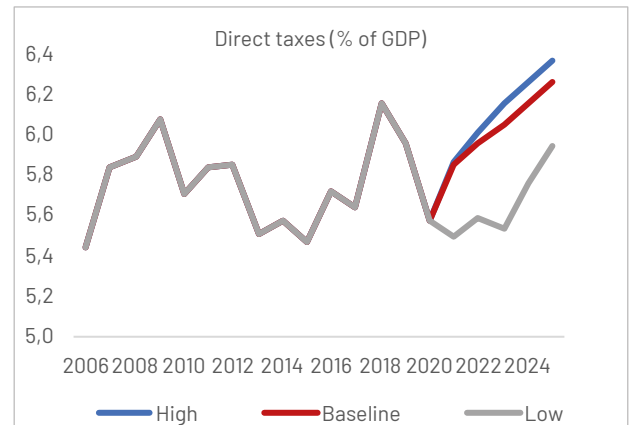
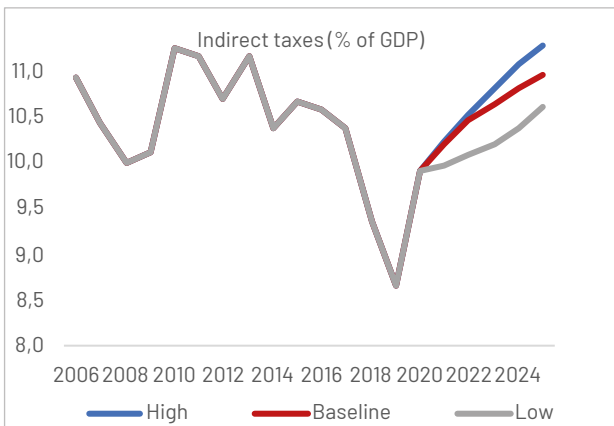


Figure 38: Sharp rebound in indirect taxes



Sources: WBG Fiscal Sustainability Analysis Tool, WB Staff estimates

Figure 39: Primary expenses gradually consolidate

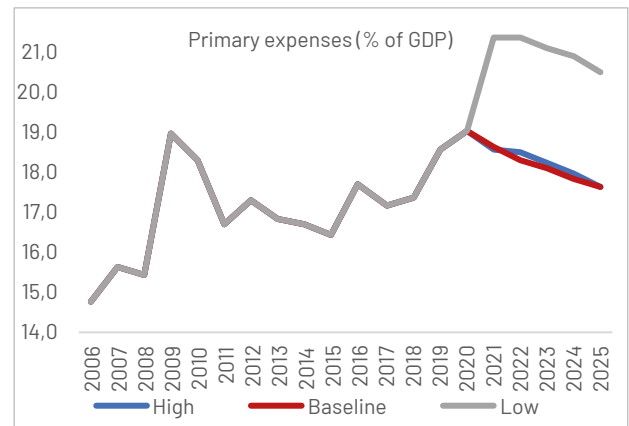
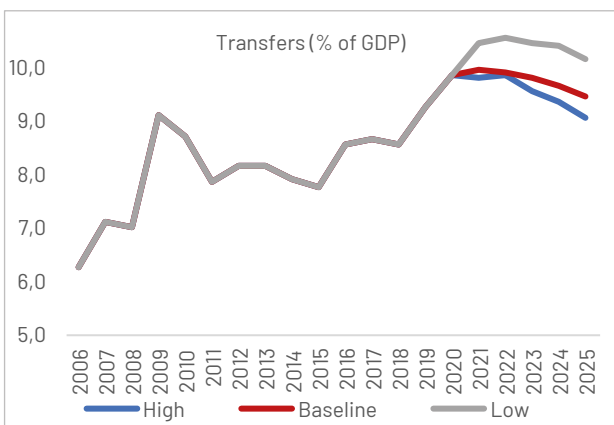
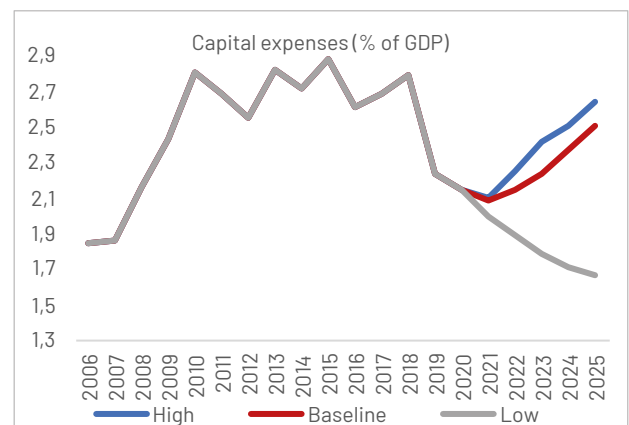


Figure 40: Driven by gradual adjustment to transfers



Sources: WBG Fiscal Sustainability Analysis Tool, WB Staff estimates.

Figure 41: Creating space for capital spending



Box 4: Macro Fiscal Planning and Coordination in Türkiye³⁶

Türkiye moved to a presidential system from a parliamentary system in 2018 which has led to a significant reorganization of the central government. The Prime Ministry was abolished, and a series of Presidential Decrees were issued on the organization of the new Presidential office, ministries and affiliated entities, and other government agencies. The new Government system consists of four main institutional pillars: (1) president/deputy president and presidential offices; (2) policy boards; (3) presidential agencies/units; and (4) ministries. The 2018 Presidential Decree No. 1 mandated the policy boards to provide advice on policies, and to conduct and coordinate relevant activities to monitor, analyze, and supervise the implementation of policies, as well as to contribute to legislative drafts in their respective areas. Some of these pillars are yet to operate effectively and as designed.

With the creation of the Presidency of Strategy and Budget Office (PSB) within the Presidency, the key responsibility for coordinating the preparation and execution of the central government budget is consolidated in one institution. Currently, in addition to the preparation of national strategy documents, the PSB now prepares the central government budget and monitors budget execution. The MoTF – established through a merger of the previous Ministry of Finance and Undersecretary of the Treasury – has the responsibility for revenue administration, cash and debt management, accounting and coordination of internal control functions. This redistribution of responsibilities has eliminated some of the fragmentation in the budget preparation process where the investment and current budget responsibilities were previously under two separate agencies, although there is need for clarification regarding the exact division of labor on some public finance functions.

Macro-fiscal planning and coordination in Türkiye incorporate many aspects of good practice. The process of preparing the medium-term fiscal framework³⁷ is well-established and carried out in a cross-government manner with some rigor. The authorities have recently commenced consultations with civil society as part of the preparation process, which is a welcome development, and there remains scope for more transparency and independent oversight of the process. Three-year ahead fiscal estimates are presented at a detailed level, for each ministry. Key macro-fiscal documents contain good, concise monitoring of economic and fiscal developments, although there is scope for releasing more detailed fiscal projections and more explicit evaluation of past fiscal strategy and explanation of changes. Macro-fiscal sensitivity analysis is presented in the Pre-accession Economic Reform Program and not included in the core fiscal planning documents themselves.

Macro-fiscal coordination and planning responsibilities are formally shared between the PSB and the MoTF but there is scope to clarify how the split should be defined and managed in practice. While international experience indicates that there can be different models for organizing the macrofiscal functions in Government, such models should preferably build on clear rules and practices. In Türkiye, the full implementation of organizational changes relating to macro fiscal planning and coordination is still outstanding.

Extreme developments in global and domestic conjuncture have led to less accurate medium-term macroeconomic forecasts over the last five years. This will over time undermine the credibility of the forecasts and reduce the ability of actors to use two and three year ahead indicative ceilings as a guide to aggregate fiscal policy. Some of the volatility can be attributed to events outside the scope of economic forecasting (such as the failed coup attempt in 2016) and cyclical economic factors, such as the overheating in 2017 and subsequent slowing in 2018.

³⁶ World Bank (2021) Mimeo. Türkiye: Institutions in Transition-A Review of National Planning, Policy Coordination and Public Financial Management Functions in the New Presidential System of Government.

³⁷ Türkiye has not implemented any explicit fiscal rules, but certain fiscal rule type practices and regulations were introduced in early 2000s. During the stand-by period with the IMF, Türkiye implemented implicit fiscal rules, among which the primary surplus rule was the most remarkable. Following the end of IMF agreements in 2008, the government committed to implement fiscal rules in the MTP (2010-2012) instead of signing a deal with the IMF. A draft Fiscal Rule was sent to the Parliament in 2010. The draft Law aimed to maintain the achievements following the 2001 crisis in public financial management. However, fiscal rule dropped from government's agenda.

The preparation of macrofiscal forecasts could benefit from substantive inputs from civil society and independent oversight agencies. There is evidence that greater accountability helps to make macrofiscal processes more robust. Only recently have non-government entities begun to be consulted as part of the NEP preparation process, though these consultations could benefit from more structure. Rather than increasing, there is now less oversight of the macro fiscal forecasts, which are approved by the President without discussion at a Cabinet sub-committee which previously took place.

Fiscal risk reporting could substantially be improved, particularly for PPPs, public corporations and municipalities. Recently, the MoTF has started to release quarterly fiscal report which is very welcome. However, there is still room to increase the comprehensiveness of fiscal risk management and reporting in line with best practices.

To address the above-mentioned issues, the following could be recommended:

- 1. Minimize the revenue forecast errors.** While cautious estimates introduces a useful element of fiscal prudence, it also makes medium-term fiscal forecasting less credible, and it seems to add more emphasis to more discretionary in-year budget changes.
- 2. Evaluate the previous set of medium-term forecasts in each MTP.** In line with the new regulation, the PSB is now authorized to evaluate the MTP and MTFP. One way of doing this, in line with good practice, would be to assess how well the revenue and expenditure forecasts have performed against actuals, and explain differences in both outturn and revised forecasts in terms of policy changes, economic determinants and/or forecast error.
- 3. Introduce a consolidated fiscal risk report, either as part of the MTP or alongside medium-term and annual budget documentation.** A consolidated annual fiscal risk report could be developed and embedded as standard practice. This would help to provide a more comprehensive overview of fiscal developments and their possible evolution over time. Newly introduced quarterly fiscal report is a good start. It could benefit from good global practices.
- 4. Clarify the scope and responsibilities of the Economic Policies Board in the macrofiscal planning process.** This new body could play an important role in providing independent scrutiny of the macrofiscal planning process, although if it were to do so, this should be clarified in its mandate, and the composition of the Board determined accordingly.
- 5. Clarify and formalize roles and responsibilities of the PSB and MoTF in the macrofiscal planning process.** New legislation provides for joint responsibility with defining the exact distribution of roles and responsibilities. A clear set of roles and responsibilities for each agency as well as the operation of the macrofiscal planning process, could help to ensure good practice is maintained, even in case of staff turnover.
- 6. Building on the new practice of public consultations during macrofiscal planning, consider formalizing this in legislation.** The new practice, which is being carried out at the initiative of the MoTF, is part of a best practice macrofiscal planning process. This experience could provide the basis of a new element of public consultation which is required for the NEP process. This can help to ensure robust oversight and inputs into the process and help to make policy making more inclusive.

Debt dynamics could deteriorate quickly under a growth shock scenario

The deterioration in general government debt levels and composition in 2018-2019 accelerated with COVID-19 in 2020, increasing the sensitivity of the debt trajectory to interest rate and exchange rate shocks.³⁸ Government debt-to-GDP³⁹ rose from 32.6 percent at the end of 2019 to 39.7 percent in 2020. Sovereign yields, as discussed in section A, rose sharply in 2017-early 2020, before declining with COVID-19 related measures. The share of FX debt to GDP is estimated to have risen from 14 percent in 2019 to 18-19 percent in 2020. At the same time, short-term borrowing has increased since 2019, deteriorating the maturity profile of debt. As of 2020, 70.1 percent of central government debt was fixed interest, and 56.2 percent was denominated in foreign currency, while average maturity of debt declined from 6.4 years in 2018 to 5.1 years.

³⁸ The data of the analysis is as of March 2021.

Türkiye’s government debt is nevertheless projected to remain within sustainability thresholds in the MTFF baseline scenario. Based on a public debt sustainability analysis, government debt to GDP is expected to stabilize in 2021-2023 in the baseline scenario at around 38 percent of GDP (Table 1). It is projected to decline thereafter and return to 32 percent of GDP by 2026. These projections are driven by MTFF assumptions of (Figure 42, Table 2): (i) strong, above potential economic growth in 2021-2025, marking a base effect from large negative growth rates in 2018-2020; (ii) fiscal consolidation, including a return to a primary surplus by 2023-2024, as discussed above; and (iii) high gross financing needs. No major shifts are expected in the average maturity of overall debt or the share of external debt over the medium-term (Figures 43, 44).

Figure 42: Debt projected to stabilize and then decline from 2024

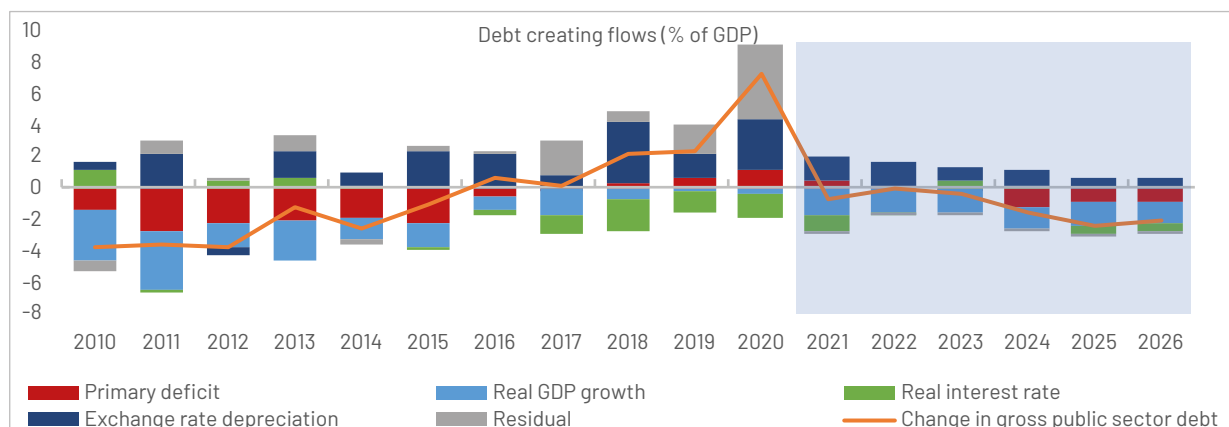


Figure 43: Stable maturity profile

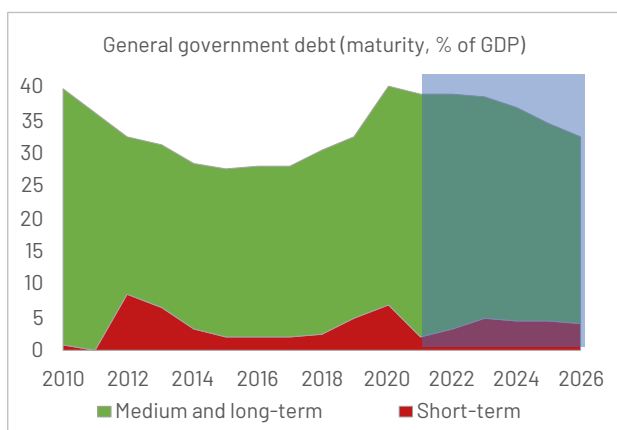
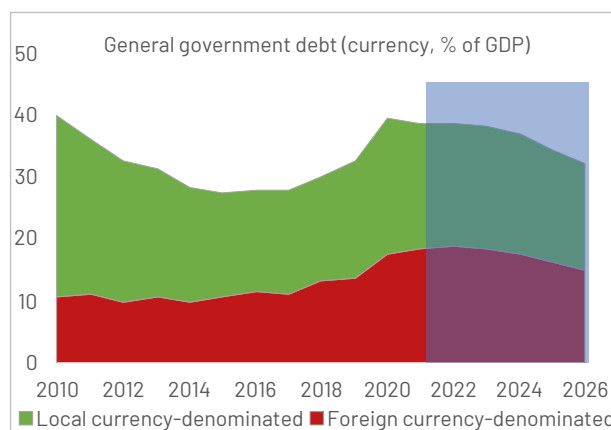


Figure 44: Stable currency profile



Sources: WB Staff estimates based on data from MoTF and PSB.

³⁹ Public DSA is based on general government figures. The debt to GDP ratio of the general government has been 2.5 percentage points (on average) higher than the central government debt to GDP ratio over the last three years.

Table 2: Türkiye's Public Sector Debt Sustainability Analysis (DSA) – Baseline Scenario

Debt, Economic and Market Indicators ^{1/}										
	Actual ^{2/}				Projections					
	2010–2018	2019	2020	2021	2022	2023	2024	2025	2026	
Nominal gross public debt	31.2	32.6	39.7	38.8	38.8	38.4	36.7	34.3	32.2	
Public gross financing needs	6.7	5.8	9.5	9.7	10.8	12.7	12.8	12.0	11.4	
Real GDP growth (in percent)	6.4	0.9	1.8	5.0	4.5	4.5	4.5	4.5	4.5	
Inflation (GDP deflator, in percent)	8.9	13.9	14.8	10.5	9.2	8.7	8.9	10.0	9.1	
Nominal GDP growth (in percent)	15.8	15.0	16.8	16.0	14.1	13.7	13.8	15.0	14.0	
Effective interest rate (in percent) ^{4/}	9.4	9.5	10.5	7.8	9.5	10.2	9.4	8.8	8.3	
Contribution to Changes in Public Debt										
	Actual				Projections					
	2010–2018	2019	2020	2021	2022	2023	2024	2025	2026	cumulative
Change in gross public sector debt	-1.5	2.5	7.1	-0.8	0.0	-0.4	-1.7	-2.4	-2.2	-7.5
Identified debt-creating flows	-2.0	0.5	2.3	-2.4	-1.5	-1.3	-2.7	-3.0	-2.7	-13.6
Primary deficit	-1.5	0.5	1.1	0.4	0.1	-0.1	-1.2	-1.0	-1.0	-2.8
Primary (noninterest) revenue and grants	33.7	33.1	33.1	33.2	32.9	32.4	32.2	32.0	32.0	194.7
Primary (noninterest) expenditure	32.2	33.6	34.2	33.6	33.0	32.3	31.0	31.0	31.0	191.9
Automatic debt dynamics ^{5/}	-0.5	0.0	1.2	-2.8	-1.6	-1.2	-1.5	-2.0	-1.7	-10.8
Interest rate/growth differential ^{6/}	-2.0	-1.6	-2.0	-2.8	-1.6	-1.2	-1.5	-2.0	-1.7	-10.8

Debt, Economic and Market Indicators ^{1/}										
	Actual					Projections				
	2010–2018	2019	2020	2021	2022	2023	2024	2025	2026	cumulative
Of which: real interest rate	-0.1	-1.4	-1.5	-1.1	0.0	0.3	0.0	-0.5	-0.4	-1.7
Of which: real GDP growth	-1.9	-0.2	-0.5	-1.7	-1.5	-1.6	-1.5	-1.4	-1.4	-9.1
Exchange rate depreciation ^{7/}	1.5	1.6	3.2
Other identified debt-creating flows	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
If available. Otherwise, assume zero. (negative)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contingent liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
If available. Otherwise, assume zero.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Residual, including asset changes ^{8/}	0.5	1.8	4.8	0.0	0.0	0.0	-0.1	0.0	0.0	-0.2

Source: World Bank staff calculations based on data from the Ministry of Treasury and Finance, and Presidency of Strategy and Budget.

^{1/} Public sector is defined as general government.

^{2/} Based on available data.

^{3/} Long-term bond spread over German bonds (bp).

^{4/} Defined as interest payments divided by debt stock (excluding guarantees) at the end of the previous year.

^{5/} Derived as $[r - \pi(1+g) - g + ae(1+r)] / (1+g+\pi+g\pi)$ times the previous period's debt ratio, with r = effective nominal interest rate; π = growth rate of GDP deflator; g = real GDP growth rate;

a = share of foreign-currency denominated debt; and e = nominal exchange rate depreciation (measured by an increase in local currency value of U.S. dollar).

^{6/} The real interest rate contribution is derived from the numerator in footnote 5 as $r - \pi(1+g)$ and the real growth contribution as $-g$.

^{7/} The exchange rate contribution is derived from the numerator in footnote 5 as $ae(1+r)$.

^{8/} Includes asset changes and interest revenues (if any). For projections, it includes exchange rate changes during the projection period.

A sharp deviation from baseline economic growth assumptions might have negative impacts on debt dynamics. A growth shock – more severe than the MTFF low case scenario (Table 3) – could lead to a sharp deterioration in the primary balance and rise in government debt to GDP ratio, peaking at 56 percent by 2023. Other stress tests are also considered including shocks to the primary balance, borrowing costs, and the exchange rate (Box 5), all of which are sources of vulnerability for Türkiye, as discussed in section A. Though these shocks lead to a level increase in gross debt to GDP, the biggest concern for debt dynamics stems from a real GDP growth shock (Figure 45). An additional stress test is carried out to gauge the impact of contingent liabilities, discussed in further details in the next section, that reduce the primary balance by 0.5 percentage points in 2022–2023. A combined macro-fiscal and contingent liability shock would lead to government debt peaking at 64 percent of GDP in 2023 (Figure 46).

Box 5: Türkiye's Public DSA stress tests

Growth shock. Real output growth rates are lowered by 1 standard deviation, or 3.2 percentage points, for 2 years starting in 2022. The primary balance deteriorates sharply compared to the baseline (to -5.9 percent of GDP by 2023), due to an increase in the expenditure-to-GDP ratio that leads to higher sovereign borrowing costs⁴⁰. The debt-to-GDP ratio increases to 56.4 percent by 2023 and declines to 50.5 percent by 2026. Gross financing needs climb to 23.8 percent of GDP and gradually decline thereafter.

Primary balance shock. A worsening of the primary balance by 1 standard deviation over 2022-2023 would raise medium-term public debt by around 1.5 percent of GDP. Under this scenario, sovereign borrowing costs are also raised by 200 basis points for each 1 percentage point of GDP worsening in the primary balance.

Interest rate shock. The real effective interest rate is assumed to increase by 500 basis points. Under this scenario, the government's borrowing cost rises above 19 percent in the medium term. The debt-to-GDP ratio remains above 35 percent and gross public financing needs gradually rise to around 13 percent of GDP in the medium term.

Exchange rate shock. This scenario assumes a 30 percent nominal exchange rate shock that implies a 15 percent real exchange rate shock (assuming CPI inflation of 15 percent), and pass-through is assumed to be 20 percent over the 2022-2023 period. The exchange rate shock causes a gradual increase in the debt to GDP ratio to around 42 percent in 2022, which stabilizes at 34.7 percent over the medium term. In addition, gross financing needs also gradually go up to 13.2 percent by 2024 and remains high.

Combined macro-fiscal shock. The combined shock merges the largest effect of all individual shocks above with all relevant variables (real GDP growth, inflation, primary balance, exchange rate, and the interest rate). Debt-to-GDP would rise 64.6 percent over the medium term while gross financing needs would more than double to 26.3 percent.

Combined macro-fiscal and contingent liability shock. This extreme combined shock incorporates the largest effect of the above shocks, including a contingent liability shock that is projected to increase public expenditure by an additional 1 percentage point and reduce the primary balance by 0.5 percentage points over the 2022-2023 period. Under this scenario, public debt would reach 68 percent of GDP by 2023 and remain above 60 over the medium term. Gross financing needs would also rise to 28 percent.

Figure 45: Growth shock leads to sharp a deterioration in debt dynamics

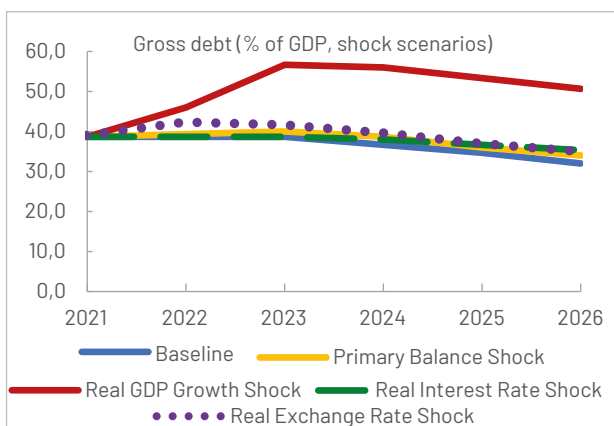
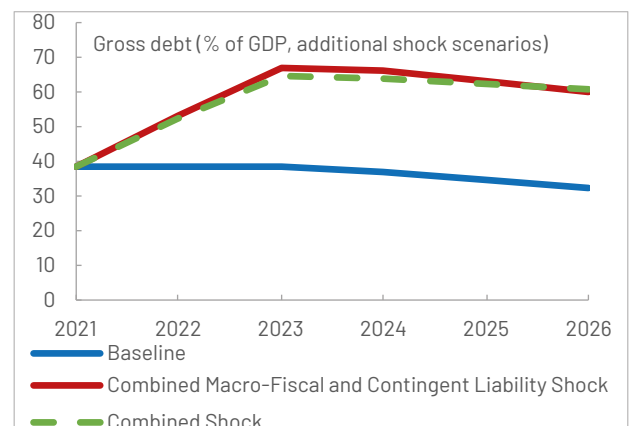


Figure 46: Combined macro and contingent liability shock could raise debt to above 60 percent of GDP



Sources: WB Staff estimates, MoTF, PSB.

⁴⁰ The expenditure to GDP ratio would increase because of a lower GDP base and sticky expenditure patterns that would reflect countercyclical spending by the government.

Table 3: Türkiye Public DSA stress test assumptions

	2021	2022	2023	2024	2025	2026	2021	2022	2023	2024	2025	2026
	Primary balance shock						Real GDP growth shock					
Real GDP growth	5.0	4.5	4.5	4.5	4.5	4.5	5.0	1.4	1.4	4.5	4.5	4.5
Inflation	10.5	9.2	8.7	8.9	10.0	9.1	10.5	2.8	2.4	8.9	10.0	9.1
Primary balance	-0.4	-0.8	-0.6	1.2	1.0	1.0	-0.4	-3.2	-6.4	1.2	1.0	1.0
Effective interest rate	7.8	9.5	10.5	10.0	9.0	8.4	7.8	9.4	11.0	12.3	9.8	8.8
	Real interest rate shock						Real exchange rate shock					
Real GDP growth	5.0	4.5	4.5	4.5	4.5	4.5	5.0	4.5	4.5	4.5	4.5	4.5
Inflation	10.5	9.2	8.7	8.9	10.0	9.1	10.5	15.2	8.7	8.9	10.0	9.1
Primary balance	-0.4	-0.1	0.1	1.2	1.0	1.0	-0.4	-0.1	0.1	1.2	1.0	1.0
Effective interest rate	7.8	9.6	11.5	11.6	11.5	11.4	7.8	10.3	9.4	8.9	8.4	8.0
	Combined shock						Combined macro CL shock					
Real GDP growth	5.0	1.4	1.4	4.5	4.5	4.5	5.0	1.4	1.4	4.5	4.5	4.5
Inflation	10.5	2.8	2.4	8.9	10.0	9.1	10.5	2.8	2.4	8.9	10.0	9.1
Primary balance	-0.4	-3.9	-7.1	1.2	1.0	1.0	-0.4	-4.4	-7.6	1.2	1.0	1.0
Effective interest rate	7.8	10.1	10.9	12.0	11.4	11.1	7.8	10.1	10.9	12.0	9.6	8.6

Sources: WB Staff estimates, MOTF, PSB

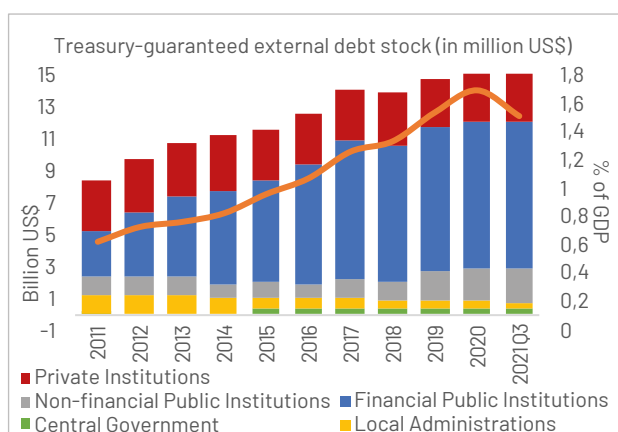
Improve monitoring and reporting of fiscal risks particularly from PPP projects

The MTFF and DSA are subject to contingent liability risks, which, were they to materialize, could adversely impact macro-fiscal sustainability. Two sources of explicit contingent liabilities discussed below, where the state is legally bound to step in, include: (i) loan repayment guarantees, counter-guarantees, country-guarantees, and investment guarantees issued by the Ministry of Treasury and Finance; and (ii) demand guarantees under Private Public Partnership projects (PPP). There are other sources such as the Credit Guarantee Fund (CGF), deposit insurance, natural disaster insurance (discussed in the climate chapter), and the assurance account for mandatory insurance services. Aside from explicit contingent liabilities, there are also implicit ones where the state may not be legally bound to provide direct support but may need to because of systemic concerns, such as in the banking system, which is discussed briefly below.

Contingent liability risks from government guarantees on external debt have been growing but are generally low.⁴¹ Treasury guarantees on external debt have risen from 0.6 percent of GDP (\$8.4 billion) to 1.5 percent (\$15.2 billion) over the last 10 years (Figure 47). The increase was driven by guarantees to public financial institutions (\$2.8bn in 2011 to \$9.1 bn in 2021Q3). As of 2021Q3, public financial institutions and private institutions (TSKB) hold 60 percent and 21 percent of total treasury-guaranteed debt stock in Türkiye, respectively (Figure 48). Most of the guarantees to public banks are for loans from international financial institutions – as of 2021Q3, the Treasury guaranteed \$11.3 bn for multilateral loans (EIB, IBRD, EDB, and others) (Figure 49). Furthermore, SOEs and public enterprises account for 14 percent, while the central government and local administrations constitute 5 percent of total guaranteed debt stock.

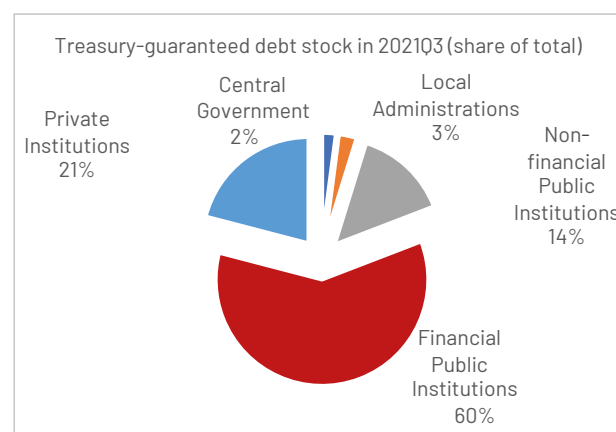
Potential calls on guaranteed external debt are relatively small but increasing until 2023. With the current stock of guaranteed external debt, total repayment is expected to peak in 2023, then starts to decline until 2025 – of course, this may change with new guarantees issued in the future. Data on the repayment profile of guaranteed debt suggests that calls on guarantees could peak at \$3.3 billion in 2023; but decline thereafter, averaging at \$1.6 billion all things being constant (Figure 50).

Figure 47: External debt guarantees growing from a low base



Source: MoTF, TURKSTAT

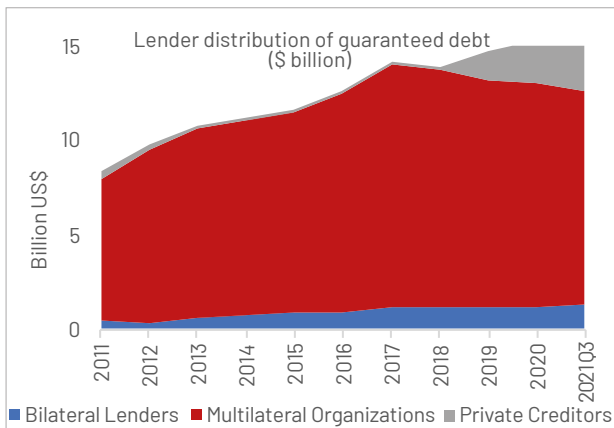
Figure 48: Issued in large part to public financial institutions for loans from IFIs



Source: MoTF

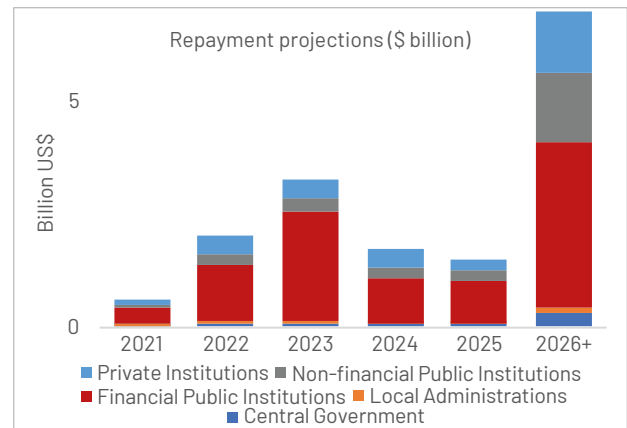
⁴¹ International Monetary Fund., 2017, "Türkiye Fiscal Transparency Evaluation" IMF Country Report No 17/208.

Figure 49: Some pick up in guarantees for loans from private creditors



Source: MOTF, TURKSTAT

Figure 50: Guaranteed loan repayment profile does not point to major risks



Source: MOTF

Fiscal risks related to Public-Private Partnerships, which are large in Türkiye (Box 6), arise from both direct and contingent liabilities. Direct liabilities refer to payments from the government to the private partner specified in the PPP contract (e.g. lease payments) and not contingent on any shortfall that the state needs to cover. Then there are contingent liabilities, including treasury investment guarantees, Debt Assumption Commitments (DACs), and payments contingent on demand (e.g., minimum revenue guarantees). In addition, guarantees provided to PPP projects are all denominated in foreign currency, increasing the exposure risk of government to currency shocks.

There are no outstanding investment guarantees, but DAC mechanism is being utilized. The Treasury had provided 17 investment guarantees in the 1990s and early 2000s. These guarantees were primarily for energy PPPs; all guarantees had lapsed as of 2020. The total amount of investment guarantees amounted to \$7.5 billion (1 percent of GDP), out of which \$2 billion was called on a local water SOE project. The authorities have provided sizeable DACs for several PPP projects since 2012. For highway PPPs including bridges and tunnels, the government has provided \$17.2 bn (2.4 percent of GDP) as of the end of 2020 (Table 4).

Table 4: Debt assumption commitments provided by the Ministry of Treasury and Finance

Project Name	Status	PPP Model	DAC Agreement Date	Total Project Cost	Loan Amount
Euroasia Tunnel	Completed	BOT	11.12.2012	\$1.24 bn	\$960 million
North Marmara Highway Odayeri-Pasakoy section (including YSS Bridge)	Completed	BOT	13.05.2014 / 11.03.2016	\$3.5 bn	\$2.7 bn
Gebze-Orhangazi-Izmir Highway (including Osmangazi Bridge)	Completed	BOT	05.06.2015	\$6.3 bn	\$5 bn

Project Name	Status	PPP Model	DAC Agreement Date	Total Project Cost	Loan Amount
North Marmara Highway Kinali-Odayeri section	Completed	BOT	16.09.2019	\$2.1 bn	\$1.6 bn
North Marmara Highway Kurtkoy-Akyazi section	Completed	BOT	16.09.2019	\$3.7 bn	\$2.8 bn
Canakkale-Malkara Highway (including Canakkale Bridge)	In progress	BOT	16.03.2018	\$3.9 bn*	\$2.8 bn
Ankara-Nigde Highway	Completed	BOT	07.06.2018	\$1.7 bn*	\$1.3 bn
Total				\$22.5 bn	\$17.2 bn

Source: Ministry of Treasury and Finance Public Debt Management Report, 2021

* In the Public Debt Management Report, these figures are provided in Euro terms. They are converted into USD terms.

A lack of systematic reporting on PPP-related liabilities makes it difficult to accurately assess fiscal risks.⁴² This is partly related to the fragmented legal and institutional framework governing PPPs. Line ministries can enter separately into PPP contracts. The size and terms of contractual obligations are generally not disclosed for PPP projects under line ministries, other public agencies and municipalities, and Private Participation in Infrastructure (PPI) projects related to energy and ports. This applies to both DACs issued by other public entities and FX-denominated price and volume guarantees provided to various PPP projects.

Disclosure of information about PPP-related guarantees and payment flows remains limited.⁴³ Since 2011, the Strategy and Budget Presidency reports the number of projects and contract value of PPPs by sectors and project type through the annual Public-Private Partnership Reports⁴⁴. However, limited information is disclosed on construction costs of each project, and there is no information on future government net payments, or stock of public guarantees issued under existing contracts. Although the authorities work on regulations to comply with IPSAS32 standards (the international accounting standards applicable to most PPPs), public corporations (i.e.- Airport National Authority controlling the airport projects) out of the general and central budget still remain excluded from general government fiscal statistics, weakening fiscal transparency.

⁴² IMF (2017) Türkiye Fiscal Transparency Evaluation.

⁴³ International Monetary Fund., 2017, "Türkiye Fiscal Transparency Evaluation" IMF Country Report No 17/208.

⁴⁴ The PPP report was not published for 2019.

There is a PPP Unit under the Presidency of Strategy and Budget Office, though it is not mandated to regulate new PPP projects. This is a challenge for any single agency given that the contracting and management of PPPs is so decentralized. Though there is an overarching legal framework for Built-Operate-Transfer (BOT) arrangements (Law 3996 and Decree 1994/5907, later amended by Decree 2011/1807), PPPs in specific sectors (e.g. health, education, and energy) are guided by their own legislation. Similarly, fiscal risks arising from PPP-related guarantees are subject to different degrees of monitoring, depending on whether they are controlled by the Treasury or another public entity.⁴⁵

Payment for pre-determined demand guarantees and lease payments provided to PPP contractors are increasingly adding pressure on government finances. The cost of demand guarantee payments to PPP projects rose from 0.2 percent of the central government budget or 0.1 percent of GDP in 2017 to 1.2 percent of the budget or 0.3 percent of GDP in 2019. The increase was driven by payments to hospitals (TL 2.8 bn as a lease payment, TL2.3 bn as service payment) and highways (TL5.9 bn as demand guarantee payment). Furthermore, payments to PPP hospitals increased to TL10.5 bn in 2020, while airport guarantees are likely to add further pressure on the budget due to COVID-19 (Table 5). According to projected payments in 2021, the expenditure burden on the central government budget will have more than doubled to a 2.4 percent share. On the other hand, the DHMI (General Directorate of State Airports Authority) announced that lease payments of airport contractors were canceled for 2020; and that a 50 percent discount would be applied for 2021 and 2022,⁴⁶ which is likely to generate a sizable revenue loss for the government. These payments are made for PPP projects the contracts of which have been signed after 2010. Within this framework, total investment amount corresponds to 8.3 percent of GDP in 2020.

Table 5: Demand guarantee payments for PPP projects

Demand payments to PPP projects	Airports (in bn TL)	Hospitals (in bn TL)	Highways (in bn TL)	Total (in bn TL)	Total (in bn US\$)	% of GDP	% of CG Budget
2015	0.04			0.0	0.02	0.0	0.0
2016	0.05			0.0	0.02	0.0	0.0
2017	0.06	0.31	1.13	1.5	0.55	0.1	0.2
2018	0.07	2.20	2.03	4.3	1.42	0.2	0.6
2019	0.13	5.09	5.9	11.1	3.05	0.3	1.2
2020*	0.5	10.5	-	-	-	-	-

⁴⁵ According to the Ministry of Health's 2019 Activity Report, there are issues with accounting at the PPP Province Hospitals due to the complexity of contracts and capacity of the ministry for accounting (link).

⁴⁶ <https://www.dhmi.gov.tr/Sayfalar/Haber/havacilik-sektorumuzun-de-yanindayiz.aspx>.

Demand payments to PPP projects	Airports (in bn TL)	Hospitals (in bn TL)	Highways (in bn TL)	Total (in bn TL)	Total (in bn US\$)	% of GDP	% of CG Budget
2021*	0.5	16.4	14.0	30.9	-	0.6	2.4
2022*	0.3	-	16.9	-	-	-	-

Source: Ministry of Health, Ministry of Transport and Infrastructure, medium-term program, budget commission documents, WB staff calculations.

Notes: Payments to hospitals contain lease and availability payments. Highways contain motorways, bridges and tunnels.

*Projections provided by the medium-term program. However, projections may be subject to revision due to exchange rate volatility.

The combination of long-term PPP contracts and FX-denominated guarantees presents important fiscal risks. Given macroeconomic challenges and ad-hoc adjustments to price levels of certain projects, the fiscal risks related to PPP demand guarantees, lease and service payments might rise in the future. FX-denominated guarantees increase the foreign exchange exposure risk of the government; the rise in guarantee payments in recent years was partially driven by exchange rate depreciation. The government estimates payments are rising further over the coming years, up to 2.4 percent of the central government budget as of 2021 (Table 6).

Table 6: Demand guarantee payments and contract structure for selected highway PPP projects

(in billion TL)	Contact duration	End date	2017	2018	2019
Northern Marmara Highway and YSS Bridge	10 years	2023	0.4	0.5	3.1
Istanbul-Izmir Highway and Orhangazi Bridge	22.5 years	2035	1.4	1.8	2.6
Euroasia Tunnel	24.5 years	2041	0.13	0.16	0.19
Total			1.93	2.46	5.89

Source: Tender documents, media resources, line ministry briefings.

In order to assess the fiscal risks arising from contingent liabilities and PPPs, there is a need to establish a transparent PPP framework and effective monitoring system. The unavailability of contract details and the lack of systemic reporting on guarantee/usage data to the public, there has been rising concerns over the budget exposure to the PPPs. In this manner, (i) unifying all PPP portfolio under a single institution and sharing all contract details, revisions with the public; (ii) preparing budget sensitivity analyses in public fiscal documents for PPP and other type of contingent liability risks; (iii) providing data on the guarantee and usage amounts of PPP projects, and payments made to the contractors would be useful to monitor and mitigate aggregate fiscal risks of the contingent liabilities and PPPs in Türkiye.⁴⁷

Box 6: Overview of Public-Private Partnerships in Türkiye

Governments rely on PPPs to design, finance, build and operate infrastructure projects.⁴⁸ PPPs are useful to overcome financing, planning and coordination issues through mobilizing private sector finance and leveraging the private sector’s skills for project planning, execution, maintenance, and service provision.⁴⁹ However, government guarantees provided today for these contracts may become a fiscal burden in the future.

Historically, public-private partnerships (PPPs) have been a relatively modest and infrequent source of fiscal risk worldwide.⁵⁰ Government support for PPP projects costs 1 percent of GDP on average and 2 percent of GDP in extreme cases globally. However, the significant use of PPPs recently has the potential to generate higher fiscal costs in the future.

Türkiye has heavily relied on PPP projects to develop its infrastructure. Türkiye’s overall PPP investment portfolio reached \$77.9 bn (10.3 percent of GDP) at the end of 2019 by, official figures (Figure 51). Total number of PPP projects since 1986 has reached 252. The annual figure peaked in 2013 at 31 PPP projects (Figure 52). The total portfolio has more than trebled over the last 10 years. More than 90 percent of the PPP investment portfolio is concentrated in 4 sectors: Highways and bridges (30 percent), airports (25 percent), energy (24 percent), and health (14 percent)(Figure 53). Other PPP projects defined under Law 3996 include ports, marinas, mining activities, industrial plants, railways, culture and tourism, custom gates and solid waste facilities.

Figure 51: Sharp increase in PPPs after 2010...

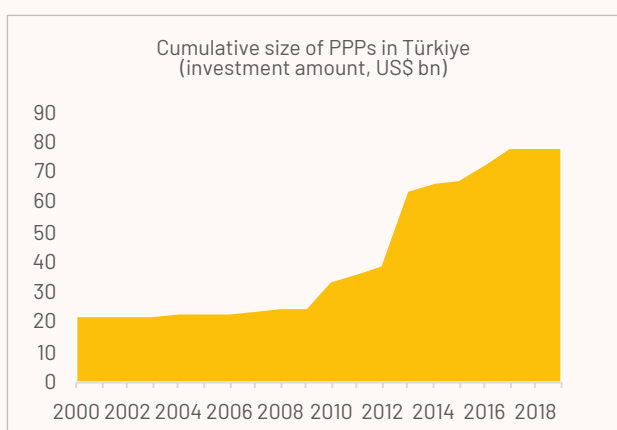
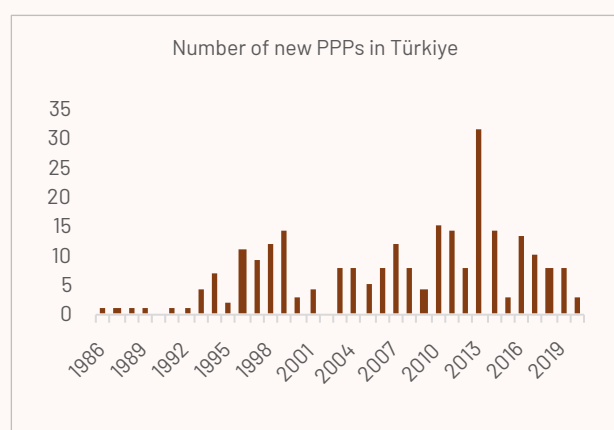


Figure 52: ...reaching a record level in 2013...



⁴⁷ PPP framework Law is being prepared to increase the monitoring and assessment capacity for PPP projects.

⁴⁸ World Bank Group., 2018, "Procuring Infrastructure - Public-Private Partnership," The World Bank.

⁴⁹ World Bank Group., 2019, "Assessing the Fiscal Implications of Public-Private Partnerships Supported by the World Bank Group: Guidance for World Bank Group Staff," World Bank.

⁵⁰ Bova, E., M. Ruiz-Arranz, F. Toscani, and H. E. Ture, 2016, "The Fiscal Costs of Contingent Liabilities: A New Dataset," IMF Working Paper 16/14 (Washington: International Monetary Fund).

Figure 53: ...driven by substantial transportation, energy and health investments..

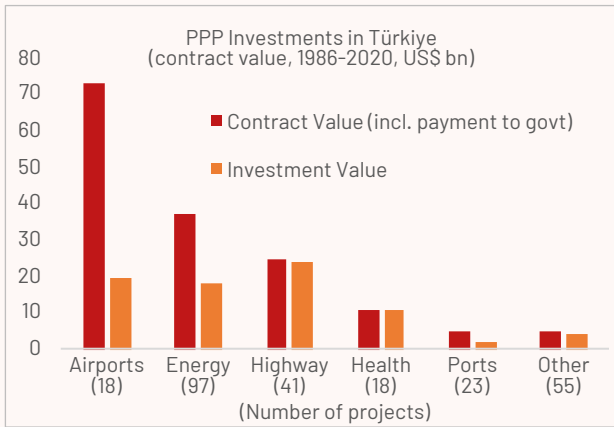


Figure 54: ...making Türkiye one of the top PPP-concentrated investors in the world

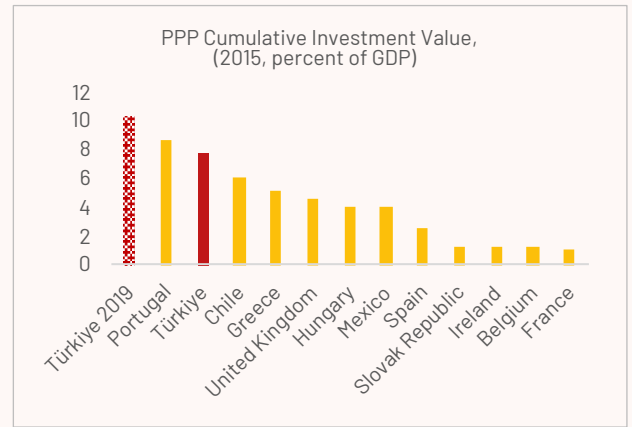


Figure 55: Türkiye has been the top PPP investor in Europe since 2014

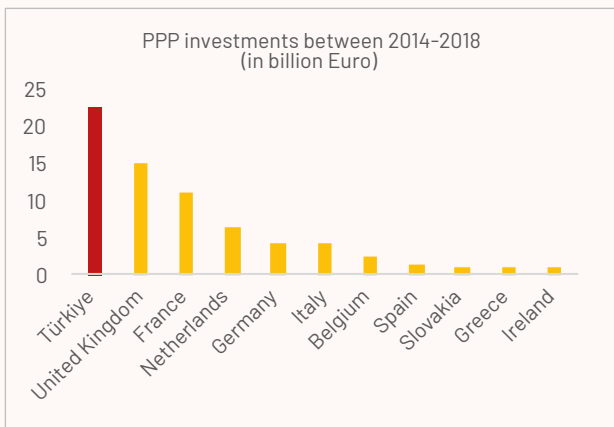
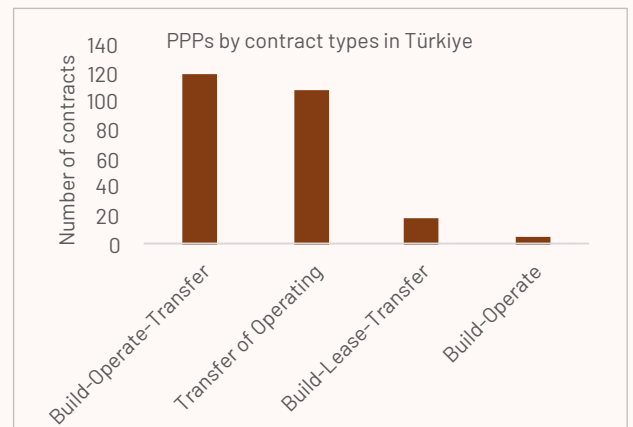


Figure 56: BOTs and TORs are most frequently used



Source: PSB, World Bank PPI, IMF FAD, EPEC, WB staff calculations.

Türkiye has one of the most extensive PPP programs in the world, both relative to its size and the total amount invested. According to the IMF's FAD database and WB staff calculations, Türkiye's cumulative PPP portfolio stock was 7.8 percent of its GDP in 2015, ranking Türkiye after Portugal. In 2019, Türkiye became the top PPP utilizer in the world at 10.3 percent of its GDP (Figure 54). In addition, Türkiye undertook €22.8 bn in PPP projects between 2014 and 2018, becoming the top country for such investments in Europe (Figure 55).

PPP contracts mostly consist of build-operate-transfer (BOT) and transfer of operating rights (TOR) models. Almost half of the PPP contracts are BOTs, and almost 40 percent are TOR contracts. The remaining contracts are build-lease-transfer (BLT) and build-operate (BO) (Figure 56). In Türkiye, the BOT model is mostly utilized for highway, tunnel, bridge, airport and port projects. The BLT model is applied to health projects. The BO model is used for energy projects with procurement guarantees from the government, and the TOR model is applied for facilities owned by the government and leased to a private institution for a predetermined period.

Conclusion: A just medium-term macro-fiscal adjustment

Türkiye's strong record of fiscal prudence in 2002-2017 has been negatively affected by a series of shocks, culminating with the COVID-19 pandemic in 2020. Exogenous shocks aside, rising inflation and financial turbulence have exacerbated stress on the fiscal space. The analysis of macro-fiscal trends highlights four stresses in particular: (i) increased financing costs due to perceived weaknesses in the macro policy framework; (ii) widened tax inefficiencies and gaps due to tax relief measures to compensate for low growth and high inflation; (iii) increased pressure to increase countercyclical expenditures in light of larger credit-fueled boom-bust cycles, particularly since 2017; and (iv) sharp cuts in public investments, which have high long-term multiplier effects on growth, to create fiscal space for short-term public transfers.

These developments warrant an adjustment to Türkiye's macroeconomic policy framework, which allows for tight monetary policy and countercyclical, growth-enhancing fiscal policy. A misalignment in the macro policy framework, which includes monetary loosening, may exacerbate internal and external imbalances. This could also lead to a negative impact on government debt dynamics because macroeconomic instability could fuel higher borrowing costs, currency depreciation, which would add to external debt servicing costs, and lower growth, which together with higher financing costs would raise the interest-growth differential.

This chapter recommends sequencing of fiscal policy adjustments based on four objectives: (i) supporting the short-term health system and social protection needs; (ii) gradually rebalancing expenditures from transfers to capital expenses based on clear trigger points including relaxation of non-pharmaceutical interventions, acceleration in private consumption, and improvements in labor market conditions; (iii) enhanced coordination with a monetary policy such that a stabilizing macro environment and improvements in domestic demand conditions enable eventual monetary policy adjustment; and (iv) as the economy recovers, increase focus on improving tax efficiency and the plugging of tax gaps.

Adhering to these principles in the context of a transparent and realistic Medium-Term Fiscal Framework could help build confidence and support a sustainable recovery. Baseline projections show that the authorities could feasibly target a primary surplus by 2023 and a reversion to 2019 government debt levels by 2025. There are important risks, the largest being another growth shock, which could derail macro-fiscal sustainability. There are also important contingent liability risks, especially arising from PPP projects, which need to be monitored closely and reported on transparently.

Annex I.A: Estimating fiscal multipliers

Vector Autoregression (VAR) is the common methodology used in the literature to estimate the size of fiscal multipliers and impulse response functions (IRF) are used to measure multiplier effects. When the underlying data generating process cannot be well approximated by a VAR process, IRFs derived from the model will be biased and misleading. Jordà (2005) introduced an alternative method (local projection method) for computing IRFs based on local projections that do not require specification and estimation of the unknown true multivariate dynamic system itself.^[1]

The local projection method has recently been used in the empirical fiscal policy following Auerbach and Gorodnichenko (2013), the first study to implement this method to calculate state-dependent fiscal multipliers. The local projection method^[2] has some advantages compared to other methods. First, non-linearity can be easily adopted to estimate state-dependent fiscal multipliers. Second, there is no constraint to the shape of impulse response function. Third, it is more robust against potential misspecifications. Fourth, the local projection method allows to estimate fiscal multipliers in low growth and high growth periods. (Auerbach and Gorodnichenko (2013), Ramey and Zubairy (2014), Cebi and Ozdemir (2016)).

Two specifications are constructed to estimate fiscal multipliers for Türkiye using the local projection method. The first specification looks at public consumption and current transfers.^[3]

- The variables are ordered as follows: (1) public consumption (including goods and services and compensation of employees) (2) net tax revenue (tax revenue minus current transfers) (3) real GDP (4) Inflation (GDP deflator change) (5) interest rate (cost of domestic borrowing).
- In the second specification, current transfers replace public consumption, and the ordering is the same.

General government data^[4] is used. The data series is quarterly covering the 2006 Q1-2020 Q1 period. Natural log of seasonally adjusted real variables is used in the analysis.

Jordà's (2005) local projection method is employed. The model can be written as follow:

$$X_{t+h} = \alpha_h + \phi h(L)y_{t-1} + \beta_h \text{shock}_t + \varepsilon_{t+h}$$

Where x denotes the variable of interest and y represents a vector of control variables and (L) is a polynomial order of 2 and the shock is the VAR-based government spending shocks. The coefficient β_h shows the response of x at time $t+h$ to the shock at time t . Impulse responses are obtained by estimating a set of regressions for each time horizon h .

^[1] http://blog.eviews.com/2016/06/impulse-responses-by-local-projections_43.html.

^[2] Rieara-Crichton et al. (2015), Dell'Erba et al. (2018), Ramey and Zubairy (2018) and Owyang et al. (2013) are other studies which apply this methodology for estimation of fiscal multipliers.

^[3] In the third specification, public investment is employed. However, the results were not robust for public investment multiplier estimation on a quarterly basis. For estimation we followed the steps shown in Eviews Blog http://blog.eviews.com/2016/06/impulse-responses-by-local-projections_43.html.

^[4] Tax revenues and current transfer are deflated by GDP deflators while public consumption is deflated by the public consumption deflator. The general government data provided by MoTF covers 2012-2020. To provide a long data set, the data is extrapolated back to 2006 by using central government fiscal variable seasonal distribution and yearly general government figures released by the Presidency of Presidency of Strategy and Budget Office.

II. Tax policy developments: Minding the gaps |

A wave of reforms at the turn of the century helped modernize Türkiye's tax system, whilst recent changes have been more marginal and reactive to economic shocks. Türkiye has adopted modern tax instruments and a well-structured tax code. According to the International Tax Competitiveness Index,⁵¹ Türkiye ranks in the top tier among OECD countries regarding the competitiveness and neutrality of its tax policy. Yet, the relative burden of taxes across the economy has created challenges. Frequent tax policy changes, some driven by long-term development priorities though many by economic shocks, have made the system more complex. This has led to increased non-compliance and reduced the efficiency of tax collections.

This chapter takes stock of tax developments and focuses on selected tax policy priorities. It starts with an overview of tax policy reforms and tax performance. The overview covers the drivers of tax policy changes and their impacts on overall tax liability, looks at how those changes have contributed to the tax system's complexity, and considers implications of these developments for tax collections. It then focuses on a deeper analysis of: (i) compliance gaps in the Value Added Tax system, as VAT is the workhorse of the Turkish tax system; and (ii) the effectiveness of Corporate Income Tax (and R&D Tax) incentives, as CIT collections in Türkiye are considerably below comparator countries.

A. Tax policy reforms and tax performance

Tax policy reforms shift tax liability from income to consumption

Türkiye in the early 2000s adopted a series of reforms to modernize tax policy.⁵² A new Customs Law in 2000 led to a broad-based reduction in and rationalization of foreign trade taxes. The introduction of a Special Consumption Tax (SCT) in 2002 drastically simplified indirect taxes by eliminating 16 separate types of levies and reducing the number of VAT rates. SCT collections jumped from less than 1 percent of GDP in the late 1990s to an annual average of 4.6 percent between 2003 and 2008. In parallel, Corporate Income Tax (CIT) was modernized in 2006 to include provisions, among others, on transfer pricing, thin capitalization, and anti-avoidance measures. Though CIT collections as discussed below remain low. Reforms during this period were motivated by Türkiye's European Union accession negotiations. By 2009, most features of the tax system were judged to be broadly in line with the *Acquis Communautaire*.⁵³

Tax policy reforms through tax rate changes reflect an intended shift in tax liability from income, particularly that of corporates, to consumption. The corporate income tax rate has remained at the lower end of G20 economies since it was cut from 30 percent to 20 percent in 2006 (Figure 57).⁵⁴ The estimated "forward-looking" CIT Effective Tax Rate in Türkiye, derived from CIT rules that help reduce liability (e.g. allowances for corporate equity), is even lower at 18.3 percent (OECD 2019) (Figure 58).^{55,56} The low burden of CIT is also reflected in (OECD 2019): (i) the low user cost of capital – defined as the pre-tax rate of return on capital required to generate zero post-tax economic profits (Figure 59); and (ii) the low effective marginal tax rate (EMTR), which measures the extent to which taxation increases the user cost of capital (Figure 60). This has incentivized corporates but not encouraged compliance, leading to low CIT take⁵⁷, as discussed below.

⁵¹ Dunn, B and Elke, A (2020), "International Tax Competitiveness Index," Tax Foundation

⁵² Gerçek, A and Turegun, F.B. (2020), "Tax System and Tax Reforms in Türkiye," in Kural H. and Akdemir, T. (eds) (2020) "Public Financial Management Reforms in Türkiye"

⁵³ Ter-Minassian, T. (2009), "Challenges in Tax Reform for Türkiye, in an International Perspective," Seminar on Tax Policy Options on the Way to EU Accession, Ankara, January 12-13, 2009

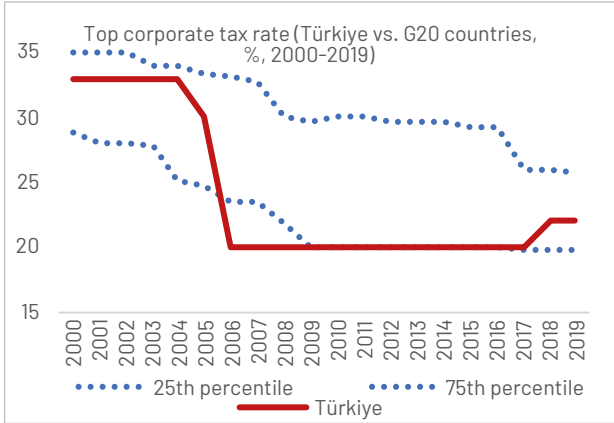
⁵⁴ The rate was temporarily increased to 22 percent between 2018-2020; further temporary increases were recently agreed on (to 25 percent in 2021 and 23 percent in 2022).

⁵⁵ OECD (2019), "Corporate Tax Statistics (Second Edition)" – page 16: "...the ETRs ... focus on the effects of fiscal depreciation and several related provisions (e.g., allowances for corporate equity, half-year conventions, inventory valuation methods)."

⁵⁶ The "backward looking" ETR derived from actual CIT payments over actual profits is estimated in the last section which analyzes the effectiveness of corporate tax incentives.

⁵⁷ There has been a gradual progress in CIT revenue in one and a half decade. The share of corporate tax revenue in total tax revenue rose to 12.6 percent in 2020 from 10.1 percent in 2005 and its share in GDP increased to 2.1 percent in 2020 from 1.8 percent in 2005.

Figure 57: CIT rate at the lower end of G20 countries



Sources: OECD Tax Database, WB Staff estimates

Figure 58: CIT effective rate is also relatively low

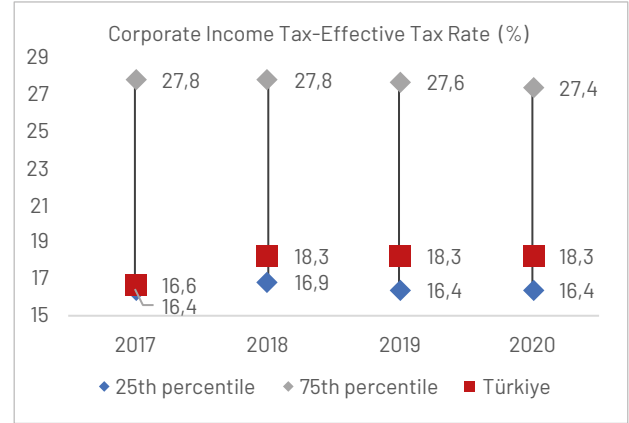
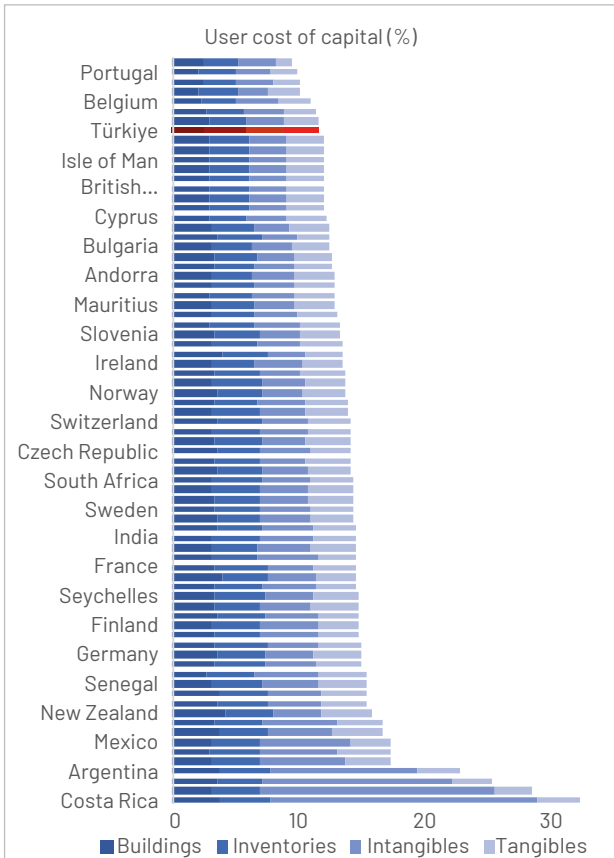
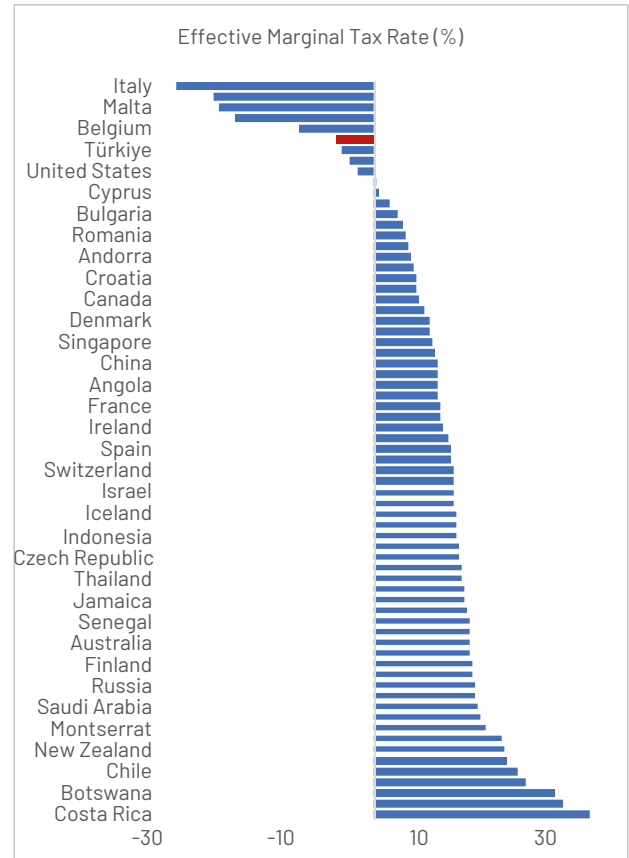


Figure 59: Low used cost of capital reflects low CIT burden



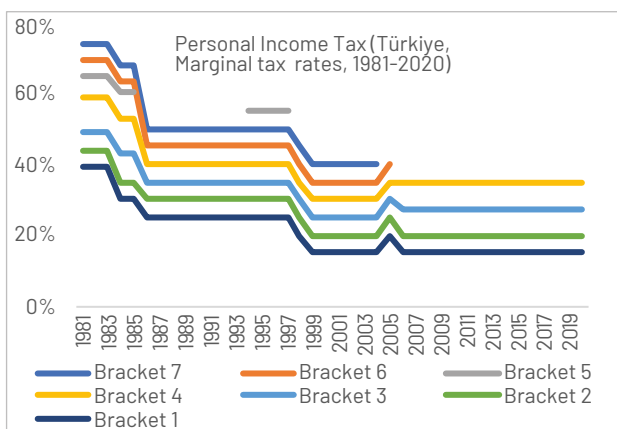
Sources: OECD Tax Database

Figure 60: Resulting in low Effective Marginal Tax Rate



Tax rates on individual incomes have also dropped though payroll taxes and the overall labor tax wedge have increased over the past decade. Personal income tax rates and the number of tax brackets have declined since the early 1980s (Figure 61). Payroll taxes – namely pension fund, insurance fund, and health insurance fund contributions – had decreased initially (2005–2010) but have increased over the last decade. Though payroll tax rates have declined over the past 15 years,⁵⁸ an increase in formal sector workers has driven up the labor tax wedge (Figure 62).⁵⁹ The labor tax wedge currently stands at an estimated 39.7 percent, which is high relative to OECD countries (Figure 63). Labor, therefore, faces high tax liability both through the labor tax wedge and consumption taxes. The labor tax wedge creates challenges for formal employment creation and labor force participation as discussed below, and for the future financing of pension liabilities (chapter 3).

Figure 61: Sustained decline in PIT rates



Sources: OECD Tax Database, WB Staff estimates

Figure 62: But labor tax wedge is high and rising

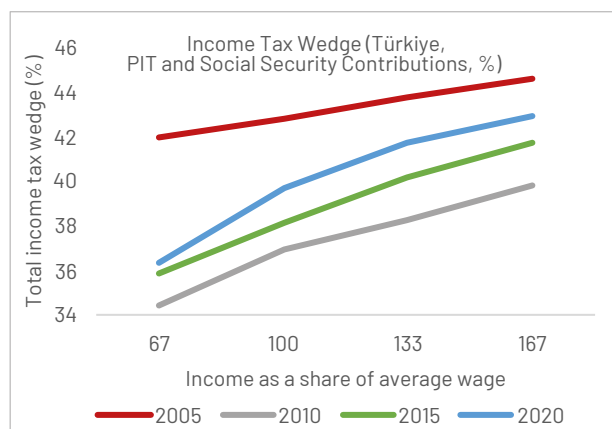
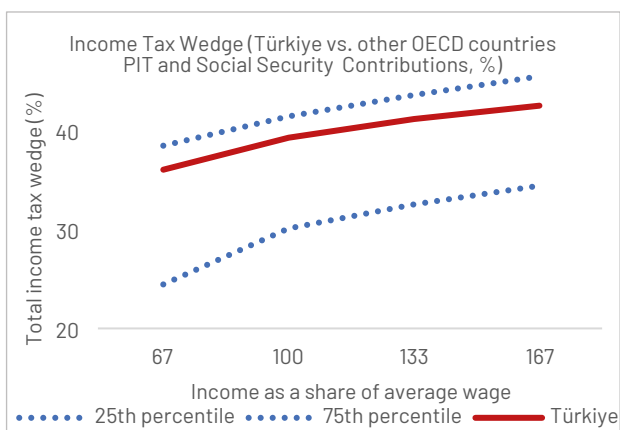
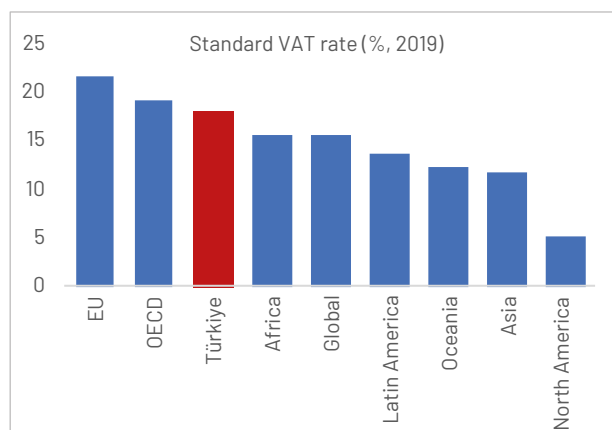


Figure 63: Including when compared to other OECD countries



Sources: OECD Tax Database, WB Staff estimates

Figure 64: VAT standard rate is at the upper end relative to peers



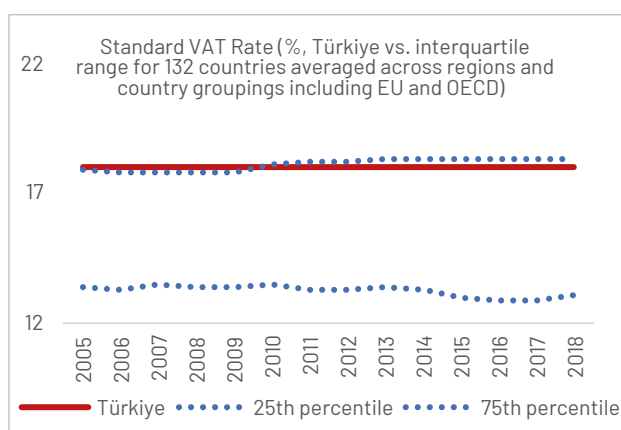
Sources: KPMG, WB Staff estimates

⁵⁸ Employee SSC contribution rates have remained stable at 15 percent, though employer SSC contribution rate declined from 22.5 percent in 2001 to 16.5 percent in 2009, before rising to 17.5 percent in 2014 (OECD tax database).

⁵⁹ OECD - tax wedge indicator: "Tax wedge is defined as the ratio between the amount of taxes paid by an average single worker (a single person at 100% of average earnings) without children and the corresponding total labor cost for the employer. The average tax wedge measures the extent to which tax on labor income discourages employment. This indicator is measured in percentage of labor cost."

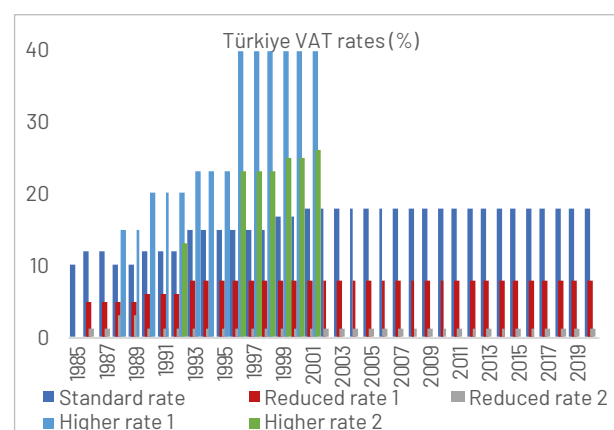
The standard VAT rate has been stable over time, whilst there has also been some consolidation of VAT rates with the expansion of the Special Consumption Tax (SCT). The VAT operates under a multi-rate structure with a standard rate of 18 percent (Figure 64)(58 percent of base) and two reduced rates (1 and 8 percent)(Figures 65, 66). Higher VAT rates have been eliminated; the SCT has introduced levies on fuels, motor vehicles, tobacco, and sugar-sweetened beverages. Most goods and services are subject to the standard VAT rate. The 1 percent rate applies among others to specific basic foodstuffs, most residential investment, and sales of second-hand cars (9 percent of base). Most agricultural goods, food products and textiles are taxed at the 8 percent rate (33 percent of base). VAT exemptions have increased as discussed further below, which has contributed to some complexity. There is no explicit VAT registration threshold however and supplies made by certain small businesses are treated as exempt.

Figure 65: VAT standard rate has remained stable



Source: KPMG.

Figure 66: VAT has two reduced rates



Source: OECD Tax Database

Beyond tax rate reforms, it is important to consider changes to the tax base as these also affect overall tax liability. For example, the decrease in CIT and PIT rates discussed above could have been offset by an increase in the CIT and PIT bases respectively. Tax policy shifts beyond tax rate changes however can be difficult to capture systematically and over time. They are ad hoc, specific, and adopted through different regulatory instruments. Amaglobeli et al. (2018) at the IMF⁶⁰ developed a comprehensive, cross-country database of tax policy changes; this was extended in the case of Türkiye for the Public Finance Review. The database provides an overview of the direction of tax policy changes (rate and base) across main tax instruments.⁶¹

Most of the tax policy reforms in Türkiye were have been leveled at the tax base, and have increasingly targeted reductions in tax liability since 2014 (Figure 67). Tax rate changes have not been as common since the Global Financial Crisis (Figures 67, 68). Most changes since 2014 were driven by reductions in the VAT base in the form of exemptions (Figures 69, 70). Exemptions for example targeted aid funded and other social projects, selected machinery and equipment including those for R&D and other innovation-based projects as well as selected medical services, and construction of renewable energy facilities. Since 2018, however, temporary VAT exemptions have been used to stimulate consumption. Beyond VAT, there were also changes to the SCT base. Changes to the PIT base also aimed to enhance equity, e.g., tax allowances for small business holders, tax exemptions for small e-commerce traders, a higher tax bracket (40 percent) for high- income earners, and others.

⁶⁰ This analysis is based on a database of tax policy measures, which can be accessed at Amaglobeli, D., V. Crispolti, E. Dabla-Norris, P. Karnane, and F. Misch, 2018, Tax Policy Measures in Advanced and Emerging Economies: A Novel Database, IMF Working Paper 18/110). The database covers tax policy reforms from 1985 to 2014; WB extended for Türkiye till 2020 as part of the PFR.

⁶¹ The analysis can be extended separately to assess the motives of those changes such as equity objectives (e.g. income tax allowance for low income households), efficiency considerations (e.g. consolidation of multiple tax rates), fiscal stimulus (e.g. tax incentives), simplification of the tax system (e.g. elimination of multiple exemptions), or other (e.g. health or environmental objectives).

The combined effects of base and rate changes in Türkiye affirm the shift in tax liability from income to consumption. Just over half of the 88 tax measures that increased tax liability between 1985 and 2020 were due to SCT and VAT (Figure 70). Over half of the 96 tax measures that decreased tax liability were driven by CIT and PIT reforms. While the global trend to reduce taxes on corporates and labor was intended to enhance competitiveness for foreign investments, it also contributed to base erosion and profit shifting (BEPS) by multinationals. The latter exploited differences in tax systems across countries to either shift profits to lower tax jurisdictions or erode tax bases through deductible payments (e.g. interest, royalties). This can also have the effect of reducing tax compliance by domestic companies.

Figure 67: Policy shifts reduce taxes on income

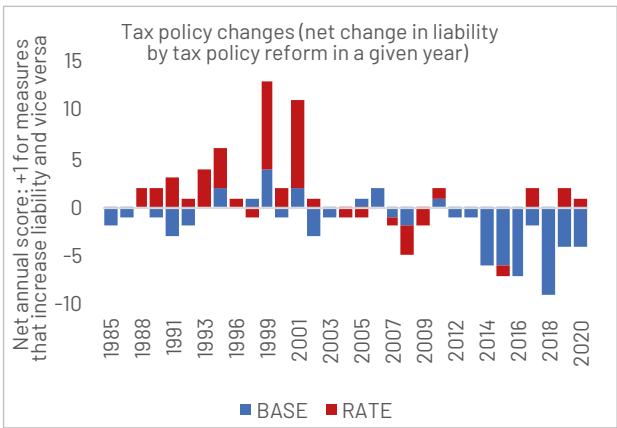


Figure 68: Tax rate changes are very limited

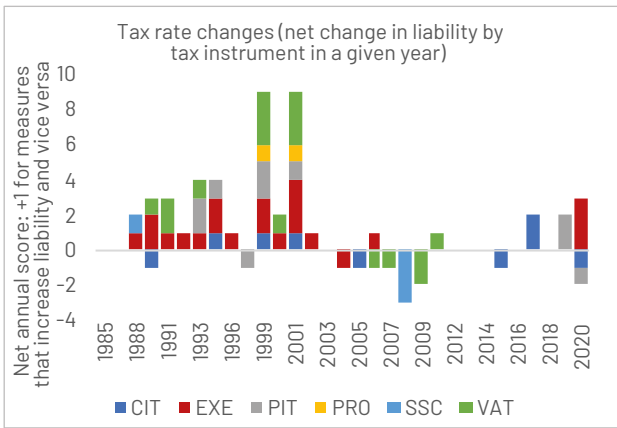


Figure 69: Most policy changes are leveled at the tax base

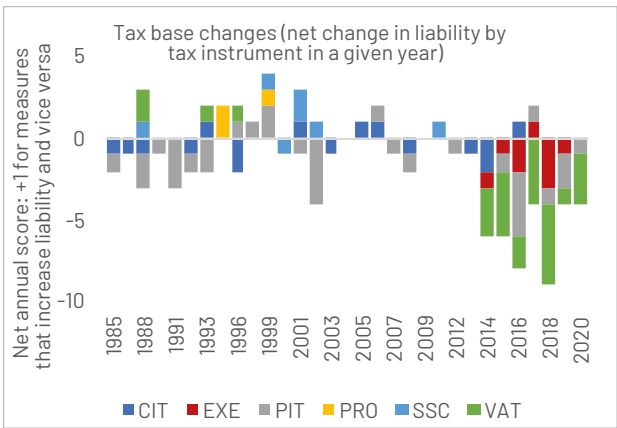
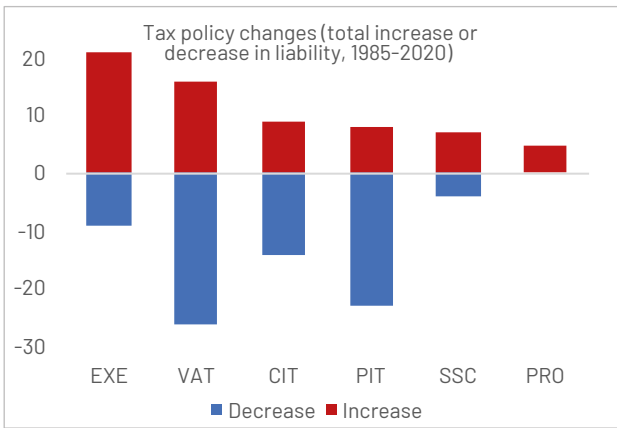


Figure 70: VAT and PIT base changes most frequent



Sources: Amaglobeli (2018), WB Staff estimates

Global corporate income tax competition has led to collective action to halt the trend. In 2013, the OECD/G20 adopted an Inclusive Framework on Base Erosion and Profit Shifting;⁶² around 139 countries and jurisdictions collaborate on measures to address tax avoidance, improve the coherence of international tax rules, and ensure a more transparent tax environment. Further collective action was taken in 2021 with agreement across 130 countries to adopt new rules for taxing corporate profits where they are earned and for the adoption of a global minimum corporate tax rate of at least 15 percent.⁶³ These actions could help Türkiye, where corporate tax collections are currently low (see below).

⁶² See OECD/G20 Inclusive Framework on BEPS
⁶³ See 130 countries and jurisdictions join bold new framework for international tax reform.

Frequent changes to tax policies, rules, and regulations have led to a more complex tax system

Tax policy changes have become increasingly frequent, which has made the tax system more complex. An analysis of legislative changes in Türkiye points to an increase in the volume and frequency of changes to rules and regulations affecting business operations. Using big data techniques, the number of changes for 19 categories of business regulations was analyzed across all relevant legal instruments in Türkiye.⁶⁴ Tax reforms were among the most frequent, including labor market, finance, the environment, quality infrastructure, and trade (Figure 71). The average number of tax policy and administrative changes increased from 48 per year between 2000 and 2009 to an average of 104 per year between 2010 and 2018 (Figure 72).

This does not necessarily imply a deterioration in the quality of tax policies or administration, but rather having to deal with more frequent tax reforms can be unsettling for businesses. Tax reforms were not only more frequent but were introduced using more discretionary instruments. Between 2000 and 2009, around 60 percent of tax reforms were instituted through primary Laws, although beyond 2009, 70 percent of reforms were introduced through regulations, decrees, and communiques. Each instrument has different degrees of discretion (i.e. in terms of level of authority and consultation needed to adopt new rules or introduce changes to existing ones). This may affect the predictability and transparency of the rule-making process. Legal instruments such as regulations and communiques do not formally require prior consultation.

Figure 71: Tax rules among the most frequent changes

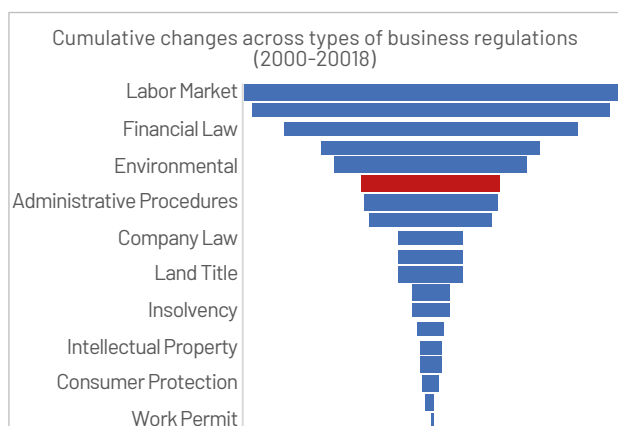
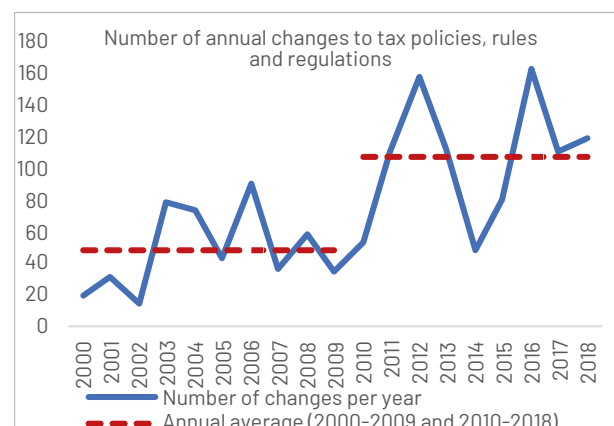


Figure 72: Number of changes has risen since 2010



Source: WB Staff estimates.

Note: This analysis covers a broader scope of tax changes compared to the analysis in Figures 11-14 above

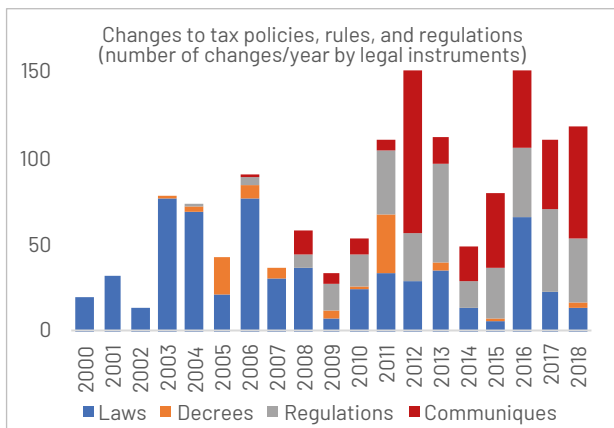
In Türkiye, rules on international taxation have made the system more complex for multinationals, although those rules are designed to prevent base erosion and profit shifting. For example, Türkiye has a middling rank in the Tax Complexity Index⁶⁵ and a below average rank in the Tax Attractiveness Index;⁶⁶ both indices assess aspects of the tax code that impact multinationals (MNCs). Rules in a given country that prevent multinationals from reducing their tax liability also lower that country's index score. For example, the following enhance complexity and/or reduce attractiveness in these indices: (i) rules on thin capitalization (i.e. deductibility of interest payments from tax liability); (ii) transfer pricing rules (i.e. ability to charge different prices across MNC subsidiaries in different countries based on the tax burden to reduce overall liability); (iii) Controlled Foreign Corporation rules (i.e. to prevent base erosion by allowing MNCs to shift profits to lower tax jurisdictions). Türkiye has adopted these important rules to tackle base erosion and profit shifting.

⁶⁴ WBG (2019), "Türkiye Economic Monitor: Charting a New Course."

⁶⁵ The Tax Complexity Index measures the complexity of a country's corporate income tax system as faced by multinational corporations. See <https://www.taxcomplexity.org/>

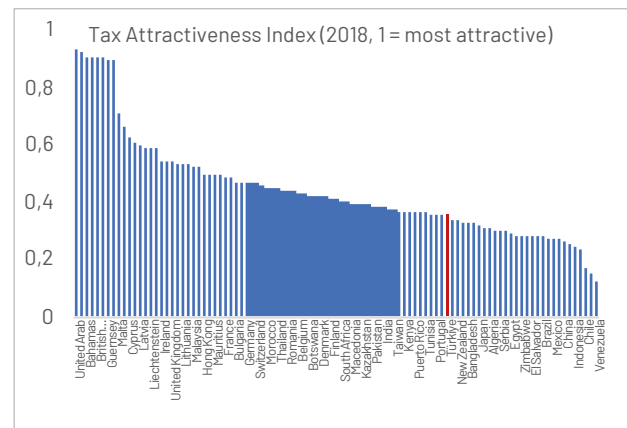
⁶⁶ The Tax Attractiveness Index (TAX) measures the attractiveness of the tax environment for corporations in 100 countries worldwide. It is a composite index that captures a broad set of tax aspects relevant for corporate location decisions. See <https://www.tax-index.org/>

Figure 73: Through more discretionary instruments



Source: WB Staff estimates

Figure 74: Tax complexity for good reforms also



Source: Tax Complexity Index

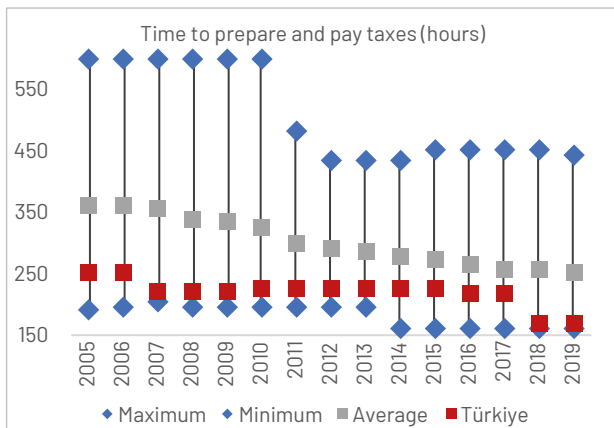
A more formal assessment of complexity across different tax instruments provides helpful insights into priority reforms. Such an assessment was undertaken by Budak and James (2018) drawing on the Tax Complexity Index of the UK Office of Tax Simplification.⁶⁷ This looks at: (i) the underlying complexity of the tax system through policy and legislative measures; and (ii) the impact of that complexity through compliance measures. The approach provides a relative measure of complexity across tax instruments in a particular country; Budak and James (2018) compare tax complexity scores between Türkiye and the UK based on 2014 data. In sum, they find that PIT ranks as the most complex tax in Türkiye followed by VAT; but in the case of VAT, the system in Türkiye is relatively more complex than in the UK. These are consistent with the analysis above showing that most tax policy changes have impacted PIT and VAT.

The authorities have over the years tried to adopt a wholesale change and simplify the Income Tax Law but efforts to that end have never reached the approval stage. In 2013 a draft new Income Tax Law was submitted to Parliament, merging existing income (since 1961) and corporate tax laws (since 2007) into a single code. The aim was to expand the tax base and simplify existing legislation by re-introducing the obligation to file an income tax return, applying a single marginal tax structure (15 to 35 percent) to income from most revenue sources, and limiting exemptions on speculative capital and property gains. Years of amendments to both the Personal Income Tax Law and the Corporate Tax Law have made the Turkish tax system complex and costly to comply with, negatively impacting the business environment. The draft law was a substantial first step towards overhauling the income tax system for enhanced efficiency, effectiveness, and equity. However, this draft law did not come into effect in 2013 and was set aside. Going forward, moving forward swiftly with an updated tax procedures code will lay the basis for full operationalization of the proposed changes.

Beyond this, several reforms have helped to reduce compliance costs, but actual compliance remains an ongoing challenge. Aside from tax policy reforms noted above (e.g. reduction of CIT and PIT tax rates, elimination of PIT brackets), tax administration reforms (e.g. e-filing, modernization of taxpayer services, simplification of tax submissions) have helped to reduce the number of hours required to pay taxes (Figure 75). Yet there are important tax policy complexities that remain, for example: (i) structuring PIT on a schedular (rather than global) basis, such that separate taxes are imposed on different categories of income; (ii) using multiple VAT rates for different goods and services; (iii) treating each member of a group of companies as a separate taxpayer, which can create opportunities for tax planning and avoidance activities through the non-recognition of some or all intra-group transactions. PIT complexities align with low levels of registered PIT payers (Figure 76); but there are also large tax collection and compliance gaps for VAT and CIT as discussed in the next section.

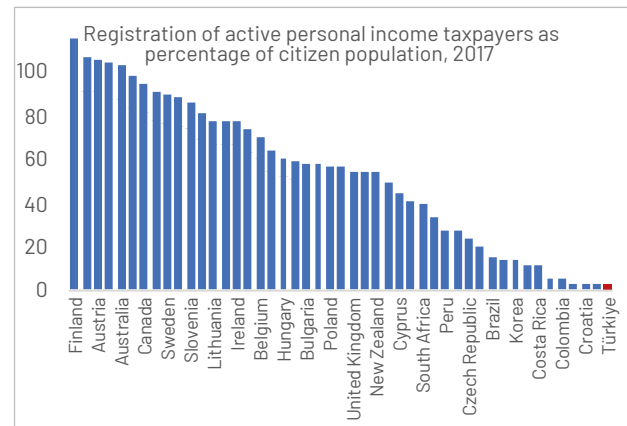
⁶⁷ Budak, T. and James, S. (2018), "The Level of Tax Complexity: A Comparative Analysis between the UK and Türkiye Based on the OTS Index."

Figure 75: Tax administration reforms have helped alleviate some aspects of tax complexity



Source: Doing Business report

Figure 76: PIT compliance remains low



Source: OECD Tax Database

Given the above, it is worth taking a more comprehensive look at options for tax system simplification. Tax systems are expected to become more complex over time. This can be a consequence of more complex business transactions, a more diverse tax base, new taxes for economic and social objectives (e.g. health, environment), and the expansion of international transactions. But the source and incidence of tax complexity will impact on tax compliance and tax gaps. For example, smaller businesses may struggle to comply with the administrative burdens of VAT. Small businesses can experience cash flow problems arising from the requirement to account monthly on an accrual or invoice basis and can struggle to comply with the record-keeping obligations of the VAT. This, in turn, could be tackled through: (i) simplified administrative procedures; or (ii) simplified VAT calculation for small businesses. Simplified administrative procedures focus more on the cash flow problem of small businesses under the VAT, while the simplified VAT calculation focuses more on reducing the record-keeping burden for small businesses.

Tax complexity and composition pose challenges for the efficiency of tax collections

The composition of tax collections in Türkiye mirrors the policy changes and complexities discussed above. Though tax levels are comparable to other UMICs (Figure 77 and Chapter 1), Türkiye is an outlier in tax composition. As countries develop, labor income and wealth-based taxes come to dominate, followed by broad-based consumption taxes. High-Income Countries (HICs) collect more from labor taxes (Figures 78, 79) and broad-based consumption taxes (Figure 80) compared to MICs, which rely more on consumption (Figures 80, 81) and corporate taxes (Figure 82). In Türkiye on the other hand, labor tax collections are considerably above, and CIT collections are considerably below, the average of other MICs; the composition is closer to that of HICs. Türkiye also relies heavily on broad-based consumption taxes, though collections are skewed towards excise taxes rather than VAT, which is below the MIC average.

Building a strong labor tax system is important though the current burden of SSC in Türkiye poses a dilemma. PIT as a share of GDP in Türkiye is higher than in peer countries (Figure 78) despite low compliance (Figure 76); this may be due to high reliance on withholding taxes and low self-declarations. SSC in Türkiye are high despite Türkiye's low age dependency ratio; this should imply low pension liabilities, unemployment benefits, and health insurance payouts (i.e. main components of SSC) and therefore less need for SSC. At the same time, SSC receipts are below pension, unemployment insurance, and health insurance payouts. The social security system is in deficit (see chapter 3). The dilemma, therefore, is that Türkiye cannot increase the burden of SSC through Payroll Taxpayers because it is already high, but the social security system needs more resources to meet growing demands. Those growing demands stem from a rapidly ageing population and increased coverage and adequacy of unemployment insurance (chapters 3 and 4).

Figure 77: Overall tax collections comparable to peers

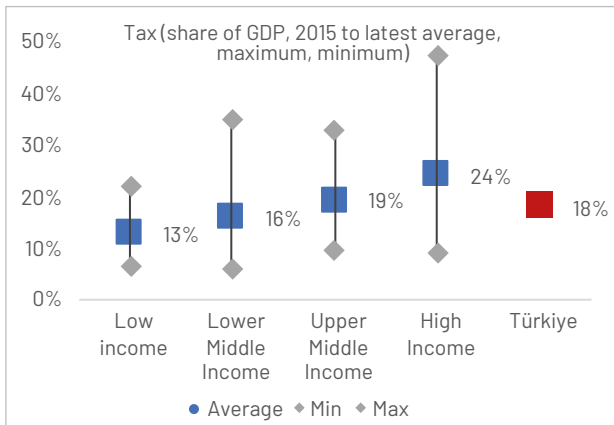


Figure 78: PIT collections slightly above peers despite overall low compliance

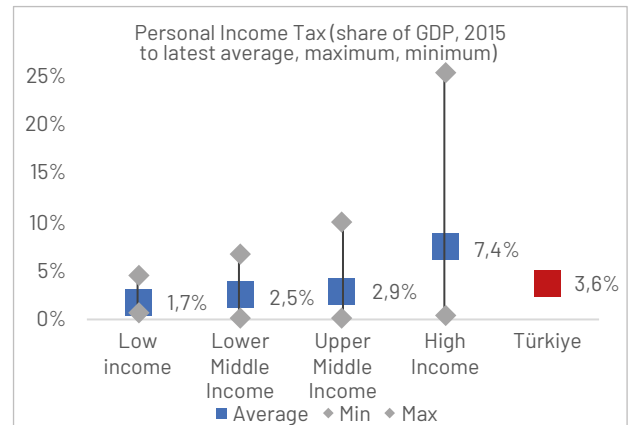


Figure 79: But overall labor taxes high due to SSC

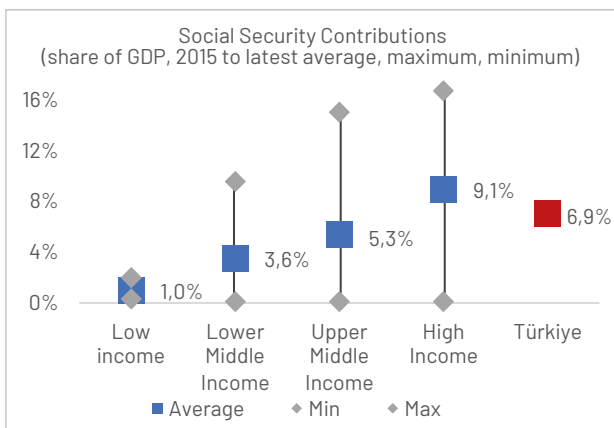


Figure 80: VAT collections are below that of peers

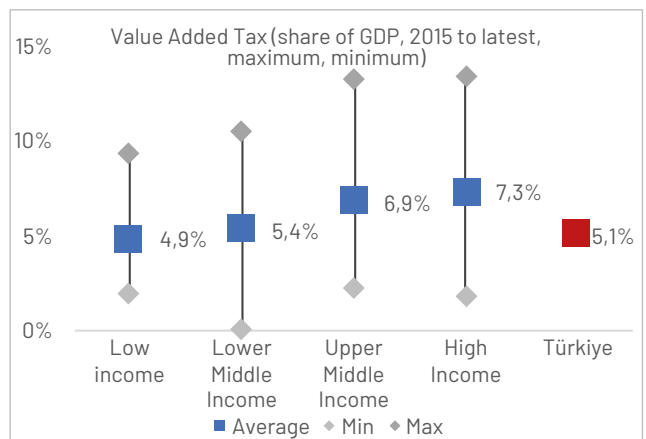


Figure 81: But overall consumption taxes are high due to SCT

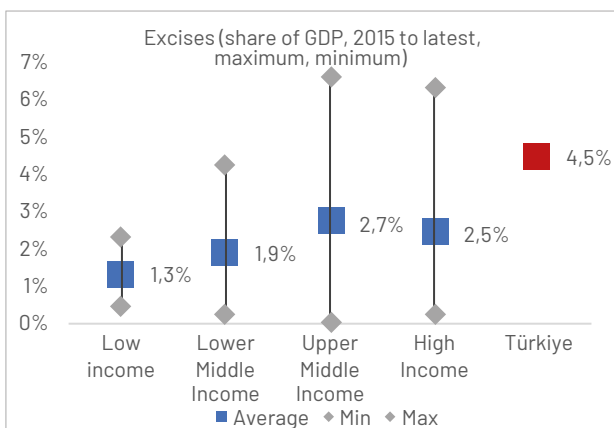
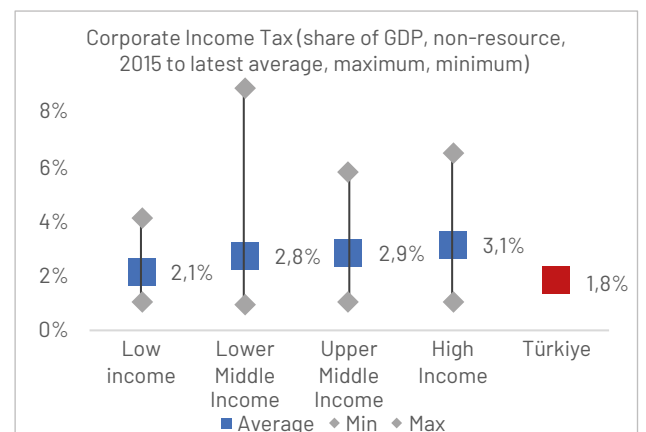


Figure 82: While CIT is well below comparators

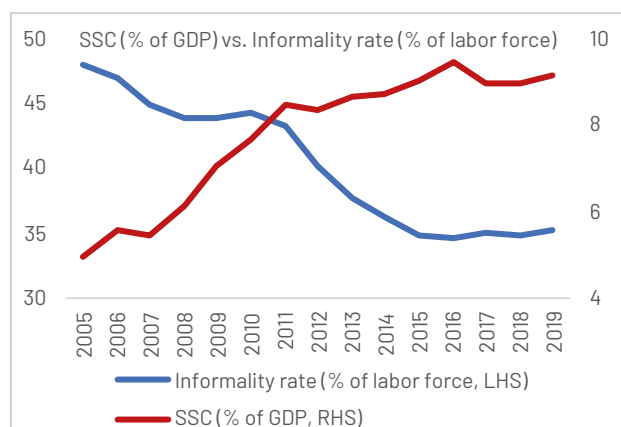


Sources: ICTD Government Revenue Dataset, WB Staff estimates

Yet the burden of SSC on the existing tax base may be exacerbating the social security deficit by deterring compliance. The high labor tax wedge weighs on formal employment creation and encourages tax avoidance, thereby lowering SSC. The share of informal employment in Türkiye declined from 48 percent in 2005 to 35 percent in 2014, which helped expand SSC, but has remained stable since then (Figure 83). The stickiness of labor informality may be related to the refugee influx from Syria, which has expanded the labor force since 2013. For those formally employed, there is anecdotal evidence of under declaration of personal income, and data showing a bunching of salaries around the minimum wage,⁶⁸ to reduce the SSC burden on employers. In addition, a high labor tax wedge can delay recovery in employment after negative shocks due to elevated hiring costs; unemployment has generally been high and on an upward trend since 2011 (Figure 84).

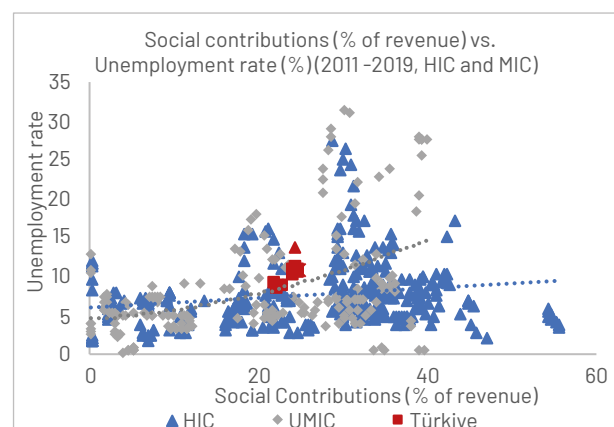
Lowering the burden of SSC could help broaden the base and help plug the social security deficit. The authorities did reduce employers' SSC contribution rate in 2009 from 22.5 percent to 16.5 percent. Yet the overall tax wedge has nevertheless risen, and been driven by SSC, as discussed above. The authorities have increasingly had to resort to subsidizing SSC contributions and providing wage subsidies to reduce firms' labor costs (chapter 4). However, targeted reductions in the labor tax wedge could help increase SSC by: (i) reducing informality and tax avoidance and; (ii) encouraging greater labor force participation, especially among women. On the other hand, it could also reduce social security liabilities by accelerating job creation particularly for the youth that suffer disproportionately high unemployment. Further policy adjustments such as raising the retirement age (chapter 3) could also help reduce pension liabilities and, therefore, the burden on SSC.

Figure 83: Informality has stabilized



Sources: ILO, ICTD

Figure 84: High SSC can deter employment



Sources: WDI

VAT is the main workhorse of the Turkish tax system though collections are below potential and on a declining trend. VAT accounts for around 26-30 percent of total tax revenue and 40-45 percent of total indirect tax revenue (Figure 85). Its share in overall tax revenue has declined slightly over the last decade (Figure 86). In 2019, C-efficiency that is the ratio of VAT revenue to the product of the standard VAT rate and final consumption, fell below 40 percent. In other words, over 60 percent of ideal VAT revenue was lost in Türkiye due to both non-compliance, policy decisions.. As estimated by the General Directorate of Revenue Policies, the Ministry of Treasury and Finance, foregone revenue from exemptions with and without the right to deduct⁶⁹ amounted to around TL 36.9 billion in 2019.⁷⁰ This was equivalent to approximately 9.2 percent of the theoretical base, that is, - the revenue that would be raised if all taxpayers were compliant and, an 18 percent rate was applied to all household final consumption.⁷¹ The VAT tax gap is analyzed in greater detail in the next section.

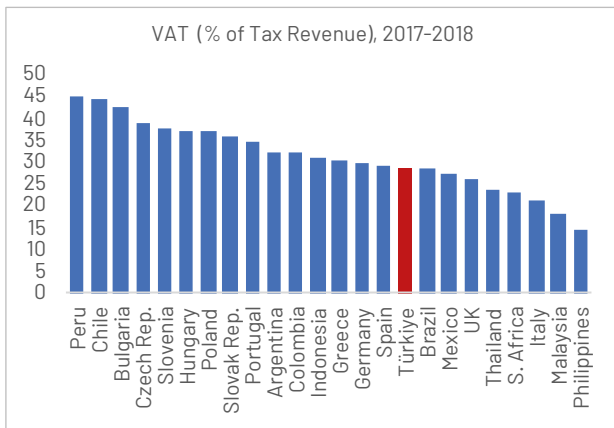
⁶⁸ WBG (2014), "Türkiye in Transition: Time of a Fiscal Policy Pivot?"

⁶⁹ Excluding exemptions to exports of goods and services.

⁷⁰ General Directorate of Revenue Policies (2017), Tax Expenditures Report.

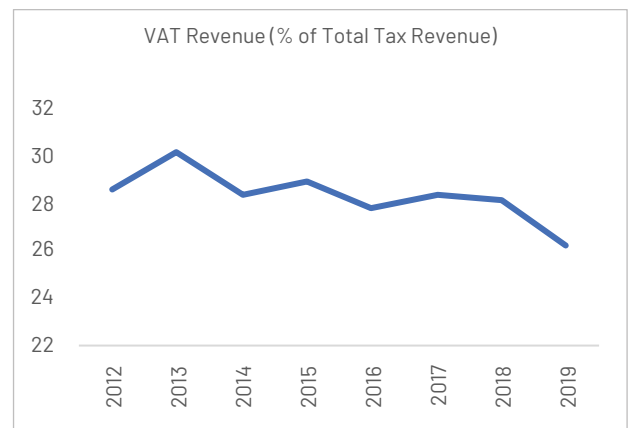
⁷¹ Counterfactual revenue in case of full compliance and one rate applicable is broader than the VTTL.

Figure 85: VAT/total tax ratio lower than many OECD countries, despite high standard rate



Source: OECD Global Revenue Statistics
 Note: Total tax revenue covers social security contributions in OECD database. In this figure, it is deducted from total tax revenue.

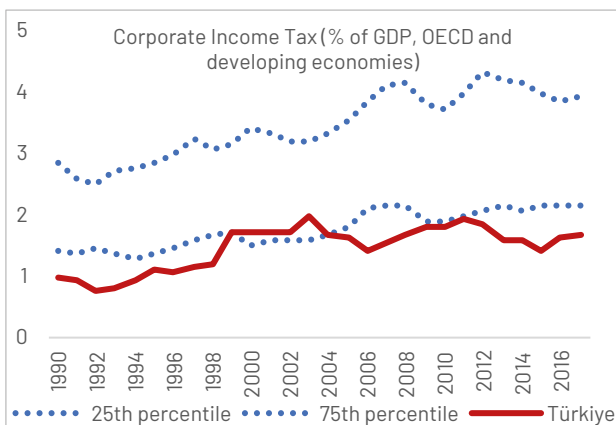
Figure 86: VAT as a share of GDP has been on a slightly declining trend because of consumption shocks



Source: Ministry of Treasury and Finance

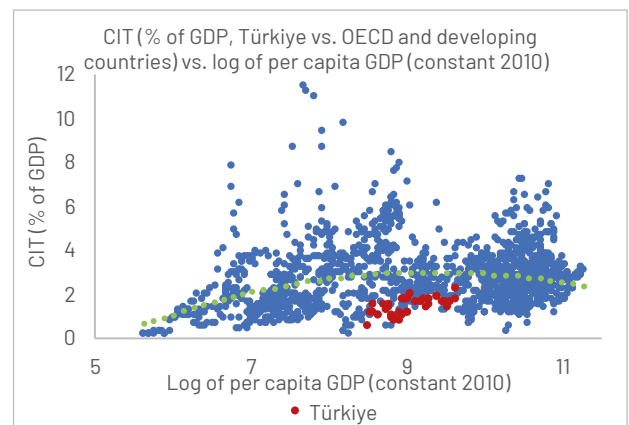
CIT collections in Türkiye are also well below potential. CIT collections in Türkiye have historically been low in Türkiye as a share of GDP, averaging less than 2 percent over the past 20 years (Figure 87), as a share of total tax collections (less than 10 percent over the past 20 years), and compared to other countries (Figure 88). There could be several reasons for this. The first could be the overall generosity or competitiveness of the CIT regime, as discussed above. Relatively high and sustained rates of private investment may have fueled expenditure deductions and loss carry forward, thereby reducing the CIT take. The second could be a subset of this, which is the role of corporate tax incentives – as analyzed below, tax expenditures arising out of CIT incentives amount to 0.25 percent of GDP, at roughly 15 percent of CIT collections in 2019 (please see paragraph 43 below). This is not insignificant but is not the main driver; moreover, what matters is not just the cost but also the benefits of those incentives, which are analyzed in the last section.

Figure 87: CIT collections have historically been low in Türkiye



Sources: OECD Tax Database, WB Staff estimates

Figure 88: CIT collections in Türkiye have consistently been below those of other countries



Sources: OECD Tax Database, WDI, WB Staff estimates

Another factor aside from low CIT collection, that also affects the rest of the tax system, could be the degree of informality. Aside from labor informality, as discussed above, Medina and Schneider⁷² estimate that overall informal economy accounted for 27.4 percent of GDP in 2015⁷³, which was about the median value observed in 158 analyzed countries. This is understandably high for an MIC. Yet informality in the services sector, which accounts for 60 percent of GDP, is high and could be a major source of corporate tax leakage. Service sector firms do not benefit from corporate tax deductions, deferrals, and incentives in the same way as firms in the manufacturing sector. According to the Turkish Revenue Administration, the corporate tax base has been increasing over time and the number of corporate taxpayers is approximately 880,000 in 2020. Approximately 1.5 percent of these taxpayers make 68 percent of their corporate tax payments. When the Central Bank is excluded, this ratio drops to 56 percent.

These developments suggest efficiency challenges in Türkiye's overall tax collections. Tax efficiency are actual taxes collected, which in Türkiye has been on a slightly declining trend since 2010, relative to a country's tax potential. Detailed tax efficiency or tax gap analyses can be done by tax instrument to determine the drivers of tax shortfalls e.g. in terms of lack of compliance or policy-driven tax leakages. The approach depends on data availability. For example, the next section uses private consumption data from national accounts to carry out a top-down assessment of VAT compliance gaps in Türkiye; the section after that uses corporate taxpayer level data to carry out a bottom-up assessment of the costs (revenue foregone) and benefits (e.g., employment, investments, productivity) of corporate tax incentives.

A cross-country assessment can provide a first approximation of trends in tax efficiency. The tax potential of 64 countries⁷⁴ is determined using a stochastic frontier analysis (SFA). The SFA is based on a production function approach, whereby a set of country characteristics (inputs) determine how much an individual country could be collecting (i.e., tax potential). The SFA assumes that collections are below potential and computes an efficiency score of between 0 and 1, where a higher number proxies for higher efficiency/tax effort. The country characteristics are limited to macro-structural factors and do not include policy or institutional factors. The results of the SFA are in line with expectations (Table 7): GDP per capita, the non-agriculture share of the economy, urbanization and openness (as proxied by share of exports and imports in GDP) all expand the tax frontier; while age dependency and informality (as proxied by share of self-employed) reduce the tax frontier. The negative coefficient of Log GDP per capita squared implies a non-linear relationship with the tax-to-GDP ratio.

The SFA illustrates that tax efficiency in Türkiye is below that of peers. High-Income Countries in general tend to be clustered closer to the efficiency frontier (Figure 89). Middle-Income Countries are more dispersed. Türkiye's efficiency score (averaged since 2015) is considerably below the efficiency frontier for its level of income. Other countries at a lower level of per capita income have higher efficiency scores. More efficient countries do not necessarily have higher tax to GDP ratios. Türkiye in fact has the highest tax to GDP ratio among selected UMIC peers – but given its macro-structural characteristics, it could potentially collect even more. This does not say anything about which taxes it could potentially collect more of, but only the aggregate amount.

This has in turn translated into a growing tax gap for Türkiye, i.e., the difference between what it is actually collecting and what it could potentially collect. Tax efficiency has started to decline since 2010 (Figure 91). The difference between actual collections and potential, calculated by dividing the actual tax collections as a percentage of GDP by the tax effort, has in turn been growing. The growing tax gap in the first few years in the mid-2000s seems largely driven by a decline in tax collections. Yet after the Global Financial Crisis, the gap seems to be driven both by declining collections and increased potential. This is consistent with the above discussion on more frequent tax policy and administrative changes, greater complexity, and falling compliance. Macro instability may have exacerbated these challenges (chapter 1). Compliance gaps in VAT and tax expenditure in CIT are considered in more detail in the next two sections.

⁷² Medina, L. and Schneider, F. (2018), "Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?" IMF Working Paper Series, WP/18/17.

⁷³ There are not many studies estimating the size of informality in Türkiye. Karaca (2016) summarized the shadow economy estimate results (varying between 20-30 percent) by different methodologies. Karaca, C. (2016), "The Comparison of the Shadow Economy in Türkiye and European Countries" In book: Comparative Economics and Regional Development in Türkiye (pp.73-105).

⁷⁴ The sample covers only high and middle-income countries, with a population of at least 20 million (with the exception of a few HICs for which population may be lower), and natural resource rents of below 20 percent of GDP. Low-income countries, small countries with low populations, and countries with a high share of natural resource income are structurally very different from high income, large, economically diverse countries.

Table 7: Results from Stochastic Frontier Analysis

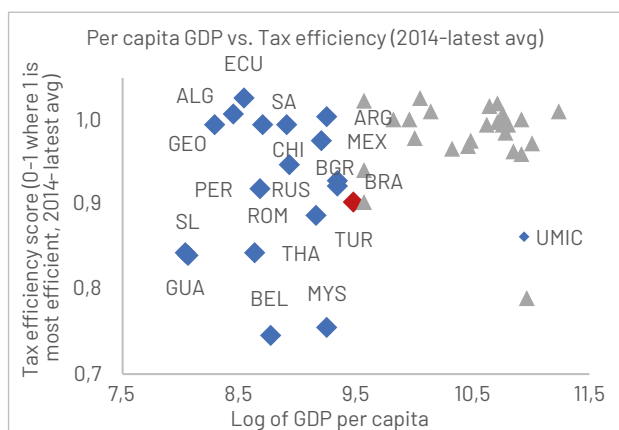
Log tax-to-GDP ratio	(1) Exponential	(2) Half-Normal	(3) Truncated-Normal
Log GDP per capita	0.318*** (0.119)	0.345*** (0.131)	0.318*** (0.119)
Log GDP per capita squared	-0.025*** (0.007)	-0.027*** (0.008)	-0.025*** (0.007)
Log non-agri share	0.535*** (0.095)	0.843*** (0.095)	0.536*** (0.095)
Log urban share of population	0.567*** (0.059)	0.559*** (0.062)	0.567*** (0.059)
Log age dependency ratio	-0.079* (0.041)	-0.032 (0.051)	-0.079* (0.041)
Log openness	0.128*** (0.009)	0.116*** (0.010)	0.128*** (0.009)
Log self employed share	-0.081*** (0.021)	-0.076*** (0.026)	-0.081*** (0.021)
Observations	1586	1586	1586

Standard errors in parentheses

*p<0.10, **p<0.05, ***p<0.01

Source: WB Staff estimates

Figure 89: Low tax efficiency given income level



Sources: ICTD, WDI, ILO, WB Staff estimates

Figure 90: Despite high tax/GDP relative to peers

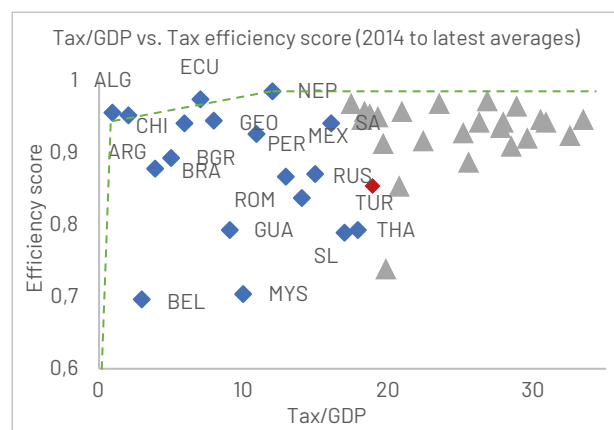
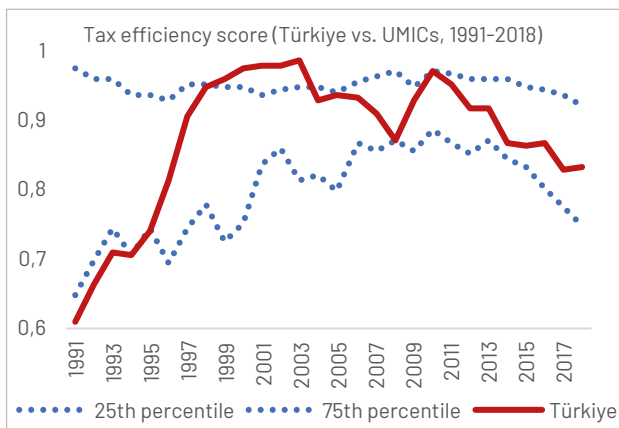
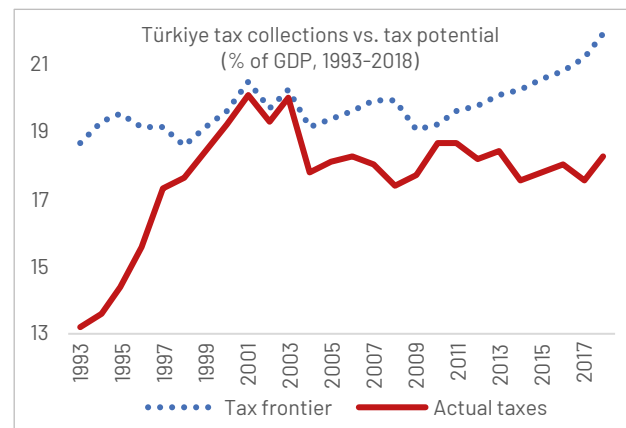


Figure 91: Tax efficiency declining since 2010



Sources: ICTD, WDI, ILO, WB Staff estimates

Figure 92: Leading to a growing tax gap



B. Estimating the VAT compliance gap

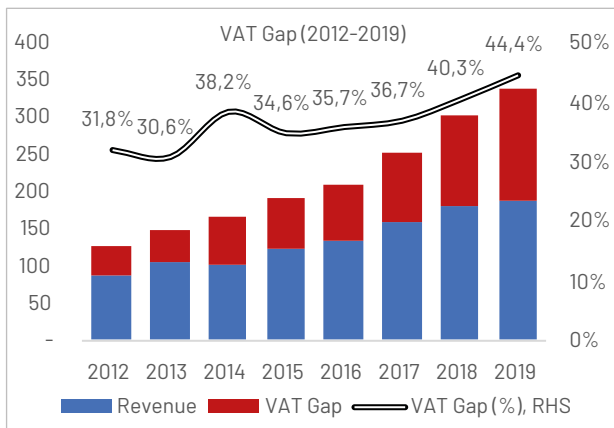
High and Rising VAT GAP

Given the VAT challenges identified above, the PFR tries to analyze the level of tax leakage and possible drivers in more detail. As noted above, VAT is an important source of tax revenue, but collections have declined, in part due to consumption shocks but also due to falling compliance. This section quantifies and analyses foregone VAT revenue due to non-compliance in Türkiye for the period of 2012–2019. The VAT compliance gap (or VAT Gap) refers to the difference between revenue that would be collected in case of full compliance and actual VAT receipts. The VAT Gap represents all forms of theoretical VAT revenue losses due to non-compliance, including fraud, evasion, legal tax optimization and, insolvencies, as well as errors and omissions. It does not account for revenue losses due to tax expenditures, i.e. foregone revenue through applying reduced rates and exemptions.

The VAT Gap is estimated collectively for all economic activities. The estimation follows a top-down consumption-side approach, which relies on estimating the expected VAT liability (VTTL) by modelling tax rules, applying them for the aggregate tax base available in national accounts' supply and use tables (SUT), and then by comparing it with the actual receipts. This approach does not allow for quantifying the value of particular types of irregularities, nor for breaking the Gap by sectors of economic activity. For this reason, the analysis of non-compliance is based among others on benchmarking and scrutinizing the evolution of the VAT Gap over time. Moreover, important insights are drawn from comparing the VAT Gap with the size of the underground economy. On top of that, the analysis of tax rules necessary to estimate the VTTL points to potential sources of VAT non-compliance.

Türkiye's VAT gap has increased by over 10 percentage points over the past decade. The VAT Gap in Türkiye increased from around 32 percent in 2012 to 44.4 percent of the VAT liability in 2019. At the maximum observed in 2019, foregone revenue due to non-compliance was equivalent to nearly 80 percent of actual VAT receipts. In nominal terms, in 2019 the Gap amounted to around 149 billion TL (Figure 93). In 2019, the VTTL, i.e., the revenue that could be collected if all taxpayers were compliant, reached around TL 336 billion. The main contribution to the VTTL had household final consumption (TL 237 billion), GFCF that consists mainly of household and public investment (TL 48 billion), and intermediate consumption (TL 46 billion) (Table 8). On average between 2012 and 2019, these components contributed to 70 percent, 16 percent, and 13 percent of the VTTL, respectively (Figure 94).

Figure 93: VAT GAP is showing an upward trend



Source: WB estimates

Figure 94: Largely driven by HH final consumption

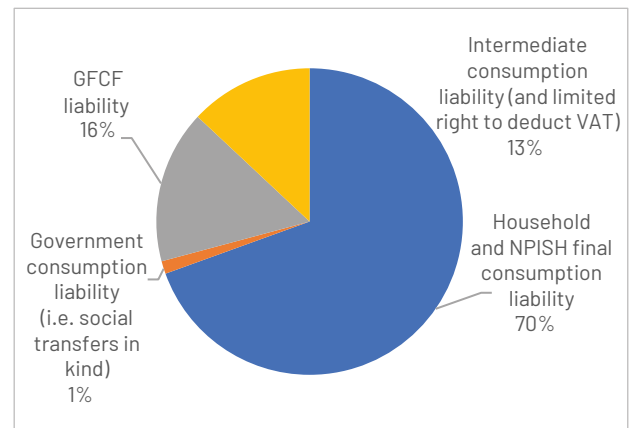


Table 8: VTTL components (2012-2019)

	Household and NPISH final consumption liability	Government consumption liability (i.e. social transfers in kind)	GFCF liability	Intermediate consumption liability (and limited right to deduct VAT)	Net adjustments	VTTL
2012	89.64	1.60	17.76	15.41	(0.16)	124.26
2013	104.35	1.91	24.57	18.31	(0.18)	148.96
2014	116.23	2.19	26.76	21.10	(0.21)	166.06
2015	131.65	2.45	30.76	24.33	(0.24)	188.95
2016	144.87	2.74	34.63	27.32	(0.26)	209.30
2017	169.33	3.43	44.91	33.68	(0.31)	251.03
2018	201.86	4.39	52.19	41.22	(0.38)	299.29
2019	236.93	4.92	48.15	46.37	(0.43)	335.93

Source: WB estimates

The Gap increased despite, positive economic tailwinds. Real GDP grew by 4.9 percent and nominal consumption increased by 14.6 percent on average in the 2013-2019 period (Figures 95, 96). Economic growth is the factor that helps seal the Gap by, among others, reducing the value of bankruptcies and incentives for business not to comply.⁷⁵ Thus, the VAT Gap was likely driven by components uncorrelated or weakly correlated with the economic cycle such as non-compliance.. As the trend was stable, no policy implemented within the period effectively reverse the trend of VAT compliance.

Figure 95: Rising VAT gap despite high GDP growth

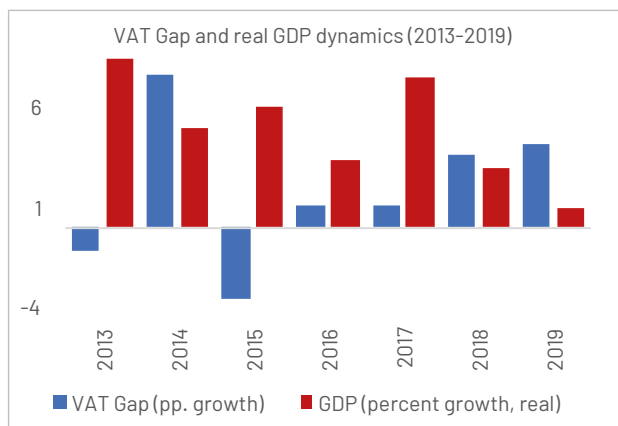
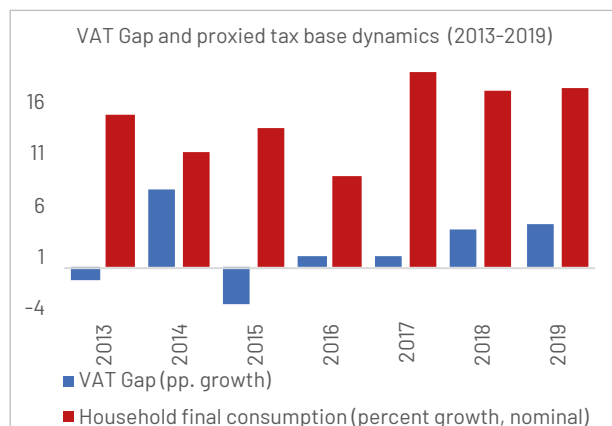


Figure 96: and high consumption growth



Source: WB estimates

The Gap also increased despite a rather stable share of unregistered unemployment.⁷⁶ The average yearly unregistered unemployment rate in the 2014-2019 period fluctuated between 33.5 and 35 percent of overall employment. In monetary terms, the size of the underground economy in Türkiye accounted for 27.4 percent of GDP in 2015.⁷⁷ The share of the Gap was higher and diverged from the share of the underground economy.

The VAT Gap dynamics are very closely correlated with C-efficiency. C-efficiency is the ratio of VAT revenue to the product of the standard VAT rate and final consumption. 1 - C-efficiency, which can be understood as a measure of inefficiency of collection due to non-compliance and tax breaks⁷⁸, grew in line with the VAT Gap which could be treated as a robustness check for estimated VAT Gap dynamics (Figure 97).

A growing nominal tax base has been the main driver of VAT revenue growth. The value of the actual VAT revenue can be decomposed into components, helps understand the underlying sources of its evolution⁷⁹. Revenue was rising almost exclusively due to an increased nominal tax base (Figure 98). In other words, it resulted from growing real economy and price levels rather than a rise in effective rates or collection efficiency. The effective rates remained relatively stable whereas the increasing VAT Gap contributed negatively to VAT revenue. Had the compliance ratio remained stable, 2019 revenue would have been approximately TL 42 billion higher.

⁷⁵ See Poniatowski, G, Bonch-Osmolovskiy, M. and Śmietanka, A. (2020), Study and Reports on the VAT Gap in the EU-28 Member States: 2020 Final Report," CASE Reports 0503, CASE - Center for Social and Economic Research for econometric analysis of VAT Gap determinants.

⁷⁶ The VAT Gap is highly correlated with the relative size of the unregistered economy. Yet, the link between the two is not direct. Importantly, the VAT Gap encompasses more than the VAT not paid on unregistered activities. It accounts also for foregone VAT due to non-compliance within registered activities (e.g. fake invoices fraud, tax optimization, and errors and omissions). Despite this fact, the VAT Gap as percentage could also be lower than the share of the informal economy as the unregistered economy is often prevalent across exempt small businesses and transactions in goods and services taxed at lower effective rates.

⁷⁷ Medina, L. and Schneider, F. (2018), Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?, IMF Working Paper Series, WP/18/17.

⁷⁸ Inefficiency of VAT collections grasps all sources for departure of VAT revenue from Notional Ideal Revenue, i.e. revenue that would be collected if all tax was dully paid on all household final consumption. Yet certain components of household final consumption such as, imputed rents, are non-actionable.

⁷⁹ Since revenue is a product of the VTTL and the compliance ratio, and the VTTL is a product of the base and the effective rate, actual revenue could be further decomposed and expressed as: Actual Revenue = Net Base × Effective Rate × Compliance Ratio

Figure 97: Gap and C-efficiency move in parallel

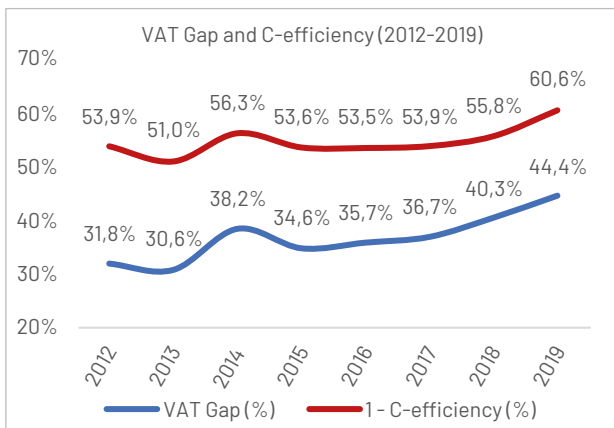
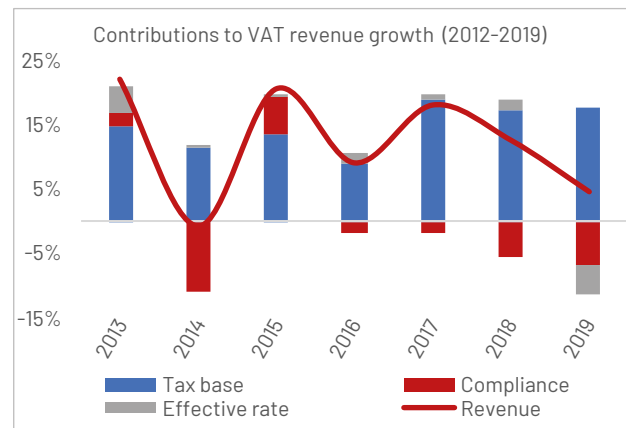
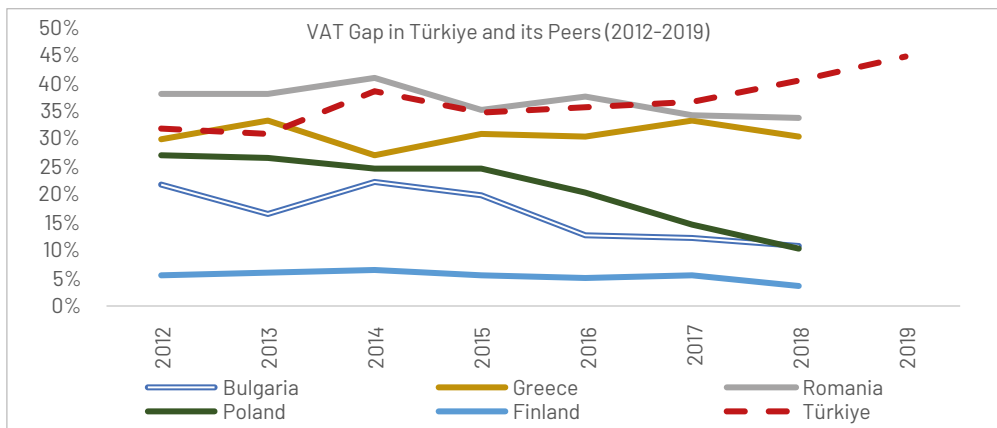


Figure 98: and high consumption growth



Source: WB estimates

Figure 99: VAT Gap in Türkiye is relatively higher



Source: EC (2020) and WB estimates

The VAT Gap in Türkiye compared to its regional peers is relatively high.⁸⁰ In 2018, the Gap in Türkiye was 6.5 percentage points higher than in Romania and 10.2 percentage points higher than in Greece. The VAT Gap in Bulgaria, which in 2018 was at around the EU median, was nearly 30 percentage points lower. The situation looked different in 2012 and 2013, when the Gap in Türkiye approximated the VAT Gap observed in Greece, while being substantially lower than in Romania. Poland, which in 2012 had around a 5 percentage point lower VAT Gap than Türkiye, achieved around 17 percentage point reduction in VAT Gap between 2012 and 2018 (Figure 99). On the other hand, Finland presents a good benchmark for a country that capable of maintaining a very low and stable VAT Gap.

Potential sources of non-compliance

Though the above approach to estimating the VAT Gap does not allow a disaggregation of non-compliance sources, the analysis of Türkiye's VAT rules provides some indications. Firstly, the VAT system in Türkiye makes heavy use of the 1 percent reduced rate to decrease the VAT burden at intermediate stages in the production and distribution of goods. In that, the wholesale supply of basic foodstuffs is subject to a 1 percent rates, whereas the sale to final consumers is taxed at an 8 percent rate. This exposes the system to evasion and fake invoice fraud by not dully reporting sales made to final consumers and reporting B2B sales instead.⁸¹ Overall, applying such a low reduced rate to domestic consumption of goods marks Türkiye out across its peers which apart from exemptions with and without the right to deduct, apply rates higher than 5 percent (Table 9).

⁸⁰ Bulgaria, Greece and Romania were chosen as benchmarks due to geographical proximity and availability of up-to-data VAT Gap estimates.

⁸¹ See more in World Bank (2018), Türkiye Value Added Tax: Selected issues.

Table 9: VAT rate structure in Türkiye and its peers as of January 2019

Country	Standard Rate	Reduced Rate(s)
Türkiye	18	8 / 1
Bulgaria	20	9
Greece	24	13 / 6
Poland	23	8 / 5
Romania	19	9 / 5
Finland	24	14 / 10

Source: EC(2020)

Secondly, multiple VAT rates are applied for similar products, which increases the complexity of VAT and increases opportunities for tax evasion due to misclassification. Misclassification fraud might exist for certain foodstuffs, for which a mixture of 1 and 8 percent rate is applied. Overall, the 8 percent rate applies to a broad range of foodstuffs and is not limited to basic foodstuffs. For example, it applies to chocolate, cakes, and other confectionary. The 1 percent reduced rate is applicable among others for certain bakery products and eggs. As there are two different VAT rates applicable for bread depending on the type of flour used, the system provides strong incentives to misclassify the type of bread.

The Turkish VAT system stands out from most of the system by not providing for an explicit registration requirement. All persons making taxable transactions are subject to VAT regarding those supplies unless the supplies are exempt supplies. However, supplies made by certain small businesses are treated as exempt supplies. This applies to: (i) small traders exempt from income tax; (ii) taxpayers subject to simple taxation procedures under the income tax; (iii) farmers not subject to the real taxation system; and (iv) professionals exempt from income tax. The determination of whether a small business qualifies for one of these concessions under the income tax differs from concession to concession. In each case, therefore, the qualifying conditions for these concessions effectively operate as a “threshold” for the VAT. No threshold for small businesses make the VAT base very broad but makes enforcement of small operators’ compliance more complex.

Inability to monitor the VAT compliance gap and its evolution over time, and to evaluate the impact of new measures on VAT compliance, is another impediment for improving compliance. On top of monitoring, evolution of the VAT (e.g. with the use of top-down approach), operationalization of a bottom-up methodology to estimate the VAT compliance gap could point to specific sectors where non-compliance is most prevalent and to the prevalence of specific type of irregularities. Frequent monitoring of the evolution of the Gap over time is necessary to evaluate the impact of new measures on the VAT compliance.

C. Effectiveness of corporate tax incentives

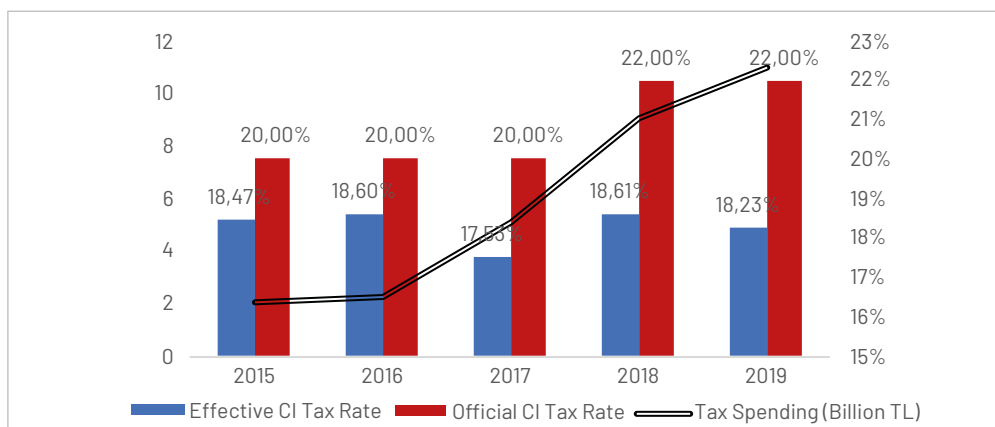
Another important source of foregone revenues is tax incentives. Tax expenditures are estimated at around 4 percent of GDP in Türkiye, with the bulk belonging to PIT and VAT. CIT expenditures account for around 15 percent of total tax expenditures. CIT incentives aim to encourage investments, innovation, and employment. Though the authorities release annual tax expenditure reports, detailing foregone revenues by tax instrument, there is currently no analysis of the benefits of CIT incentives. Yet it is important to assess whether the incentives are justified in the first place, that is whether the foregone revenue is equivalent to government spending, and where this spending does not generate value, it can become a net loss to the budget. This is a critical issue given the low CIT take discussed above.

This section analyzes the impact of CIT incentives, including incentives for R&D, on a series of development indicators. Türkiye has two types of incentives on corporate income tax. One is through direct deductions of certain income types from the corporate tax base. The other is through a lower tax rate based on certain conditions (Annex). The analysis assesses the impact of (i) investment incentives under CIT Law Article No 32A and (ii) R&D tax incentives on firm performance (e.g. sales, investment, exports, innovation, productivity, and profitability).

Corporate income tax incentives are rising particularly for manufacturing and large firms

Corporate tax expenditures have been increasing rapidly over the years.⁸² Until 2018, the official corporate income tax rate in Türkiye was 20 percent, which increased to 22 percent thereafter. The difference between the official tax rate and the “backward-looking” effective tax rate⁸³ has been on a rising trend over the past 5 years (Figure 100). This difference, which was 1.5 pp in 2015, rose to 3.75 pp in 2019; this is very similar to the OECD estimated “forward-looking” ETR discussed above. Tax expenditures (i.e., difference between the potential tax revenue and the actual tax revenue) rose from TL 2.1 billion in 2015 to TL 10.9 billion TL in 2019.

Figure 100: Tax Spending and Average Effective CIT Rates, 2015–2019



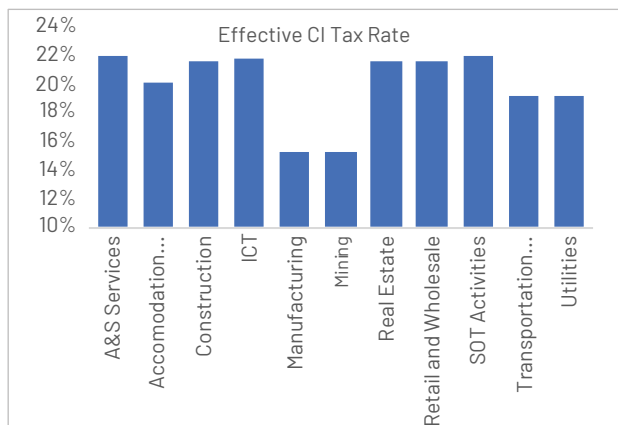
Source: EIS and WB estimates

More than two-thirds of tax incentives pertain to manufacturing with variation across industries. The average effective tax rate in the sector is 15.1 percent (Figure 101). Other sectors receive smaller incentives, keeping the average ETR close to the official rate. High and medium-high technology industries within manufacturing benefit the most from CIT incentives. In 2019, the ETR was as low as 7 percent in pharmaceuticals and transport equipment (Figure 102). The biggest incentives were in motor vehicles, where the ETR was 9 percent. The motor vehicles industry is one of the most productive and has been an export champion over the past decade. The manufacturing of food products and textiles sectors also receive tax breaks amounting to almost TL 1 billion (Table 10).

⁸² CIT Law Article No 32A defines one of the largest CIT incentive schemes in the form of concessionary tax rates. Under this law, eligible firms can benefit from reduced corporate income tax rates. The objective of this incentive scheme is to encourage large scale investments both domestic and foreign in high value added sectors, increase production and employment, to decrease regional disparities and support research and development activities in line with the objectives of the Development plans and Medium Term Programs. In this section, incentives under Law Article No 32A are called as “investment incentives”.

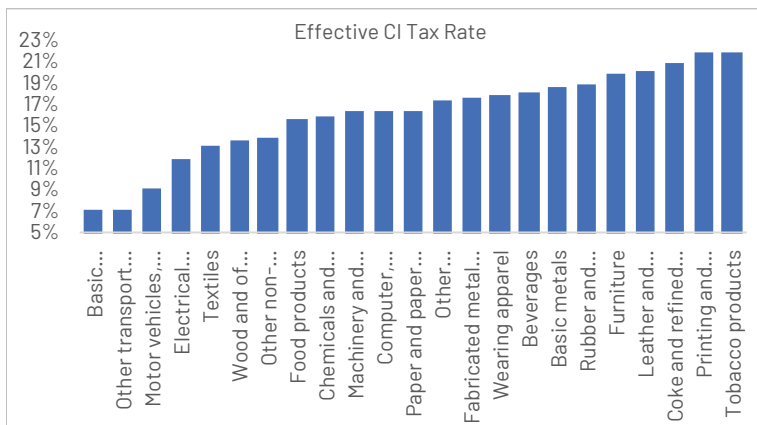
⁸³ See section above on the OECD estimated “forward looking ETR”.

Figure 101: Effective Tax Rate by Sectors, 2019



Source: EIS and WB estimates

Figure 102: Subsectors of the Manufacturing Industry, 2019



Source: EIS and WB estimates

Table 10: Tax Expenditure by Sector, 2019 (Million TL)

Sector	Tax Spending
Manufacturing	8,443.14
Mining	902.29
Transportation and Storage	526.55
Utilities	477.27
Retail and Wholesale	325.57
Accommodation and Food	161.00
Construction	122.32
ICT	22.08
Real Estate	8.71
SOT Activities	4.51
A&S Services	3.36

Table 11: Tax Spending by the Manufacturing Sub-Sectors, 2019 (Million TL)

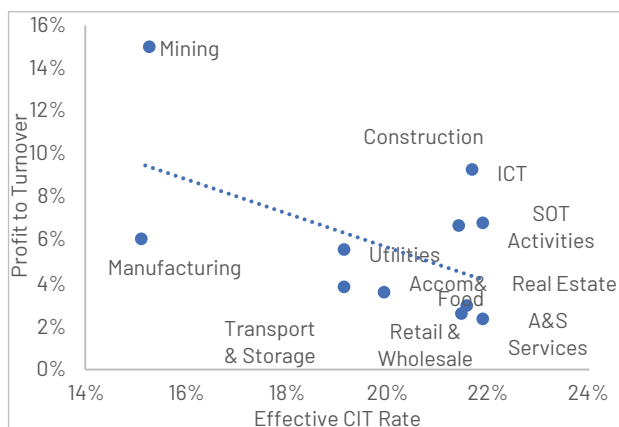
Sector	Tax Spending (Million TL)
Motor vehicles, trailers and semi-trailers	1,335
Food products	919
Textiles	901
Basic pharmaceutical products	698
Other transport equipment	623
Chemicals and chemical products	602
Electrical equipment	545
Machinery and equipment n.e.c.	502
Other non-metallic mineral products	488
Fabricated metal products	449
Basic metals	427
Paper and paper products	236
Rubber and plastic products	233
Wearing apparel	219
Wood and of products of wood	72
Computer, electronic and optical products	65
Other manufacturing	49
Furniture	42
Beverages	23
Leather and related products	13
Coke and refined petroleum products	2
Printing and reproduction of recorded media	1
Tobacco products	0

Source: EIS and WB estimates

More profitable sectors have lower effective CIT rates. There is a negative correlation between the weighted average profit to turnover ratio and the effective CIT rate at the sector level in 2019 (Figure 103). The manufacturing industry, the largest recipient of CIT incentives is an outlier. With an average profit to turnover ratio, this sector receives 77 percent of the spending and enjoys the lowest average effective CIT rate. Apart from the manufacturing industry, the negative correlation is robust.

On the other hand, CIT incentives are not used as an instrument to boost profits. Figure 104 presents the number of firms rising to a higher quintile in the profit to turnover distribution, This is measured as a percentage of the total number of firms receiving tax breaks at the sector level. Only 12.15 percent of manufacturing firms; that received the CIT break, moved to a higher quintile in the profitability distribution. This ratio rises to 20 percent in the real estate sector. However, considering the small number of firms benefitting from the incentive scheme, it is negligible.

Figure 103: Sector Profitability and Average Effective CIT Rates, 2019



Source: EIS and WB Staff calculations

Figure 104: Profitability by Sectors, 2019



Corporate tax incentives positively affect the economic performance of firms

Econometric analysis shows that investment incentives lead to employment generation and productivity enhancements. Beneficiary firms have 17.8 percent higher employment 1 year after the tax break than their matched, non-beneficiary counterparts (Table 13). This difference increases to 24 percent and 26.9 percent 2 years and 3 years after the tax break, respectively. Labor productivity and total factor productivity are also positively impacted. Labor productivity rises by an additional 6.9 percent, whereas TFP climbs an additional 8.7 percent in the group of program beneficiaries one year after the tax cut. These effects continue and become even larger in later years.

Firms receiving the CIT breaks increase their real value-added and net sales, due to higher domestic sales than foreign sales. The effect on real value-added is especially remarkable and reflects the productivity enhancements. One year after the tax break, beneficiary firms have 24.7 percent higher value-added and 15.6 percent higher net sales than their matched, non-beneficiary counterparts with similar characteristics do. These effects become stronger over time and remain significant.

CIT incentives accelerate investment, both for tangible and intangible assets, but not export and import intensity. One year after the tax break, beneficiary firms have 30.5 percent higher tangible assets and 24.2 percent higher intangible assets than their matched, non-beneficiary counterparts with similar characteristics. Considering the effect on machinery and equipment, a significant sub-component of tangible assets, considered productive capital rather than unproductive, positive and significant impact is also noted. On the other hand, CIT breaks do not internationalize beneficiary firms, either by increasing their export intensity or their import intensity. Effects on both outcome variables are found to be statistically insignificant and remain so over the years.

Table 13: Average Treatment Effects

	1 year later	2 years later	3 years later
Log of Employment	0.178***	0.240***	0.269***
Log of Value Added per Worker	0.0689***	0.0669***	0.128**
TFP	0.0876***	0.109***	0.180***
Export Intensity	0.00159	0.0110	0.0135
Import Intensity	-0.0527	-0.0502	0.0496
Log of Value Added	0.247***	0.307***	0.397***
Log of Net Sales	0.156***	0.222***	0.210***
Log of Foreign Sales	0.0438	0.129	0.265
Log of Domestic Sales	0.166***	0.214***	0.203***
Log of Tangible Assets	0.305***	0.292***	0.277***
Log of Intangible Assets	0.242***	0.305***	0.375**
Log of Machinery & Equipment	0.294***	0.364***	0.308***

*** indicates statistical significance at 1%, ** at 5% and * at 10%.

⁸⁴ Arnold, J. and Javorcik, B. S., (2009) "Gifted Kids or Pushy Parents? Foreign Acquisitions and Firm Performance in Indonesia", Journal of International Economics, vol. 79, 1, pp. 42-53.

Box 7: Data and Methodology

For assessing corporate tax incentives, a rich firm-level dataset, Entrepreneur Information System (EIS), administered by the Ministry of Industry and Technology (MoIT) is utilized. EIS contains data on all firms in Türkiye and combines information from several sources. Balance sheet and income statement data from the Ministry of Treasury and Finance (MoTF) constitutes the backbone of EIS. The dataset also covers information on the patent applications of these firms from the Turkish Patent Office (TPO) and information on the number of employees and total wages from the Social Security Institution (SSI).

This data is matched with corporate income tax declaration form data to identify the set of firms that received tax breaks under CIT Law Article No. 32A, Law No. 5746 and Law No. 4691. Data on CIT Law Article No. 32A is available for 2015-2019, whereas the beneficiaries of the R&D tax breaks under Law No. 5746 and Law No. 4691 may be identified for the period of 2006-2016.

Although EIS contains information on all firms in Türkiye, our analysis sample is restricted to a certain sub-sample. First, as the treatment information is only available for corporate taxpayers, we restrict the analysis sample to that group of taxpayers. Second, we drop all the observations of a firm if the firm does not have any employees (apart from the owners of the firm) during the period of analysis. Third, the sample is restricted to manufacturing and services. We also identify the NACE 2-digit sectors which received tax breaks during the period of analysis and drop the rest of the sectors from the control group, as well. This is to ensure that NACE 2-digit sectors, which, for some reason, are not eligible for such tax cuts, are dropped from the control group, too.

During the analysis period, there were no changes in the tax policy and hence a quasi-experimental setting was not available. The existing literature, which combines propensity score matching with the difference-in-differences methodology, is followed. The matching technique proposed by Arnold and Javorcik (2009) is employed to overcome endogeneity. In their paper, Arnold and Javorcik (2009)⁸⁴ study the effect of foreign acquisition on firm productivity. To overcome endogeneity, they combine difference-in-differences with propensity score matching and offer a novel approach to matching. They follow a two-step approach. In the first step, they estimate a propensity score for each plant in the sample based on a list of pre-treatment characteristics. In the second step, they use these propensity scores to match each treated plant (i.e. a plant that will receive FDI in the future) with a single domestic plant which (1) has the closest propensity score to the treated plant and (2) operates in the same NACE 4-digit sector and year. In other words, matching is done based on a list of pre-treatment characteristics with sector and year variables matched exactly between the control and treatment groups.

This one-to-one matching procedure in the second step yields a control group with the same number of observations and very similar characteristics with the treatment group. One-to-one matching based on sector and year information ensures that all the plants that received FDI in a specific year are matched with a very similar plant operating in the same sector that could have received FDI in the same year but did not.

In this analysis, treatment is defined as receiving a CIT break. Firms may receive tax breaks in multiple years. We take the first year the firm receives a tax break as the treatment year. Using 1 year lagged values of matching variables, we estimate propensity scores for all firms in the sample and then we use these propensity scores to match each firm that received a CIT break with a single firm that has the closest propensity score to the treated firm in the same NACE 4-digit-year cell as the treated firm. This matched firm serves as a valid counterfactual as it is in the same NACE 4-digit sector and has very similar characteristics to the treated firm and has not received any CIT incentive in the year that the treated firm did.

The main outcome variables used are: the log of employment, log of labor productivity, log of TFP, export intensity defined as foreign sales divided by net sales, import intensity defined as imported inputs divided by total material inputs, and a log of net sales, foreign sales, domestic sales, tangible assets, intangible assets and machinery and equipment.

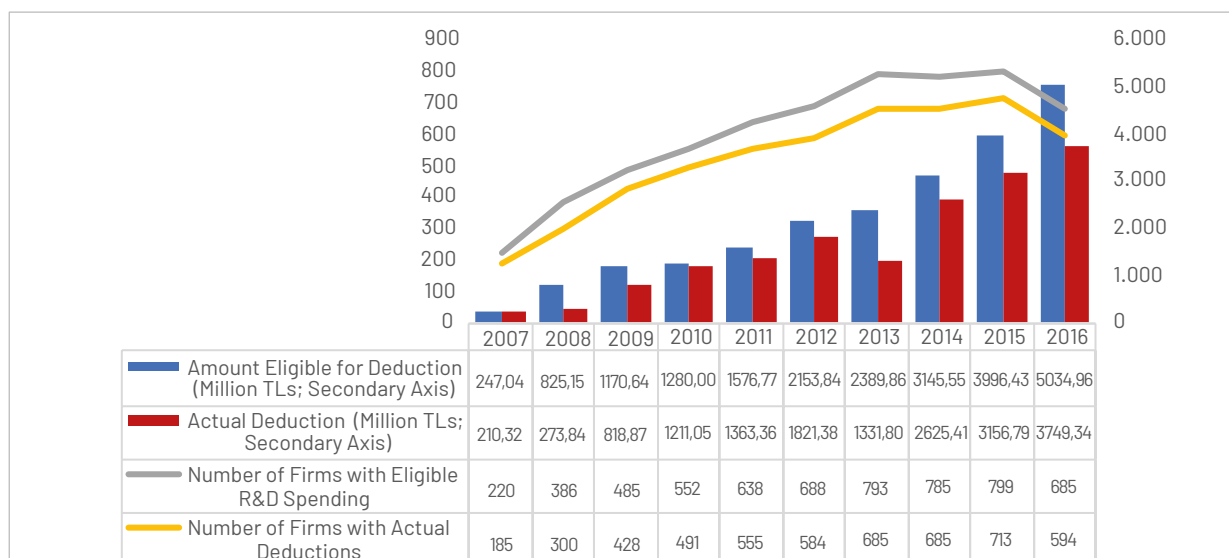
The matching is done based on pre-treatment levels of log of employment, age, log of wage per worker, log of labor productivity, log of TFP, export intensity, return on assets defined as net sales divided by total assets and number of patent, model and design applications. The squares of log of employment and age are included to allow for the nonlinear effects of these two variables. Finally, year and sector fixed effects are added to improve the fit of the model. Several matching procedures such as the nearest neighbor, kernel and Mahalanobis measure are employed to test the robustness of our results.

R&D tax incentives also generate positive firm level outcomes

The analysis of CIT incentives is expanded to look more closely at the impact of R&D tax incentives.⁸⁵ R&D tax incentives have become a more popular instrument over the years. Three issues are worth noting from trends in the amount of R&D tax incentives (both claimed and accrued) and the number of firms that benefited from these incentives during the period of 2007-2016 (Figure 105):

- (i) R&D tax incentives have grown very rapidly. In 2007, the total amount claimed was TL 247 million and TL 210 million of this amount was actually deducted from the tax base whereas the rest was carried forward. These numbers increased to TL 5 billion and TL 3.7 billion in 2016, respectively.
- (ii) The percentage of claims carried over increase dramatically over time. In 2007, only around 14 percent of the claimed deductions were carried over to the next year, whereas in 2016, the figure jumped to around 25 percent.
- (iii) When comparing the change in the number of firms that benefited from these incentives with the change in incentive amount, the change in the number of beneficiaries is far below the change in the amount. This implies that the increase in the amount of tax breaks does not proportionately reflect how widespread the program is.

Figure 105: R&D Tax Incentives, Claimed and Accrued, 2007-2016



Source: EIS and WB Staff calculations

Manufacturing firms account for the lion's share of R&D tax incentives (Table 14). In 2007, firms in the manufacturing sector received 95 percent of total actual deductions. This ratio dropped to 84 percent in 2016, implying service sector firms benefit more from the program over the period of analysis. When comparing the ratio of the total amount of deductions to the number of beneficiary firms in the manufacturing and services sectors, manufacturing firms, on average, manage larger R&D projects. Indeed, the average deduction for a manufacturing firm is almost double that of a services firm.

⁸⁵ Under Law No. 5746 and Law No. 4691, the R&D spending of certain firms is directly deducted from the corporate income tax base and additional benefits are made available:

i. Law No. 5746 dictates that "all eligible innovation and R&D or design expenditures made in technology centers, R&D centers, design centers, R&D and innovation, or on design projects supported by governmental institutions, foundations established by law, or international funds can be deducted from the corporate income tax base at a rate of 100 percent". Law No. 5746 provides additional benefits such as exemptions from a certain portion of the income tax and social security premiums of the R&D personnel, from stamp tax for the documents prepared for the R&D and design activities and from customs duty for the goods imported for being used in R&D activities

ii. Law No. 4691, on the other hand, is specifically designed for firms located in Technology Development Zones. Such corporations' profits obtained through the activities within technology development zones are 100% deducted from the corporate income tax base and additional benefits such as income tax exemption, social security premium support, stamp tax exemption and VAT exemption are provided under this law.

Corporate tax exemptions rules under these two laws are designed as carry-forward as opposed to being cash-refunds. More specifically, when a firm's profits are below the eligible R&D spending or when the firm is making losses, part or all of the R&D spending is carried forward to be accrued when profits are sufficiently high. Unlike in certain other countries, the R&D tax incentive scheme in Türkiye is not directed towards a certain group of firms based on a size threshold or a sector classification.

Most R&D tax incentives go to large firms (Table 15). Firms are divided into 3 groups (small, medium and large firms) based on their number of employees. Table 15 shows a fair division between these three groups when the number of firms benefiting from the program is considered. However, when looking at the amount of deductions claimed or accrued, we see large firms getting the lion's share. In 2007, 91 percent of total tax deductions were claimed by large firms. This ratio had further increased to 92 percent by the year 2016. This could raise questions about the program's coverage.

Table 14: R&D Tax Incentives by Area of Main Economic Activity, Claimed and Accrued, 2007-2016

Year	Main Economic Activity	Amount Eligible for Deduction	Actual Deduction	Number of Firms with Eligible R&D Spending	Number of Firms with Actual Deductions
2007	Construction	102,010	144,603	2	2
	Manufacturing	226,827,640	200,974,832	168	146
	Services	20,106,329	9,203,499	50	37
2008	Construction	586,023	213,736	4	3
	Manufacturing	772,632,134	234,960,077	282	229
	Services	51,934,533	38,667,555	100	68
2009	Construction	1,289,889	736,671	5	5
	Manufacturing	828,045,584	742,108,482	332	309
	Services	371,303,860	760,020,118	148	114
2010	Construction	2,103,037	634,161	7	7
	Manufacturing	1,115,931,825	1,123,617,367	389	354
	Services	161,961,491	86,797,187	156	130
2011	Construction	966,666	688,628	7	5
	Manufacturing	1,327,755,683	1,218,446,282	419	384
	Services	248,044,228	144,222,198	212	166
2012	Construction	3,949,557	2,195,224	13	10
	Manufacturing	1,880,878,658	1,594,314,110	448	406
	Services	269,011,371	224,872,605	227	168
2013	Construction	3,248,313	2,256,284	9	7
	Manufacturing	2,058,104,844	1,140,488,519	535	469
	Services	328,508,481	189,059,017	249	209
2014	Construction	1,030,847	1,701,522	6	8
	Manufacturing	2,658,319,170	2,354,239,914	512	461
	Services	486,196,968	269,472,513	267	216
2015	Construction	2,124,613	1,976,059	7	9
	Manufacturing	3,388,307,081	2,794,378,346	539	475
	Services	605,998,019	360,437,190	253	229
2016	Construction	2,459,740	1,805,158	5	5
	Manufacturing	4,321,162,156	3,159,970,694	458	402
	Services	711,336,942	587,562,892	222	187

Source: EIS, WB staff calculations

Table 15: R&D Tax Incentives by Firm Size, Claimed and Accrued, 2007-2016

Year	Size	Amount Eligible for Deduction	Actual Deduction	Number of Firms with Eligible R&D Spending	Number of Firms with Actual Deductions
2007	Small	12,685,818	9,813,396	74	89
	Medium	12,940,843	7,922,646	48	53
	Large	221,409,318	192,586,892	63	78
2008	Small	51,034,617	36,371,236	166	203
	Medium	56,320,882	17,910,255	66	90
	Large	717,797,190	219,559,877	68	93
2009	Small	71,296,702	37,203,685	231	260
	Medium	40,765,900	32,355,062	106	113
	Large	1,058,576,730	749,306,524	91	112
2010	Small	64,258,086	44,104,675	261	291
	Medium	59,132,039	45,453,203	125	137
	Large	1,156,606,227	1,121,490,837	105	124
2011	Small	98,798,865	77,051,701	286	323
	Medium	76,391,064	53,370,734	129	144
	Large	1,401,576,648	1,232,934,673	140	171
2012	Small	83,612,286	56,239,974	276	334
	Medium	111,614,548	72,613,827	142	158
	Large	1,958,612,753	1,692,528,138	166	196
2013	Small	103,716,779	76,581,508	354	384
	Medium	157,501,268	89,710,695	162	193
	Large	2,128,643,590	1,165,511,622	169	216
2014	Small	125,663,985	85,750,576	334	370
	Medium	194,280,410	130,371,951	166	186
	Large	2,825,602,590	2,409,291,422	185	229
2015	Small	108,924,552	81,247,436	320	328
	Medium	160,055,827	121,366,513	178	208
	Large	3,727,449,334	2,954,177,646	215	263
2016	Small	87,116,201	64,527,979	236	247
	Medium	274,004,644	213,404,841	148	174
	Large	4,673,837,993	3,471,405,924	210	264

Source: EIS, WB staff calculations

R&D tax incentives have had positive outcomes for firm performance. The following outcome variables are used to assess firm performance: patent applications, log of labor productivity, log of TFP, export intensity, import intensity, net sales, and employment (see Box 6 for methodology). Econometric results show that treated firms have 14 percent higher employment than their matched counterparts 1 year after receiving R&D tax breaks (Table 16). Two years after they receive the R&D tax incentive, this effect increases to 15.5 percent; 3 years after the treatment, the average treatment effect is estimated to be 18.4 percent and finally, 4 years after the treatment, we observe 22.5 percent higher employment in the treatment group. These effects are statistically significant. The positive and significant effect is persistent and remains strong over the course of the years.

Table 16: Average Treatment Effects

	1 year later	2 years later	3 years later	4 years later
Log of Employment	0.144***	0.155***	0.184***	0.225***
Log of TFP	0.0509**	0.0362	0.0612**	0.0796**
Log of Value Added per Worker	0.0474**	0.0365	0.0364	0.0304
Log of Net Sales	0.180***	0.181***	0.209***	0.223***
Export Intensity	0.00803	0.0134**	0.0137*	0.0218***
Import Intensity	0.0457	0.0775*	0.0858*	0.0313
Patenting	0.418***	0.769***	0.985***	1.042***

Source: EIS, WB staff calculations

R&D tax breaks lead to productivity enhancements. One year after the tax break, both labor productivity and TFP are higher in the group of beneficiary firms than their matched counterparts. This effect loses its significance after one year in the case of labor productivity. The effect on TFP has been rather persistent over the years.

The effect of R&D tax incentives on net sales is more pronounced. Treated firms have 18 percent higher net sales 1 year after receiving treatment and 22.3 percent higher than 4 years after treatment. All these differences are statistically significant.

Overall, the effect of R&D tax incentives on employment, net sales and productivity seems robustly significant and large in magnitude. More importantly, these effects do not vanish or get significantly smaller as we move away from the treatment year, This indicates that R&D tax incentive effects are sustained, which is important from a policy perspective. These large-scale support programs are not designed to create temporary improvements but rather permanent shifts in the performance of the supported firms. This seems to be borne out by the data.

The effects of R&D tax incentives on the export and import intensity of firms are mixed. Export intensity is defined as the share of foreign sales in the total net sales of the firm, whereas import intensity is the share of imported intermediate goods in the total material inputs of the firm. The effect of the program on export intensity and import intensity becomes significant two years after the treatment. Two years after beneficiary firms receive the tax break, their export intensity becomes 1.3 pp higher than that of their matched counterparts and this positive effect remains significant and strong over the course of the years. On the other hand, import intensity, is 7.7 pp higher in treated firms than in their matched counterparts. However, this positive effect loses its strength as we move away from the treatment year.

Finally, the effect of the program on the innovative activities of the firms is assessed. The outcome variable is defined as the total number of patent, model and design applications. The statistically significant and positive coefficients for all analysis windows indicate that immediately after these R&D tax incentives are accrued, the number of patent, design or model applications of the treated firms increase by an additional 0.4 applications compared to their matched counterparts. More importantly, these effects become much larger over time and 4 years after the program, recipient firms make 1.04 more patent, design or model applications as compared to the non-beneficiaries of the program.

Analysis with a continuous rather than a binary treatment variable implies that the effects are minor quantitatively (Table 17). A 100 percent increase in the R&D tax break increases firms' employment by around 1.2 percent; TFP by 0.4 percent; labor productivity by 0.3 percent and net sales by 1.5%. The first-year effect on export intensity and import intensity are insignificant. However, when we look at the impact of doubling the amount of tax incentives on the number of patent, design and model applications, we note large and significant effects which grow over subsequent years. A 100 percent increase in the tax break leads to 3.8 additional patent, brand or design applications 1 year after the treatment, reaching 8 to 11 more patent, brand or design applications 4 years after the tax break is accrued. With the main objective of an R&D tax break program being to spur investment in R&D and increase innovative activity such as patenting, this is a promising result.

Table 17: Average Treatment Effects – Continuous Treatment Variable

	1 year later	2 years later	3 years later	4 years later
Log of Employment	0.0119***	0.0127***	0.0155***	0.0193***
Log of TFP	0.00462**	0.00345	0.00278***	0.00212**
Log of Value Added per Worker	0.00354*	0.00278	0.00292	0.00182
Log of Net Sales	0.0150***	0.0151***	0.0182***	0.0194***
Export Intensity	0.000676	0.00119**	0.00132**	0.00209***
Import Intensity	0.00397	0.00636*	0.00683	0.00266
Patenting	0.0381***	0.0816***	0.104***	0.113***

Source: EIS, WB staff calculations

Conclusion: Minding the tax gaps

Türkiye significantly modernized its tax system at the turn of the century, though findings in this chapter suggest the need to reinvigorate tax reform efforts. The tax system over the past ten years has been subject to frequent changes. Some were in response to a more complex economic environment, though many were short-term responses to economic shocks. This has contributed to the complexity of the tax system. Whilst there have been commendable efforts to bring down compliance costs, much of the effort has been piecemeal and relatively ad hoc rather than comprehensive and strategic.

As a result, while tax to GDP is comparable to other middle-income countries, tax gaps have been rising: (i) the impact of the rising labor tax wedge on increased informality and tax avoidance that has been touched on above but merits further analysis; (ii) there is evidence of rising VAT compliance gaps; and (iii) CIT tax expenditures while positively affecting firms' performance, account for a large share of overall low CIT tax collection.

An overarching issue relating to falling tax compliance is the increased complexity of the tax system. Tax policy changes have become increasingly frequent, which has made the tax system more complex. This does not necessarily imply a deterioration in the quality of tax policies or administration but having to deal with more frequent tax reforms can be unsettling for businesses. Given this, it is worth taking a more comprehensive look at options for tax system simplification. Tax systems are expected to become more complex over time. But the source and incidence of tax complexity will impact on tax compliance and tax gaps. A more formal assessment of complexity across different tax instruments could provide helpful insights on simplification.

Lowering the burden of SSC could have positive payoffs in terms of broadening the base. However, targeted reductions in the labor tax wedge could help increase SSC by: (i) reducing informality and tax avoidance; (ii) encouraging greater labor force participation, especially among women. It could on the other hand also reduce social security liabilities by accelerating job creation, particularly for the youth that suffer disproportionately high unemployment. Further policy adjustments such as raising the retirement age (chapter 3) could also help reduce pension liabilities and, therefore, the burden on SSC..

Several provisions in the VAT Law warrant review towards reducing compliance gaps. For example, the use of the reduced VAT rate of 1 percent exposes the system to evasion and fake invoices fraud. Applying such a low reduced rate to domestic consumption of goods marks Türkiye out among its peers. Secondly, multiple VAT rates are applied for similar products that increases the complexity of VAT and increases opportunities of tax evasion due to misclassification. It would be more efficient to have a single standard rate with compensation for poor households through targeted transfers. More generally, economic and consumption growth may be outpacing the increase in resources available to the Revenue Administration Department to enforce compliance. This would require a separate assessment.

CIT incentives are deemed effective in promoting firm performance, but overall CIT collections remain very low. Tax expenditures account for nearly a quarter of gross CIT collections. Outside of official incentives, there are likely compliance issues that warrant closer investigation. Concerning the incentives themselves, the fact that larger and older firms benefit most from tax incentives may be raising tax leakage. Small and young firms, which already have less access to finance, do not seem to catch up with the CIT tax incentive schemes analyzed in this chapter. This may be harming competition and leading to economic distortions. The design of the incentive schemes may be making large and old firms more eligible; the administrative costs associated with incentives may be too much for small and young firms, or else there may be information asymmetry between different firm types about these incentive schemes.

On the implementation side of the two incentive schemes, there seems to be the potential to reduce administrative costs. In the case of R&D tax incentives, part of the claimed tax deductions, which cannot be accrued due to certain firms making losses, is carried forward. The amount carried-forward grew by more than 33 times from 2007 to 2016. Considering the rate at which the carried-forward amount is re-valued, this creates a growing and uncertain burden on the budget. There is also an administrative cost related to this. In some countries, there is a limit on the number of years that unclaimed tax cuts may be carried forward.

Annex A: Methodology and data

1. Preliminaries

The most common methods used to estimate the VAT Gap use the so-called, “top-down” approach.⁸⁶ These methods rely on national accounts, which describe all productive activities and cover the full tax base. In contrast, “bottom-up” approaches use data gathered by tax administrations as audits, surveys, and inquiry programs. This enables to an estimation of non-compliance in VAT for specific taxpayer groups and of the type of non-compliance.

More specifically, the method applied in this analysis is the “top-down consumption-side” approach. In contrast to the “production-side” approach that considers VAT due by each sector of economic activity, the “consumption-side” approach considers on the final transaction in the VAT chain (correcting for liability at the intermediate level caused by exemptions without the right to deduct). The estimates presented herein show a “net” gap, meaning that they account for all revenue, plus late payments and VAT collected in the audit procedures. Estimates of a “gross gap” containing only the liabilities paid on time would be larger.

2. Formula

The formula used to estimate the VTTL consists of five main sub-aggregates: household final consumption⁸⁷ (HHC), government consumption (GOV); intermediate consumption (IC); gross fixed capital formation (GFCF); and other, largely country-specific, net adjustments. It could be written as:

$$\begin{aligned} \text{VTTL} = & \sum_{i=1}^N (\text{HHC rate}_i \times \text{HHC Value}_i) + \sum_{i=1}^N (\text{GOV rate}_i \times \text{GOV Value}_i) + \sum_{i=1}^N \sum_{j=1}^M (\text{IC rate}_i \times \text{propex}_j \times \text{IC Value}_{i,j}) \\ & + \sum_{i=1}^N \sum_{j=1}^M (\text{GFCF rate}_i \times \text{propex}_j \times \text{GFCF Value}_{i,j}) + \text{net adjustments} \end{aligned}$$

where:

i denotes groups of products and services,

j denotes sectors of economic activities,

(HHC, GOV, IC, GFCF) Rate are the effective rates for respective sub-aggregates of economy and groups of products and services,

(HHC, GOV) Value are respective components of the final use (denoted in net terms),

IC Value is the value of IC (denoted in net terms),

⁸⁶ See. e.g. EC (2016), The Concept of Tax Gaps, Report on VAT Gap Estimations by FISCALIS Tax Gap Project Group (FPG/041), https://ec.europa.eu/taxation_customs/sites/taxation/files/docs/body/tgpg_report_en.pdf, for comparison for methods applied in the EU.

⁸⁷ Contains also Non-Profit Institutions Serving Households (NPISH).

GFCF Value is the value of GFCF (denoted in net terms),

Propex is the percentage of output in a given sector that is exempt from VAT.

The core component of the VTTL is the household consumption liability (HHC)⁸⁸, which is a product of the effective VAT rates and household consumption values in basic prices of each of the groups of products and activities. The calculation requires adjustment for non-taxable consumption, as, among others, self-supply and imputed rents.

Similarly, government (GOV) consumption liability is estimated as a product of respective VAT rates and government consumption values. In contrast to household final consumption, most of the final government consumption is not taxable. Only individual government consumption, and more specifically social transfers in kind, are taxable.

Intermediate consumption (IC) liability is computed for each industry as a product of intermediate use of each of the inputs times the average VAT rate for these groups of inputs times industry average proportion of non-deductible VAT in the intermediate consumption. The latter, a non-deductibility pro-rata coefficient, is estimated using the share of exempt goods in the sector's turnover. Importantly, as intermediate consumption is reported in purchaser's prices, it includes non-deductible VAT that must be excluded from the use tables to reflect the net tax base.

Like intermediate consumption liability, non-deductible investment (GFCF) is estimated as product of tax rate, pro-rata coefficient, and base, i.e., the industry's GFCF. The core components of this liability component include housing and public investment.

In addition to the core components of the base, the estimation method involves corrections that were not accounted by the main part of the VAT Gap formula. More specifically, these adjustments for Türkiye included: (1) the limited right to deduct VAT on accommodation, restaurant services and entertainment, (2) supply of services to sea and air vehicles, (3) supply of fertilizers, (4) supply of animal feed, (5) sales to the Directorate of the Defense Industry, (6) supplies to persons engaged in petroleum exploration, (7) supply or repair of sea, air and railway vehicles, (8) transactions performed in Technology Development Regions, (9) services provided in free zones, and (10) supplies for large inv. projects

3. Data sources

A complete description of the data, their sources and their compilation method is described in Table A1 below.

⁸⁸ See e.g. Luca Barbone et al. (2013), Study to quantify and analyse the VAT Gap in the EU-27 Member States, CASE Network Reports 0116, CASE - Center for Social and Economic Research, for comparison of the VTTL components in EU Member States.

Table A1. Data sources summary

	Description	Coverage	Purpose	Source	Comment
1	Household final consumption	2012-2019	Tax base for household final consumption liability	Turkstat	For 2012, available for two-digit CPA codes. For 2013-2019, available only for 12 main product and services groups
2	Government consumption	2012	Tax base for government final consumption liability	Turkstat	For 2013-2019, values were rescaled using sectoral supply, household consumption, import and export figures
3	Intermediate consumption	2012	Tax base for intermediate consumption liability	Turkstat	
4	Investment (GFCF)	2012	Tax base for GFCF liability	Turkstat	
5	Pro-rata coefficients	2012-2019	Estimation of IC and GFCF liability of industries for which VAT on inputs cannot be deducted	Own estimates based on VAT law	
6	Effective rates (specific for HHC, GOV, IC, and GFCF)	2012-2019	Estimation of effective rates for final and intermediate use categories	Own estimates based on Household Budget Surveys (HBS) and VAT law	-
7	Right to deduct	2012-2019	Estimation of net adjustment for the limited right to deduct	Assumptions based on the VAT law	-
8	Net adjustments	2016	Estimation of remaining adjustment	Estimates of General Directorate of Revenue Policies, Ministry of Treasury and Finance	For other years, the estimates were rescaled using nominal GDP dynamics
9	VAT revenue	2012-2019. monthly	VAT revenue	Tax Authorities	Revenue shifted by two months. This serves aligning the time when activities are recorded in national accounts and fiscal registers

4. Parameter estimation

The set of estimated parameters contains the effective rates and pro-rata coefficients. The effective rates, or the Weighted Average Rates (WARs), were estimated for every two-digit CPA group of products and services. The sets of rates were differentiated for all liability components: household final consumption and government consumption, intermediate consumption and GFCF. This was necessary because for some products categories and rates vary significantly across sub-aggregates.

The basic source of information to estimate the effective rates for household final consumption for categories with mixed rates applicable, was HBS. In the first step, prevalent rates were assigned to nearly 300 COICOP⁸⁹ categories included in the survey. In the second step, correspondence was created between these categories and two-digit CPA categories. Moreover, for each year covered by the analysis, overall consumption structure was derived by aggregating and weighting individual consumption data. Finally, the consumption structure was matched with the SUT using the correspondence table derived at the second step.

The problem of mixed rates within groups of products for other VTTL components was much less pronounced. Thus, the main source of information for the remaining sets of rates was the VAT law.

Similar to the WAR calculation for government consumption, intermediate consumption and GFCF, the estimation of pro-rata coefficients did not require computing weighted average values for most sectors. For some sectors, like human health and education services, the pro-rata coefficients were estimated by looking at the relative value of public services provided using the formula:

$$\text{propex}_j = \frac{\text{GOV Value}_j}{\text{GOV Value}_j + \text{HHC Value}_j}$$

⁸⁹ Classification of Individual Consumption by Purpose.

III. Public expenditure trends and priorities: Spending better to spend more |

Türkiye has seen major shifts in public spending over the last two decades. Reforms at the turn of the millennium helped increase spending on social sectors. Transition towards high income is often accompanied by declining public provision of economic services and increased public spending on education, health, and social protection services. This is evident in the sharp decline in the role of State-Owned Enterprises (SOEs) and falling public investment, which have been offset by one of the largest Public Private Partnership portfolios of any Upper Middle-Income Country. Social spending and current transfers on the other hand now account for more than half of general government expenditure. Much of this spending is managed centrally, with very limited fiscal decentralization.

At the same time, recent economic shocks and longer-term demographic trends impact on the trajectory and efficiency of public sector spending. The first part of this chapter looks at how public spending has evolved in Türkiye across government functions. This includes a cross-country perspective on spending efficiency in major areas of expenditure, how this may have been affected by near-term increases in public transfers, and latter's impact in terms of crowding out public investment. The second part of the chapter focuses on selected issues for public expenditures going forward. As Türkiye transitions towards high income, public expenditures will continue to expand given demographic trends and the need to build resilience to shocks. This is considered in the context of budget rigidities on the one hand and growing social protection needs on the other, which are analyzed in more depth in chapters 4 and 5. The chapter ends by discussing the potential for more decentralization to increase spending efficiency.

A. Public expenditure trends

A growing public sector increasingly focused on social sectors

Türkiye's public spending level is commensurate with its level of development. Wagner's Law suggests that the share of public spending in GDP tends to rise with economic development. As countries develop, the government undertakes new activities and services are undertaken or existing activities and services are expanded. The public sector in ageing economies also tends to be larger as the provision of public services such as health care and disability care rise with life expectancy.⁹⁰ Many other factors, such as the nature of economic institutions, can of course create differences in the size of the public sector. Türkiye's public spending as a share of GDP has almost doubled over the past three decades. Türkiye currently spends around the level predicted by its per capita GDP (Figure 106).

The dominance of general government within the public sector helps contain risks to the public sector balance sheet though there is some scope to improve transparency. General government spending to GDP has recently averaged between 30 to 35 percent of GDP. This is higher relative to Mexico, Malaysia, India, Indonesia, Thailand, Philippines, though lower relative to Argentina and Brazil, which are more decentralized and run high budget deficits. The elimination of multiple extra-budgetary funds has helped to simplify public sector accounting. The role of SOEs is also relatively small (expenditure at 1 percent of GDP) although state banks play an important role.⁹¹ Significant privatization since the 1980s has reduced the number of SOEs from 220 to 19.⁹² Existing SOEs nevertheless remain major players in energy, transportation, and agriculture. Despite the consolidation, there remains differences on accounting for general government expenditures; data released by the Presidency of Strategy and Budget Office of the Presidency is consistently 2-3 percentage points of GDP higher than data released by the Ministry of Treasury and Finance (MoTF). Ensuring a single accounting method aligned with international practice is important for fiscal transparency.

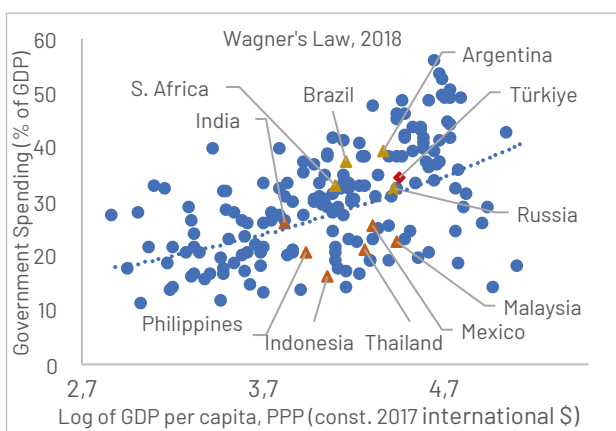
⁹⁰ EBRD (2020), Transition Report 2020-21: The State Strikes Back.

⁹¹ Duty losses and other transfers to SOEs from central government constitute around 1.5 percent of total CG expenditures.

⁹² The number of SOEs subject to Decree No. 233 is 19 and the number of establishments in the privatization portfolio is 2.

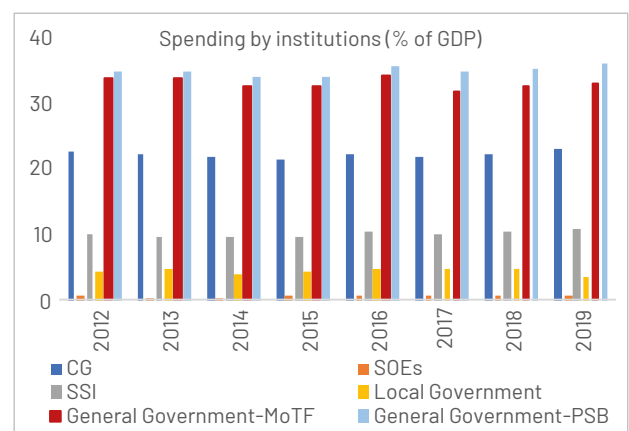
Within the general government, central government and social security institutions dominate expenditures. The general government in Türkiye is highly centralized; expenditures are executed largely by central line ministries (22–23 percent of GDP). Expenditure of social security institutions accounts for over 10 percent of GDP (Figure 107); this has grown over time with gradually increasing coverage of social protection programs (discussed further in part 2; and in more detail in chapters 4 and 5). The size of local administration is small (4–5 percent of GDP) relative to the geographic size of Türkiye and its population density, as discussed further below.

Figure 106: Türkiye’s general government spending as a share of GDP is above 30 percent



Source: World Bank WDI and IMF WEO.

Figure 107: The bulk of expenditures is executed by the central government



Source: MoTF.

Box 8: The Role of the Public Sector

The size and role of the public sector have changed substantially around the world since the early 1900s. Government expenditure as a share of GDP on average has risen from about 5 percent in the early 1900s to over 20 percent recently.⁹³ This is attributed to the rising importance of education, increasing life expectancy, the growing cost of providing education and healthcare, and demand for stronger social safety nets and redistribution on account of technological change.⁹⁴ The size of the public sector is almost twice as large in the developed world as in developing countries (Figure 108).

Rising public expenditures as countries develop reflects the need for higher levels of healthcare, long term care and state pension expenditures. High income countries spend more on social expenditures relative to low income countries. A recent EBRD study explores whether the size of the state (public spending and employment) can be explained by differences in demographics, the nature of their economic institutions or other characteristics of the economies in a sample of 117 economies over the period 1995–2018.⁹⁵ The results show that the public sector’s share of employment tends to increase as the population ages. Another finding is that there is a strong positive correlation between government spending and quality of economic institutions (administrative capacity).⁹⁶ Government spending rises when economic institutions are stronger, reflecting the role of administrative capacity in enabling governments to raise revenue and deliver high-quality services demanded by citizens.

⁹³ Izquierdo, A., Pessino, C., Vuletin, G., (2018) Better spending for better lives: How Latin America and the Caribbean Can Do More with Less. DIA (Development in the Americas) Flagship, Inter-American Development Bank, Washington, DC.

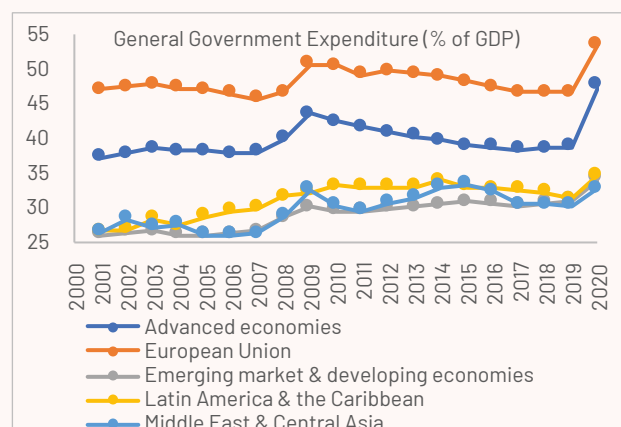
⁹⁴ EBRD (2020), Transition Report 2020-21: The State Strikes Back.

⁹⁵ This analysis looks at the average level of public spending or employment over a four-year period using the country’s average values for the preceding period, as well as various country-level characteristics by using a version of the Arellano-Bond generalized method of moments (GMM) estimator.

⁹⁶ Measured as the average of the Worldwide Governance Indicators for control of corruption, the rule of law, regulatory quality, and government effectiveness.

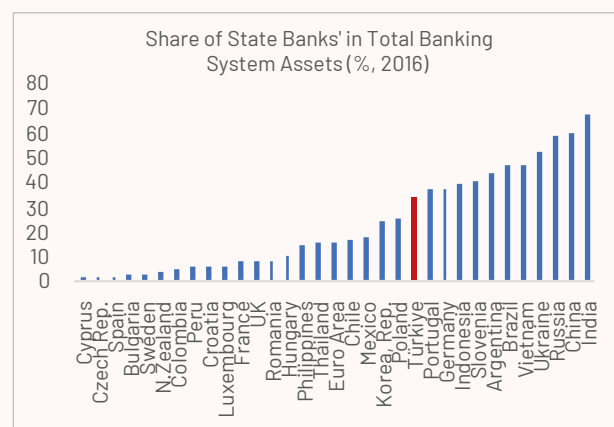
The outbreak of the COVID-19 pandemic in early 2020 has prompted discussions over the capacity of governments to promote resilience. Almost all countries have ramped up their public spending, particularly health care and social assistance spending. However, the crisis has clearly shown that fiscal space alone is not sufficient to mitigate health and economic risks faced by individuals and businesses. Countries with relatively strong administrative capacity in addition to their fiscal space, have succeeded in providing rapid, targeted support to vulnerable individual and businesses.

Figure 108: The size of the public sector is relatively larger in developed countries



Source: IMF WEO.

Figure 109: State banks have a large share in big emerging market economies



Source: World Bank, Bank regulation and Supervision Survey 2019.

Another striking change over the recent decades is the evolving role of SOEs in the public sector. The state ownership and presence of SOEs have declined in many countries with large-scale privatization; over the past two decades their concentration has also shifted towards transport and utility sectors. SOEs currently account for a higher share of GDP in developing countries than in developed ones, on average. Despite extensive privatization efforts, SOEs have remained important economic players in the domestic market and the global economy. Globally, SOEs account for 20 percent of investment, 5 percent of employment, and up to 40 percent of output in some countries.⁹⁷ Many SOEs also currently rank among the world's largest companies and capital market players, largely driven by the growing prominence of China's SOEs. In 2019, 11 SOEs made it to the top 50 of the Fortune Global 500; of these 11 companies, 8 are from the China.⁹⁸ State-Owned Multinational Enterprises constitute around 15 percent of the world's largest non-financial Multinational Enterprises.⁹⁹ Whilst the importance of SOEs in some emerging markets (India, Brazil, and Russia) has grown in the global economy, the prevalence and size of SOEs in European countries, as well as Japan, have declined.¹⁰⁰

Banking sector SOEs, state banks, have recently grown in importance in many countries. Banking sector SOEs represent 40 percent or more of banking system assets in big emerging market economies (Brazil, Russia, India, China, and Argentina) and one-third or more in Germany and Portugal among advanced economies (Figure 109). During past recessions (e.g. Global Financial Crisis), state banks stepped up their lending, often financed by direct support from governments' budget, softening the contraction in economic activity.¹⁰¹

⁹⁷ World Bank (2014), Corporate Governance of State-Owned Enterprises: A Toolkit. Washington, DC.

⁹⁸ Asian Development Bank (2020), Reforms, Opportunities and Challenges for State-Owned Enterprises.

⁹⁹ Kalotay, K., (2018) "State-Owned Multinationals: An Emerging Market Phenomenon?" The Journal of Comparative Economic Studies 13: 13-38.

¹⁰⁰ OECD Business and Finance Outlook (2019): Strengthening Trust in Business. <https://www.oecd-ilibrary.org/sites/772fc3df-en/index.html?itemId=/content/component/772fc3df-en>

¹⁰¹ Past experiences show that public banks' actions can weather the impact of downturns but also involve fiscal risks and costs. Jiménez et al. (2019) show that state lending after 2009 had a positive impact in terms of supporting economic activity in Spain, but this came at a cost, resulting in an increase in defaults on loans issued by state banks. Colemand and Feler (2015) find that better employment outcomes were achieved in areas where state banks had more of a presence and received more loans during the global financial crisis in Brazil. However, as the lending was politically motivated and allocated inefficiently, and it had distortionary impact and decreased productivity growth in the longer term (EBRD, 2020).

¹⁰² World Bank (2018), 2018 Private Participation in Infrastructure (PPI) Annual Report.

Another evolving trend is the rising importance of PPPs in infrastructure investment. The interest in promoting public-private partnerships (PPPs) has grown substantially particularly following the GFC in 2008-2009 in developed and developing countries. With constraints on public resources and fiscal space, governments have increasingly used PPPs as a tool to close their infrastructure investment gap and promote growth. PPI investment in EMDEs amounted to 90 billion dollars across 335 projects in 2018, largely focused on the energy and transport sectors.¹⁰² However, growing government PPP commitments has raised concerns regarding the fiscal risks in PPPs. These concerns have intensified further during the pandemic. The pandemic has drastically affected the PPPs, because of demand collapse (particularly in the transportation sector) and operational disruptions. PPPs have experienced significant revenue losses which has led to a surge in public spending due to the PPP commitments of the governments (e.g., revenue guarantee, loan guarantee).

Going forward, the role of the public sector will be more critical for adopting laws, policies, and incentives tackling climate change, creating an enabling environment, promoting green investment, and ensuring a smooth green transition. The EBRD (2020) highlights the critical role of governments in the decarbonization process. It shows that green laws and policies are associated with reduced CO2 emissions from EBRD regions amounting to 12 percent in the 1997-2016 period relative to levels that would otherwise have been seen.

Social expenditures have come to dominate general government functions

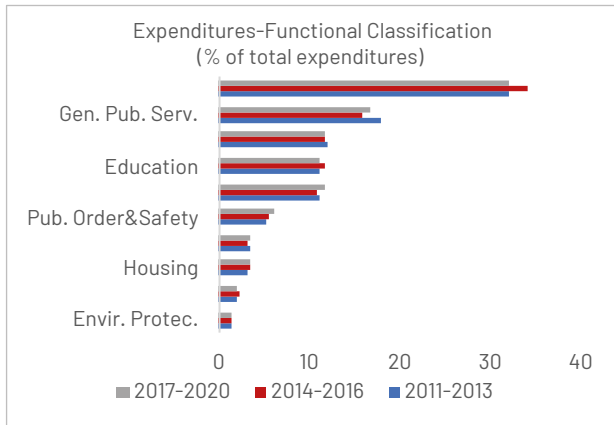
Social sector expenditures have come to dominate general government functions in Türkiye. The fiscal space generated by remarkable declines in interest expenditures in the 2000s was filled by social spending.¹⁰³ Health, education, and social protection currently account for around 55 percent of the budget; social protection constitutes its bulk (Figure 110). Social protection expenditures are mainly driven by pensions and related expenditures (around 90 percent of social protection expenditures), whereas direct income support, especially social assistance have a small share (discussed further in chapters 4 and 5). Despite the substantial share of social spending in Türkiye, the overall level is below that of OECD countries. Social expenditures account for around 28 percent of GDP in OECD countries compared to 18 percent in Türkiye (Figure 111).

General public services and economic affairs expenditure are other large expenditure items. General public services, which include debt servicing, account for around 17 percent of total expenditures in Türkiye which is very close to the OECD average (Figure 111). The share of economic affairs expenditures in GDP (around 3.5 percent) lags behind the OECD average (4.5 percent). Within economic affairs, transportation represents on average the highest share (50 percent), followed by agriculture and forestry affairs (22 percent). The share of expenditures other functions such as recreation, culture, and religion (0.7 percent of GDP) and environmental protection (0.4 percent of GDP) are well below OECD averages. On the other hand, housing expenditures, which have increased their share over the past decade, constitute around 1 percent of GDP, more than twice the OECD average.

¹⁰² World Bank (2018), 2018 Private Participation in Infrastructure (PPI) Annual Report.

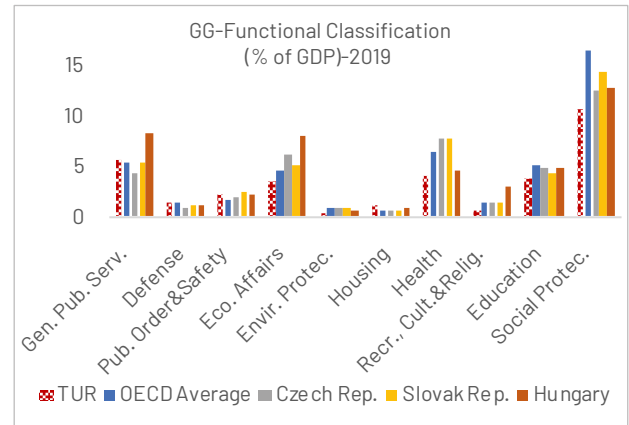
¹⁰³ Big changes in the composition of expenditures in favor of social expenditures realized largely in 2000s. Over the past decade, the share of education and health expenditures in total expenditures followed a stable trend.

Figure 110: Social expenditures account for more than half of total expenditures



Source: MoTF

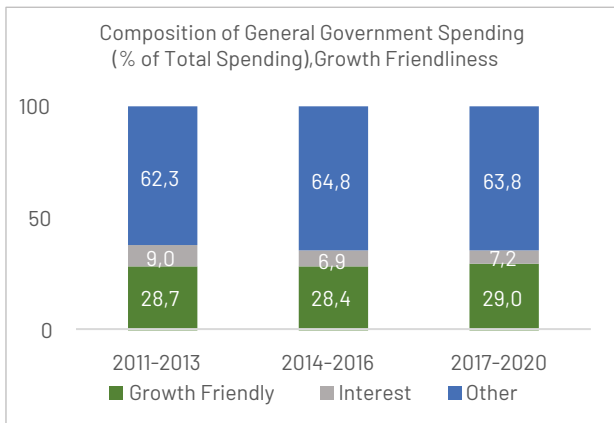
Figure 111: But are still well below the OECD average



Source: MoTF and OECD

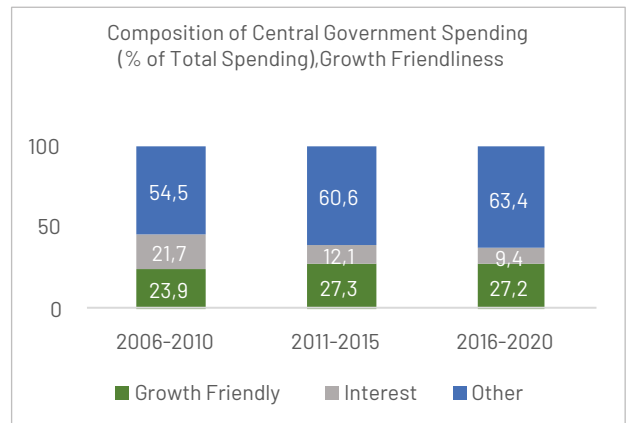
The current functional breakdown of spending could be characterized as only moderately growth-enhancing. Cepparulo and Giles (2020)¹⁰⁴ define government expenditures on health, education (investment in human capital), transport and communication (investment in infrastructure) as well as R&D (associated with innovation and technological development) as growth-boosting expenditures.¹⁰⁵ The spending on growth-enhancing functions in Türkiye account for roughly over a quarter of total expenditure (29 percent for general government (Figure 112) and 27 percent for central government (Figure 113)). The share has remained relatively steady over the past decade. In EU countries, the share of growth-enhancing expenditures is around 32-35 percent on average. Education and health constitute more than two-thirds of growth friendly expenditures in Türkiye. Such expenditures registered a modest rise over the past decade amid slight increases in the shares of education and health. However, the growth impact of these expenditure also depends on their efficiency (see next section) and alignment with longer-term development priorities.

Figure 112: Around one-third of general government expenditures are growth-friendly



Source: MoTF

Figure 113: The share of growth friendly expenditures has remained stable over the past decade



¹⁰⁴ Alessandra Cepparulo and Gilles Mourre (2020) "How & How Much? The Growth-Friendliness of Public Spending Through the Lens" European Commission Discussion Paper 132.

¹⁰⁵ The authors define these spending items as growth friendly considering the broad consensus in the literature. R&D spending is calculated as sum of all R&D spending across all categories.

Despite the large share of social spending, there is much scope to increase its level and efficiency

Despite the rising share of education spending, cross-country analysis suggests scope to increase its efficiency using the definition and approach adopted for this work. Based on Data Envelopment Analysis (Annex A) comparing aggregate expenditure levels with selected aggregate outputs across a range of comparable countries at a certain point in time, Türkiye spends less efficiently on education¹⁰⁶ than peer and OECD countries; the score combines low spending and low output. Noting that efficiency definitions vary across methodological approach, the analysis suggests that nonetheless Türkiye’s educational outcomes for its level of income have not kept pace with other comparable or higher-income countries. Germany, Czech Republic, Hungary, and Spain spend similarly to Türkiye, but with better outcomes (Figure 114). Despite increases in public spending as a share of GDP, private expenditure on education in Türkiye is very high. Private sources accounted for 25 percent of total spending on primary to post-secondary non-tertiary educational institutions, more than twice the OECD average of 10 percent.¹⁰⁷ When private education expenditures are included in the analysis, Türkiye moves further away from the efficiency frontier (Figure 115). This could be due to several factors (e.g. education quality, a high share of personnel expenditure, low share of capital expense), which are introduced in chapter 4 for future detailed analysis.¹⁰⁸

Figure 114: Türkiye has low spending and low output in education

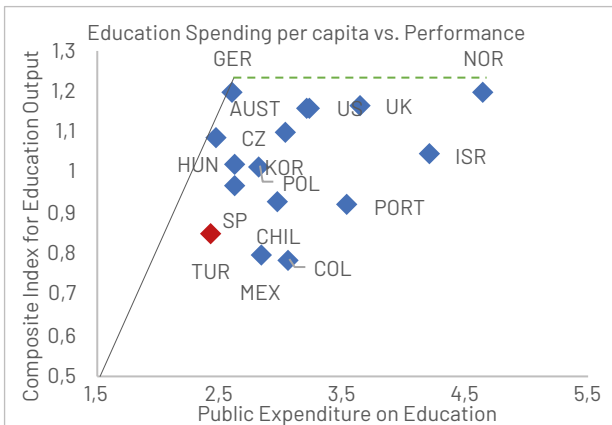
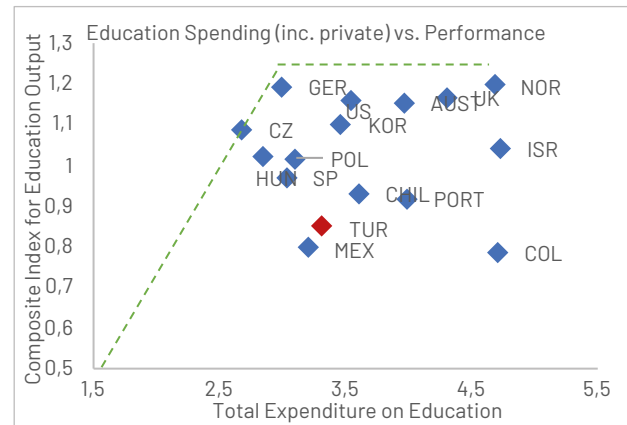


Figure 115: Türkiye moves further away from frontier when private education expenditures are included

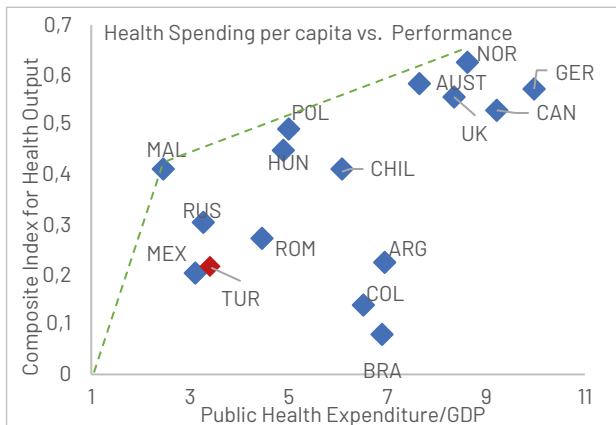


Source: WB staff calculations
 Note: Data sources for the analysis and relevant literature are provided in Annex A.

A similar result is evident for health expenditures. Türkiye and Mexico spend the least on health as a share of GDP among OECD countries. Türkiye’s public health spending efficiency score is below average compared to peers and OECD countries (Figure 116). Brazil, Argentina, Chile, and the US are the worst performers in terms of efficiency. The share of government health spending as a share of total health expenditure in Türkiye has increased over the years from 60 percent in the early 2000s to 78 percent¹⁰⁹, which is above the OECD average, thanks to the expansion of health insurance coverage. Due to this, out-of-pocket health spending almost halved to around 17 percent of total health expenditures. Similar health spending efficiency scores are obtained when out-of-pocket expenditures are included in the analysis (Figure 117). Even though health spending in Türkiye is currently well below the OECD average, health spending pressures are likely to build up within less than a decade due to the rapidly changing demographic profile.

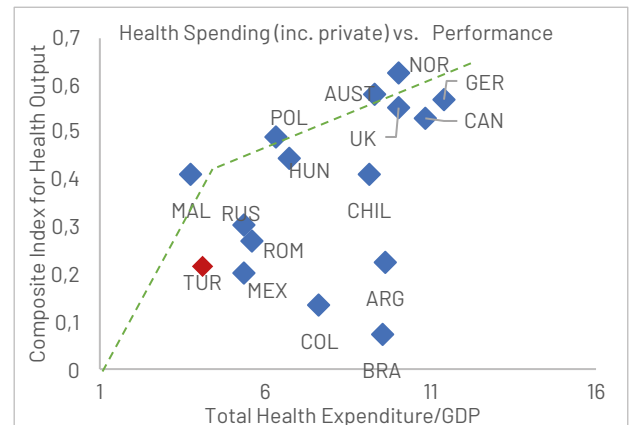
¹⁰⁶ Education spending covers primary to post-secondary non-tertiary spending. Tertiary spending is excluded as PISA scores are used as output indicator.
¹⁰⁷ OECD (2019) Education at a Glance 2019: Country Note. https://www.oecd.org/education/education-at-a-glance/EAG2019_CN_TUR.pdf.
¹⁰⁸ Low salaries and limited pay progression restricts the attractiveness of the teaching profession. At the top of the scale, teachers’ average statutory salaries are only about 27 percent higher than their starting salaries compared to 61-67 percent on average across OECD countries. (OECD, 2019).
¹⁰⁹ OECD Health statistics 2019.

Figure 116: Türkiye's health spending has scope for efficiency gains relative to peers and OECD



Source: WB staff calculations

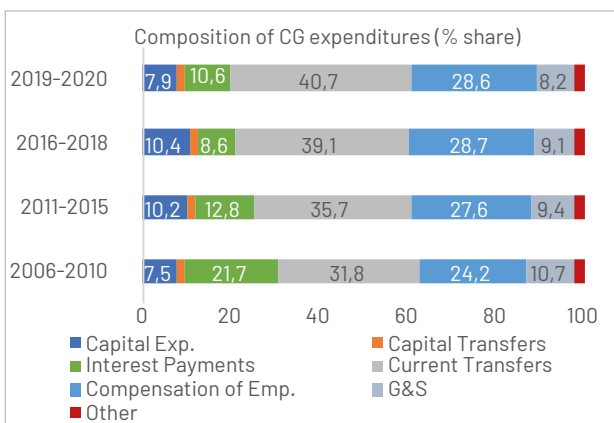
Figure 117: A similar result is obtained when private health spending is included



This may in part be linked to public transfers crowding out more productive expenditure

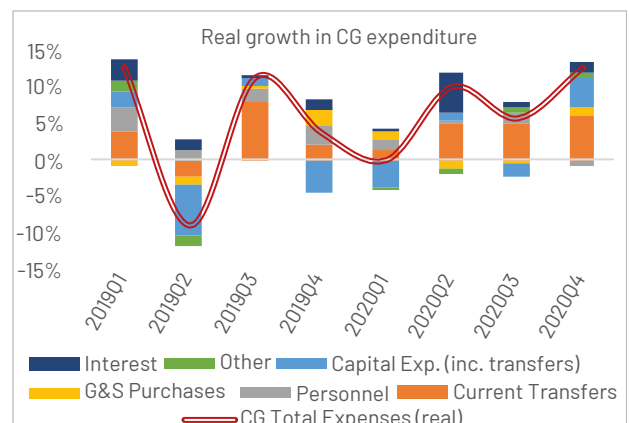
The above shifts in the functional composition of spending are driven by changes in the economic composition, including a sharp rise in public transfers. The decline in interest payments in the early 2000s created space for non-interest recurrent expenditures, which have grown by more than 10 percentage points of GDP since 2006 (Figure 118). The biggest driver, current transfers, now accounts for around 40 percent of the central government budget and is associated with increased social protection spending.¹¹⁰ Treasury aid for retirement, health and social aid expenses constitute around 90 percent of central government transfers. The jump in current transfers has been more striking over the past five years (Figure 118, Figure 119). It increased in nominal terms by around 22 percent on average in the 2016–2020 period, compared to 12 percent average increase in the 2011–2015 period. The share of transfers in expenditures increased from 38.5 percent in 2016 to 41.4 percent in 2020. The increase in public transfers has been driven both by longer-term demographic trends, as discussed below and in the next chapter, and a series of economic shocks including the COVID-19 pandemic (See Box 9) since 2016

Figure 118: Public transfers account for around 40 percent of total CG expenditures



Source: MoTF, WB staff calculations

Figure 119: Expenditures have been in an upward trend in recent years, mainly driven by public transfers



Source: MoTF, TURKSTAT, WB staff calculations

The increase in public transfers has necessitated adjustments to other economic categories of spending, which may have affected on the efficiency of functional spending. Compensation of employees, including social security contributions (around 27-28 percent of total expenditures), contributed around 4 percentage points to the rise in non-interest current expenditures. The rise in the wage bill is closely linked to the expansion of health and education services over recent decades, as well as inflation.¹¹⁰ On the other hand, several shocks over the past five years (failed coup attempt in July 2016, currency shock in August 2018, and the COVID-19 pandemic) have also forced the authorities to cut potentially productive expenses, including goods and services and capital investments, as discussed further below. The share of capital expenses (including transfers) in total expenses has fallen to below 10 percent in recent years. This was needed to create space for an acceleration in transfers as noted above, but also because of rising interest expenses. Countercyclical fiscal policy to contain shocks also led to a rise in borrowing needs and this coupled with high borrowing costs caused an increase in the share of interest payments to above 10 percent of total expenditures.

Box 9: Government Expenditure Response to the COVID-19 Pandemic

COVID-19 pandemic took a heavy toll in Türkiye. GDP recorded the sharpest contraction (-10.4 percent yoy) of the last decade in the second quarter of 2020. Türkiye responded to COVID-19 pandemic with a large economic stimulus program, focused on credit channels. Credit stimulus, along with loose monetary policy and other regulatory measures to promote credit expansion, drove a sharp increase in domestic demand and economic activity in late 2020. The rebound in the second half of 2020 was so strong that it more than offset the loss in activity earlier in the year, and real economic activity over the full year ended up 1.8 percent higher than its level in 2019. Good progress in expanding vaccination coverage and relaxation in pandemic-related restrictions supported the continuance of the recovery in the first half of 2021.

On the fiscal side, direct fiscal measures were smaller in size and targeted but provided important support to firms and households. Central government expenditures increased as a share of GDP by 0.7 percentage points in 2020, driven largely by COVID-19 related transfers to households and firms and rising interest costs. Spending on capital and goods and services was adjusted to help create fiscal space for public transfers. Most central government transfers are for health, retirement and social aid expenses. Current transfers surged by around 5 percent in real terms after the outbreak of the COVID-19 pandemic (Figure 14). Interest costs rose to around 3 percent of GDP in 2020, due to a sustained increase in borrowing requirements.

Most COVID-19 related government support to households was through employment measures. These programs were financed through the unemployment insurance fund, and did not appear directly on the central government budget. The number of workers receiving short-term work allowance had reached 3.76 million by mid-February 2021 (Table 18). The government provided a smaller benefit for around 2.7 million workers not eligible for short-term work allowance, but who were put on unpaid leave. Unemployment benefit payments were continued for people who lost their jobs before COVID-19. The government also introduced a new support program in August 2020, under which it pays firms' social security premiums for workers who benefitted from the short-term work allowance, or who were sent on unpaid leave.

Türkiye's overall fiscal support package was one of the highest among G20 emerging market economies, but with little reliance on direct expenditures. Türkiye's fiscal support package, at 11.5 percent of GDP (10.1 percent of GDP excluding deferred revenue), was the second-largest amongst emerging markets after Brazil, and the 13th largest amongst all G-20 countries (Figure 120). However, unlike most other economies, Türkiye predominantly relied on indirect fiscal measures with 75 percent of the package consisting of contingent liabilities (loan guarantees and quasi-fiscal operations). These measures were key to facilitating a large increase in credit, primarily via the state-owned banks.

¹¹⁰ The share of current transfers in general government expenditures is around 47-48 percent.

¹¹¹ The number of health staff rose more than to twofold and number of teachers almost doubled in 2006-2020 period.

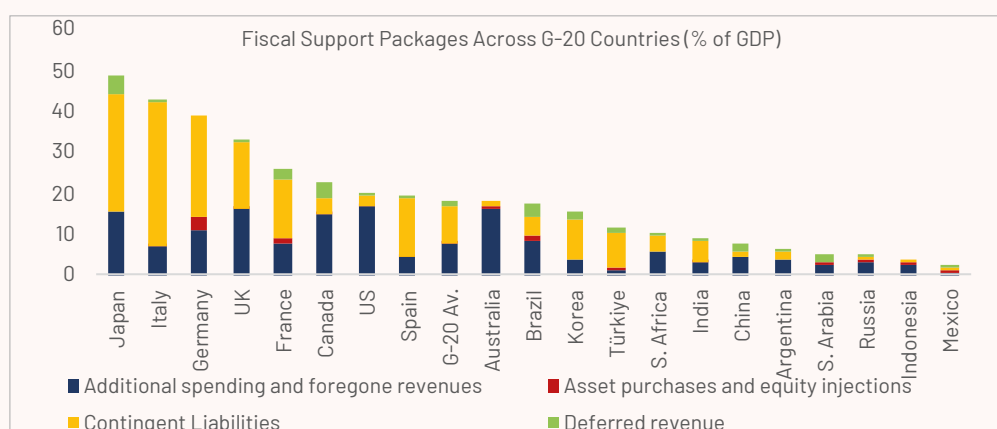
Table 18: COVID-19 measures introduced by the Ministry of Family and Social Services

		Number of individuals/ households reached	Amount of assistance provided (TL m)
Social Support Program	Phase 1	2,111,254	2,111
Short Term Work Allowance	Phase 2	2,316,010	2,316
Unpaid Leave Subsidy	Phase 3	2,003,582	2,004
Unemployment Insurance	Workers	3,756,584	27,666
Normalization support	Workers	2,471,134	8,266
Total			50,651

Source: Ministry of Family and Social Services, accessed on February 13, 2021.

Direct fiscal measures, though smaller in magnitude, were generally well-targeted, and effective. This included support to furloughed workers and public payments to workers on unpaid leave, additional social support transfers to households, rent and revenue support to small businesses, and tax and social security contribution deferrals for businesses.¹¹²

Figure 120: Türkiye provided a big fiscal support package but contained a very small share of direct expenditures



Source: IMF Fiscal Monitor, January 2021.

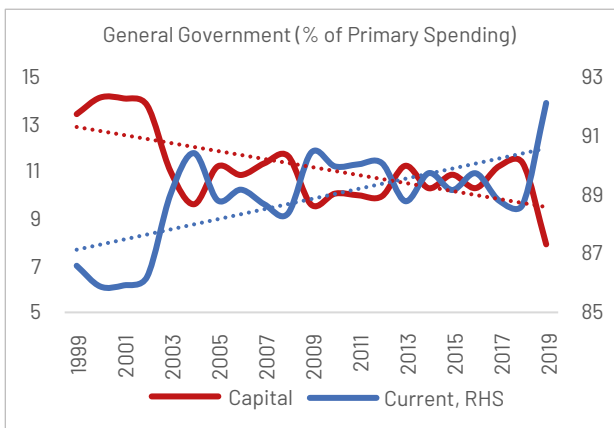
¹¹² TEM (2021), Navigating the Waves. Some COVID-19 fiscal support measures (e.g. short-term work allowance) were financed through Unemployment Insurance Fund and helped to contain the rise in public debt.

Public investment levels and efficiency have declined over the past decade

Public investment has displayed a declining and highly volatile trend over the last two decades. The current and capital spending shares of primary spending since the early 2000s illustrates the declining trend in capital expenditures (Figure 121).¹¹³ Public investment fell from about 4.8 percent in 2002 to 3.2 percent of GDP in 2019 (Figure 122). Recent downturns in the Turkish economy were marked by drops in public investment. Public investment has generally withstood the worst of adjustment in bad times to create room for social and other current expenditures (see chapter 1 showing the high procyclicality of public investment).

Public investment has been concentrated in core infrastructure areas. Central government accounts for most capital expenses (around 57 percent of total investment) (Figure 123). Yet local administrations also play an important role in public investment (around 27 percent of total investment) focusing mainly on transportation, water, and sanitation, urban and environmental investment. The share of the agricultural and industrial sectors in total public investment has eased considerably over the last two decades as due to privatization in these sectors (Figure 124).¹¹⁴ Importantly, the public sector's focus in terms of investment has shifted towards social sectors (health, education) and core infrastructure (transportation) areas. The decline in capital expenses was offset by increased PPPs (Chapter 1) in transportation, energy, and health. PPPs are used to finance large infrastructure projects. However, dispersed legislative and administrative structures in the PPP system creates challenges for the fiscal implications of PPPs (Chapter 1).

Figure 121: Declining trend in public investment



Source: The Presidency of Strategy and Budget (PSB)

Figure 122: With high volatility

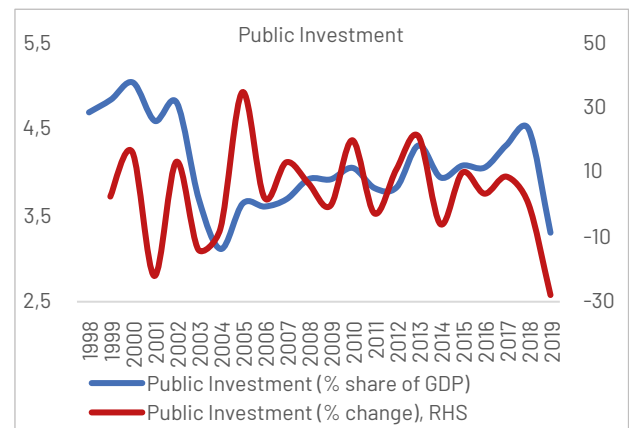
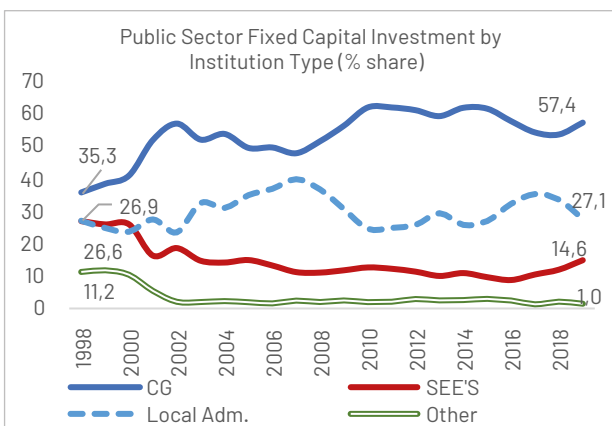
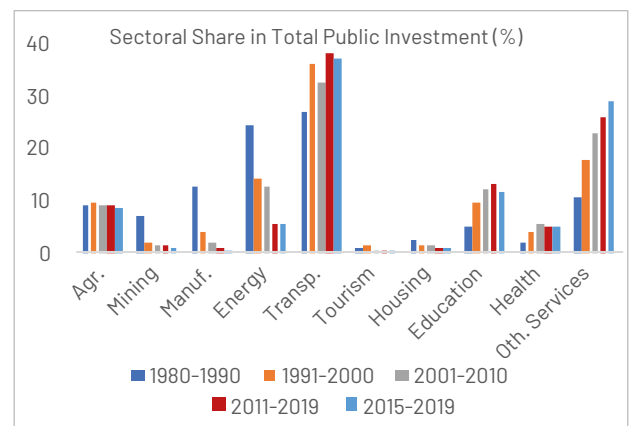


Figure 123: Public investment is largely carried out by the CG



Source: PSB

Figure 124: Concentrated on core infrastructure



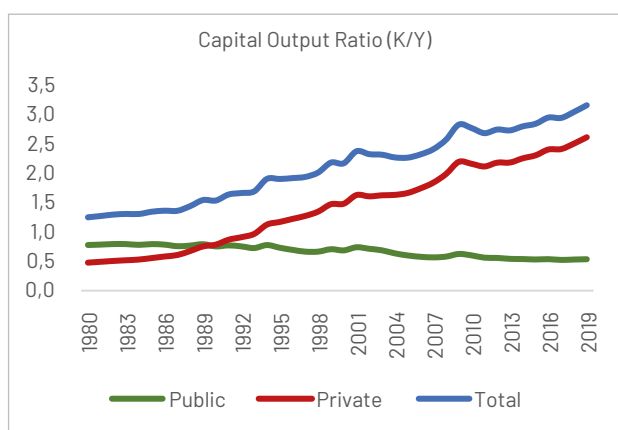
¹¹³ Similar trend is observed in developing economies. Izquierdo et al. (2018) plotted the evolution of current and capital spending shares of primary total spending since 1980 and clearly showed a growing bias against capital spending in developing economies.

¹¹⁴ The private sector compensated for the slowdown in public investments in the related areas with investment in agriculture, mining, and manufacturing. Private investment in these sectors grew by around 10 percent in real terms in the 2002-2019 period. However, private sector investment heavily focuses on housing, representing around 30 percent of total private investment. While investment in housing serves an important social function, Türkiye can achieve greater progress by concentrating on more productive investment to maintain sustainable growth.

The increase in Türkiye’s capital stock was mainly driven by private rather than public investment. The capital-output ratio in Türkiye has steadily increased from 2.3 in the early 2000s to 3.2 in 2019. An increase in the capital-output ratio came about mainly due to increased private capital stock levels; deregulation and privatization resulted in lower public investment levels (Figure 125). The rising share of housing investment contributed to the accumulation of private capital stock. Türkiye’s per capita capital stock level is in line with its per capita GDP (Figure 126). Whilst Türkiye’s per capita capital stock is higher than certain peer countries such as Malaysia, Indonesia, Argentina, and Mexico, it lags behind the Czech Republic, Slovakia, Greece, Ukraine, Russia, and Croatia.

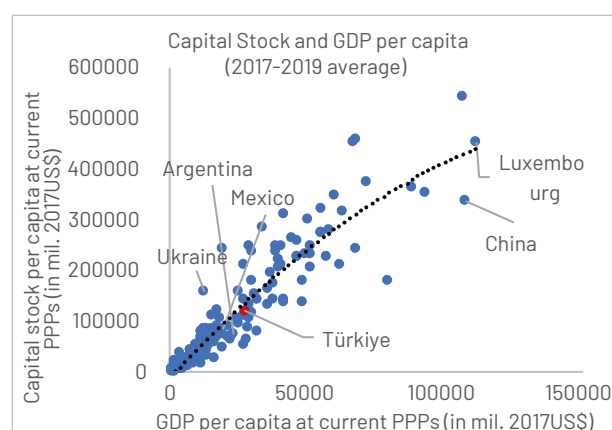
Not only the level but also the composition of capital stock matters. Thus, the objective should be to change the composition of investment in favor of more productive and climate-resilient infrastructure investment that would increase the supply capacity of the economy and build resilience to the risk of climate challenge. On housing, selective housing investment with green standards and more resilient to health, and climate threats (Chapter 6) would pay off with energy savings and public health benefits, despite higher upfront costs.

Figure 125: Capital stock to output ratio has almost tripled over four decades



Source: PSB and WB staff calculations
 Note: Capital stock is estimated using the perpetual inventory method.

Figure 126: Türkiye’s per capita capital stock level is in line with its per capita GDP



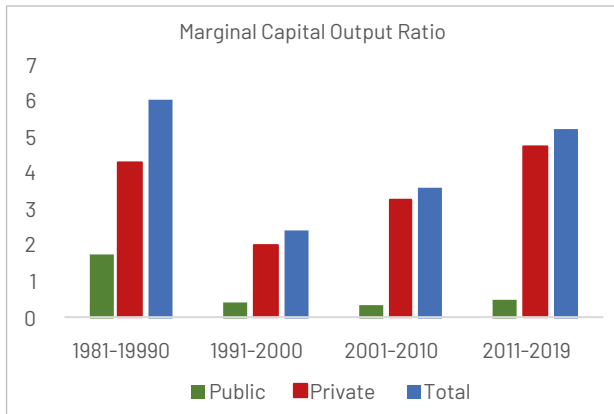
Source: WB staff calculations, Penn World Tables 10.0

The efficiency of public investment was on an upward trend since the 1980s, but those gains have reversed over the past decade. Türkiye’s marginal capital output-ratio has improved remarkably over the past decades compared to the 1980s (Figure 127), indicating a more efficient capital allocation. There has also been a significant improvement in average completion years of public investment (Figure 128).¹¹⁵ However, both public and private capital to output ratios have deteriorated to some extent over the last decade. The deterioration was more evident in the private marginal capital-output ratio. This can be attributed to economic instability, stagnant productivity, and the rising share of construction investment in total investment. At the current marginal capital to output ratio level, the investment to GDP ratio should be at least 27 percent to achieve 5 percent growth.

Cross-country estimates suggest that there is scope for enhancing public investment efficiency in Türkiye. Türkiye’s public capital stock to GDP ratio is around 0.6, close to sample average (Figure 129). In terms of transportation infrastructure, Türkiye has above-average quality on roads and airports; on the other hand, quality scores for ports and railroads, electricity supply, internet and mobile connectivity are below-average. Türkiye’s efficiency score (0.48) is very close to the average emerging country efficiency score (Figure 130) but below that of advanced economies’ average score (0.85). These results imply substantial scope for improving public investment efficiency in Türkiye. Improvements in public investment management (PIM) could significantly enhance the efficiency and productivity of public investment.

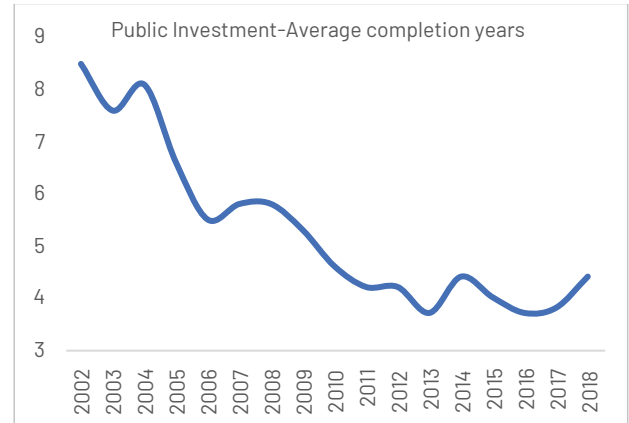
¹¹⁵ The longest investment completion years belong to the agriculture sector with 7.8 years on average whilst mining and housing sectors have the shortest investment completion years at 0.37 and 1.32 years on average, respectively. The source is TUSIAD, Koc University and Economic Research Forum (2018) Central Government Budget Monitoring Report.

Figure 127: Marginal capital-output ratio has shown progress



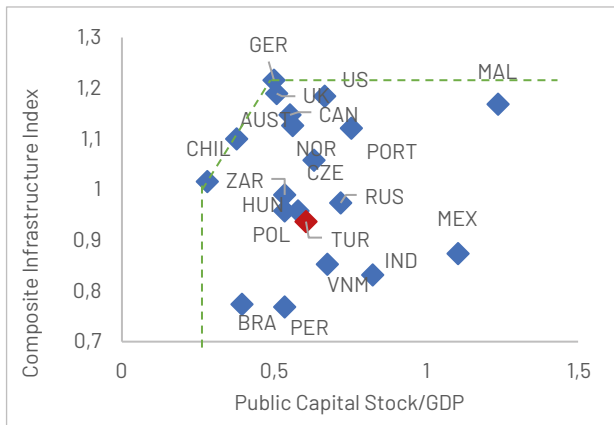
Source: WB staff calculations, PSB
 Note: Marginal capital-output ratio is ratio of increment in the stock of capital to the increment in output ($\Delta K/\Delta Y$).

Figure 128: And average completion years of public investment have declined substantially



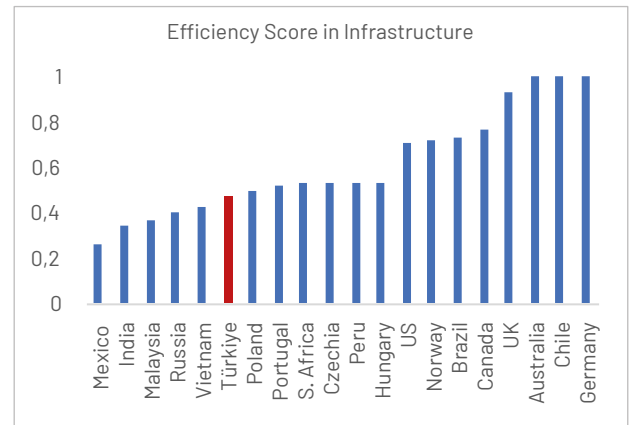
Source: TUSIAD, Koc University and EAF, Central Government Budget Monitoring Report (2018)

Figure 129: There is substantial scope for improving public investment efficiency



Source: WB staff calculations

Figure 130: Türkiye's efficiency score is very close to the emerging countries' average



Public investment, particularly infrastructure investment, has been an important tool to promote competitiveness, private investment, regional development, and economic growth. The public investment multiplier is high in Türkiye (chapter 1). Cosar and Demir (2016)¹¹⁶ show that transport cost reductions brought about by Türkiye's large-scale investment in the quality and capacity of its road transportation network led to increased trade with regions whose connectivity to the international gateways of the country improved the most.¹¹⁷ The benefit is also significant in domestic trade and regional outcomes. Cosar et al. (2020)¹¹⁸ identify a notably positive impact of reduced inter-provincial travel times on trade as well as regional industrial sales and employment due to large-scale public investment in roads during the 2000s.¹¹⁹ There is also evidence that public investment in core physical infrastructure crowds in private investment in the medium term.¹²⁰ Saygili and Ozdemir (2017)¹²¹ find that physical and social infrastructures contribute both directly and indirectly to the real income of a region and suggest a primary focus on primarily on physical infrastructure to reduce regional disparities.

¹¹⁶ Cosar, A. Kerem and Demir, Banu (2016). Domestic Road Infrastructure and International Trade: Evidence from Türkiye," Journal of Development Economics, Elsevier, 118, 232-244.

¹¹⁷ In the study, they found that the cost of an average shipment over a high-capacity expressway is about 70 percent lower than it is over single-lane roads. The present value of a 10-year stream of trade flows generated by a one-dollar investment in road infrastructure ranges between \$0.7 and \$2.

¹¹⁸ Cosar, A. Kerem; Demir, Banu; Ghose Devaki and Young Nathaniel (2020). Road Capacity, Domestic Trade and Regional Outcomes. EBRD Working Paper 241.

¹¹⁹ The study finds that a one-hour reduction in travel times between two provincial centers increases bilateral trade by about 4.9 percent. They find a rate of return on road infrastructure investment of around 70 percent.

¹²⁰ World Bank (2014). Türkiye Public Finance Review : Türkiye in Transition—Time for a Fiscal Policy Pivot? Washington, DC

¹²¹ Hulya Saygili and K. Azim Ozdemir (2017). Regional Economic Growth in Türkiye: The Effects of Physical, Social and Financial Infrastructure Investments, Working Papers 1716, Research and Monetary Policy Department, Central Bank of the Republic of Türkiye.

These findings have important policy implications for public investment management (PIM). Although the PIM function¹²² in Türkiye is relatively strong, there are areas where further improvement is needed to mitigate fiscal risks and further improve PIM efficiency. A revised PIM framework would align with the 11th NDP objective to standardize the preparation, implementation, monitoring and evaluation of investment projects, including PPPs, and should aim to (i) harmonize requirements for PPPs and traditional investment projects where possible, and; (ii) integrate capital and current budgets aligned with the program budget.

Among the important elements in a revised PIM framework could be: (i) introduction of a formal pre-screening of project ideas led by the SB; (ii) a revision of documentation requirements for appraisal to make them more proportionate to project size, risk or complexity; (iii) introduction of a pre-selection checklist to doublecheck fulfillment of all requirements prior to projects being selected for financing; (iv) strengthening of the implementation monitoring at project and portfolio level as a basis for ongoing reviews and rationalizations of poorly performing projects; (v) strengthening long-term budgeting, fiscal risk assessment and monitoring of PPPs based on relevant tools such as the IMF/WB P-FRAM. (vi) piloting of impact assessments to identify lessons learned for future project designs; (vii) Piloting of options to include climate change and resilience aspects in the PIM framework.¹²³

B. Selected issues for public expenditures going forward

Low flexibility to reallocate public resources towards changing priorities or needs

One challenge for expenditures going forward is the growing share of non-discretionary items in the national budget. Herrera and Olaberria (2020)²⁴ define non-discretionary (rigid) budget components as the sum of public wages, pensions, and debt service. They decompose these items into structural and non-structural components for a large set of countries over time (Box 10). In their data Türkiye's share of rigid expenditure in total expenditures stood at 53.6 percent in 2017 (Figure 131), having gradually increased over the last decade from around 50 percent. This is well above the average for selected countries.

Box 10: Rigidity Definition-Cross Country Comparisons

Herrera and Olaberria (2020) propose a new measure of rigidity based on analyzing structural and non-structural components of government expenditure over time. This new approach is adopted to overcome the heterogeneity issue. Examining the different components - wages, pensions, and interest payments - across regions in the traditional approach of aggregating wages, pensions, and interest payments reveals that rigid expenditure spending as a share of total expenditure remained stable during the 2000-2017 period. The structural component is determined by long-run economic fundamentals such as development level, demographic and geographic characteristics, and long-term institutional arrangements while non-structural component is determined by policy decisions or short-run effects associated with the business cycle. Interest payments are taken as a rigid expenditure due to their contractual nature and the negative consequences of default.

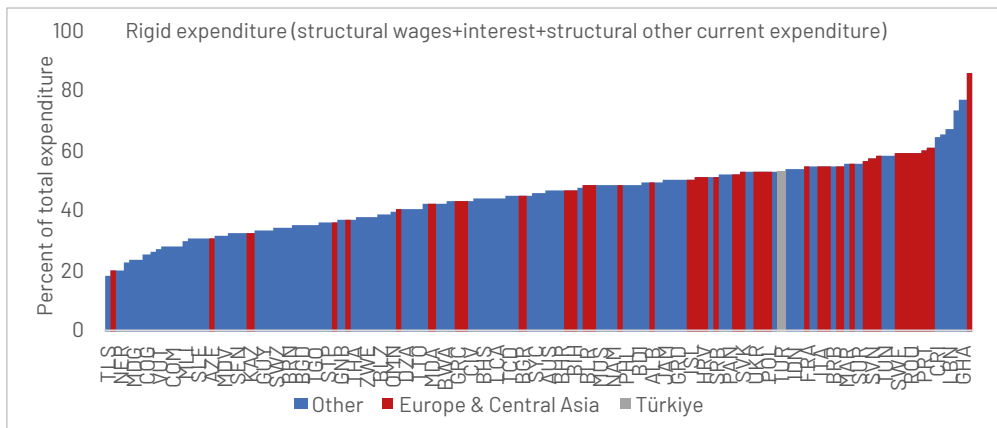
The authors define rigidity as the sum of interest payments, structural public wages, and structural other current expenditure that contains pension payments, transfers to the private sector, and other current spending, in the general government accounts. This methodology is adopted as some countries do not report pension payments directly and is calculated by estimating structural other current expenditure. The degree of rigidity spending is approximated by the ratio of structural spending to total spending. Structurally rigid expenditure is estimated using a fixed-effect model in which the log of the expenditure per capita in constant international dollars depends on a set of structurally independent variables including a log of GDP per capita in constant international dollars, the log of the population, or the dependency ratios. The structural components of each major categories are estimated separately. Then, each category are aggregated with interest payments. The panel data estimation for long-run or structural relationships relies on data of 166 countries in 1980-2017. The fixed effects absorb the time-invariant structural heterogeneity across countries, and the structural covariates capture the variation in expenditure explained by changes of structural factors over time. The residuals are the difference between observed spending levels and the structural component.

¹²² Building on a strong historical legacy, there is an elaborate strategic planning system that provides strategic guidance for the planning of investment projects; a strong tradition for the use of appraisal methods and a large, professional and well-resourced team covering most of the expected tasks related to investment programming, oversight and coordination.

¹²³ World Bank PFM report (2021) Mimeo.

¹²⁴ Herrera, Santiago and Olaberria, Eduardo (2020) Budget Rigidity in Latin America and the Caribbean : Causes, Consequences, and Policy Implications. International Development in Focus; World Bank, Washington, DC.

Figure 131: Türkiye's expenditure rigidity is above the ECA average



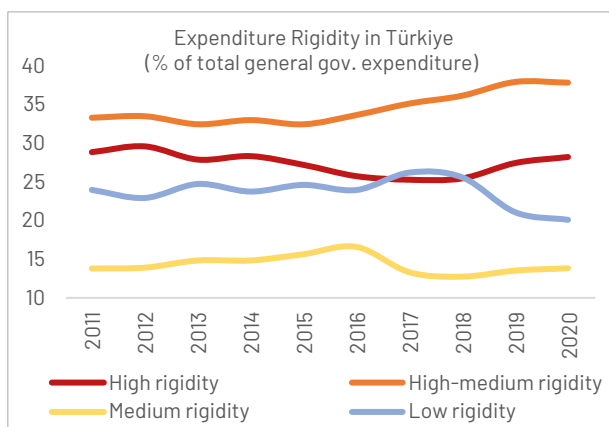
Source: Herrera and Olaberria (2020).

Note: Rigid expenditure is measured by calculating the structural component of wages, social security benefits, other current expenditures, and interest payments as a percentage of total expenditure.

Classification of public expenditure by rigidity is important to assess the flexibility of expenditures in response to changing priorities or needs. Fiscal rigidity can be defined as institutional, contractual, legal, or other constraints that limit the ability of governments to change the level or structure of public budgets in a specified period of time.¹²⁵ Herrera and Olaberria (2020) find that a high level of budget rigidity has important impacts on fiscal performance: (i) it increases financing needs and the probability of a country getting into fiscal distress (ii) reduces the ability to start fiscal adjustment, and; (iii) is associated with more inefficient levels of public spending, reducing the quality of public services and, therefore, the welfare of the population. Public wage bill, pensions, interest payments, and certain public transfers are generally considered 'rigid' expenditures. The categories in Table 19 were used to classify expenditure rigidity. Flexibility of expenditures is important in Türkiye as fiscal pressures build up with changing demographics, which could potentially hurt investment in human and physical capital and thus long-term growth.

A more detailed line item analysis of Türkiye's expenditures reaffirms the increased budget rigidity. The share of high rigidity and high-medium rigidity expenditure increased from 62.5 percent in 2011 to 66.1 percent in 2020 (Figure 132).¹²⁶ The rise in wage bill, social security benefits and some transfer items drove the increase while the declining trend in the share of interest payments helped to offset this increase to some extent. Transfers to households from social security agencies, one of the main rigid items, account for around one-third of total expenditures. The characteristics of pension system, still high level of informality and ad-hoc lump-sum payments to retirees contributed to rising rigidity. Other rigidities limit the discretionary room for spending (e.g., transfers to SOEs for "duty losses"). On the other hand, low rigid items (purchase of G&S, capital expenses) showed a declining trend, with their share falling to 20 percent, mostly driven by cut in capital expenditures in the recent period.

Figure 132: Türkiye has a high share of rigid expenditures



Source: MoTF and WB Staff Calculations.

¹²⁵ Cetrángolo, O., J.P. Jiménez and R. Ruiz del Castillo (2010) "Rigidities and fiscal space in Latin America: a comparative case study", Series Macroeconomía del Desarrollo 97, Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile.

¹²⁶ Rigidity analysis is based on general government accounts released by the MoTF. The increase in the share of rigid expenditures in the central government budget is more striking as big items such as transfers to local administrations and social security institutions are expenditure items, netted out at general government accounts.

Table 19: Classification of rigidity by object of expenditure

High rigidity	Wage bill (civil servants, workers, MPs, presidency, intelligence unit)
	Social security premium (civil servants, workers, MPs, intelligence unit)
	Interest expenses
High-medium rigidity	Wage bill (contracted workers, temporary workers, other workers)
	Social security premium (contracted, temporary, other workers)
	Current transfers (all duty losses including SOEs, public financial institutions, funds, other institutions, special budgetary institutions, regulatory institutions, social security), lending
Medium rigidity	Current transfers (treasury aid, transfers to NGOs, transfers to HHs, shares from revenue)
Low rigidity	Goods and services expenditure
	Capital expenses and transfers

Note: The classification is done based on Cetrángolo et al. (2010) and World Bank Kenya Public Expenditure Review (2020)

Budget rigidity driven in large part by a rapid rise in the wage bill

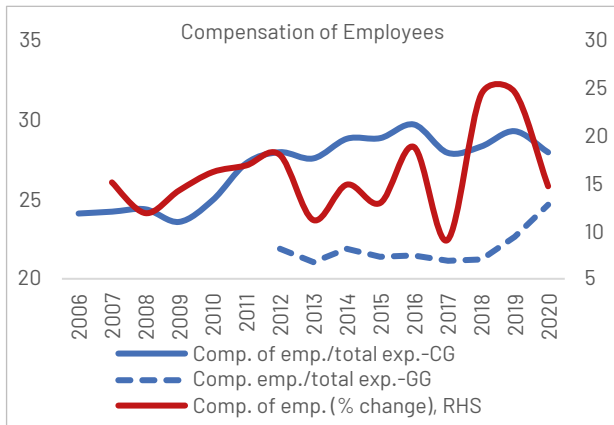
Wage bill spending¹²⁷, the most rigid spending item, constitutes the bulk of recurrent expenditures. Compensation of employees, including social security contribution expenses, in Türkiye accounts for almost 30 percent and 22-25 percent of total expenses of central government and general government expenses, respectively (Figure 133). The size of the wage bill varies significantly among country groups. In advanced economies the wage bill share in total expenditures is around 16-17 percent on average while nearly 30 percent in emerging markets and low-income and developing countries. Türkiye's wage bill as a share of total expenditure is higher than other emerging market economies (Russia, India, Indonesia, Brazil, and Argentina) and the UMIC average (Figure 134). Given the high share, small increases in compensation¹²⁸ or employment levels could have large implications for the fiscal balance requiring adjustments elsewhere.

The wage bill has grown rapidly in recent years, driven by high inflation and a rise in public employment. The wage bill increased by around 20 percent (in nominal terms) on average in 2016-2020, exceeding nominal GDP growth. In 2016, the minimum wage increased sharply by 30 percent. In subsequent years, high inflation was reflected in wage increases. The increase in the wage bill emanated not only from the wage level but also from the employment level. Public employment increased by more than 20 percent in 2018 and by around 5 percent on average over the past two years. This rise, coupled with the decline in non-public employment due to downturns in the 2018-2020 period, led the share of public employment to rise from 13 percent to 18 percent of total employment between 2017 and 2019 (Figure 135), close to the OECD average.

¹²⁷ Wage bill spending includes both wages and salaries (around 24 percent of total spending) and the government's social contributions as an employer (around 4 percent of total spending) for central government.

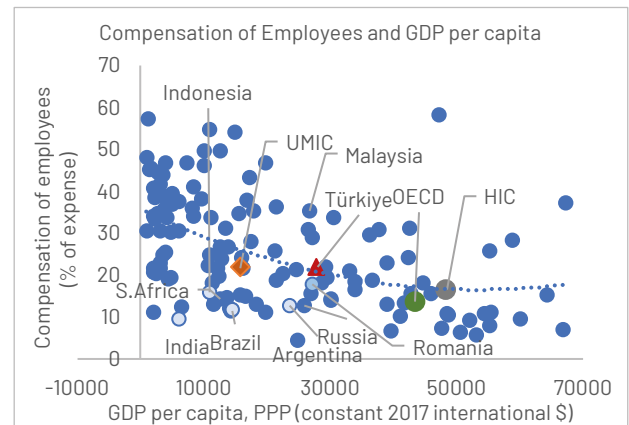
¹²⁸ Dybczak and Garcia-Escribano (2019) find that wage bill increases are difficult to scale back, hence, underline that countries should have in place a strong institutional framework to adequately manage the wage bill. (Kamil Dybczak and Mercedes Garcia-Escribano, (2019) Fiscal Implications of Government Wage Bill Spending," IMF Working Papers 2019/010, IMF).

Figure 133: Türkiye's wage bill spending has increased its share in expenditures



Source: MoTF

Figure 134: And it is relatively higher compared to peer countries

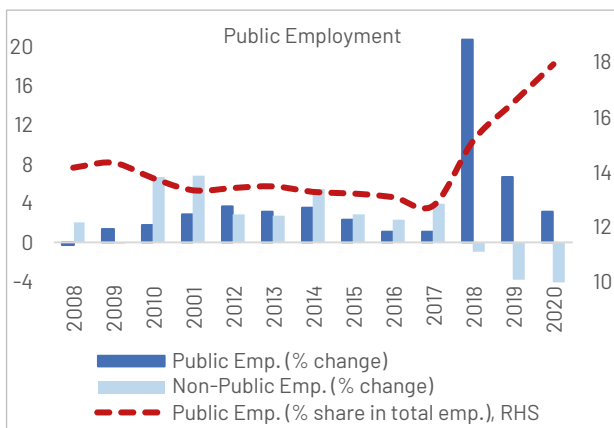


Source: World Bank WDI

Note: Compensation of employees in the figure are based on general government accounts

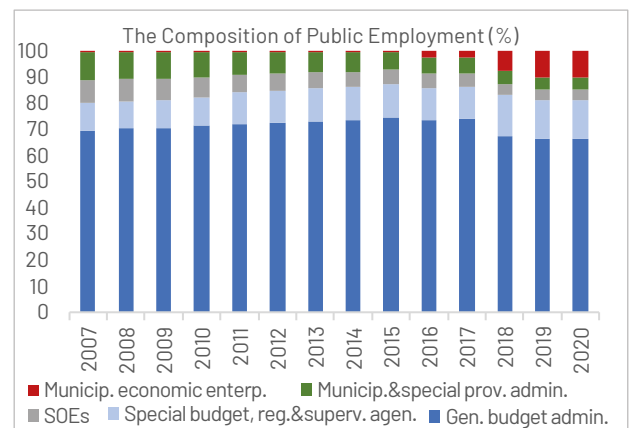
Public employment growth was largely driven by general budget administrations and municipality economic enterprises. Employment growth in municipality economic enterprises accounted for almost one-third of the increase in public employment, while general budget administrations drove half of the increase. The share of municipality economic enterprises in total employment surged sharply from 2.8 percent in 2017 to 10.5 percent in 2020 (Figure 136). There has been a shift towards employment in municipal enterprises over the past decade. Municipalities are legally constrained regarding their spending on employment¹²⁹, but they found ways to circumvent the limits through subcontracting. The government passed a decree-law in 2017 converting all contractual workers into municipal employees.¹³⁰

Figure 135: Public employment has surged rapidly over the past three years



Source: PSB

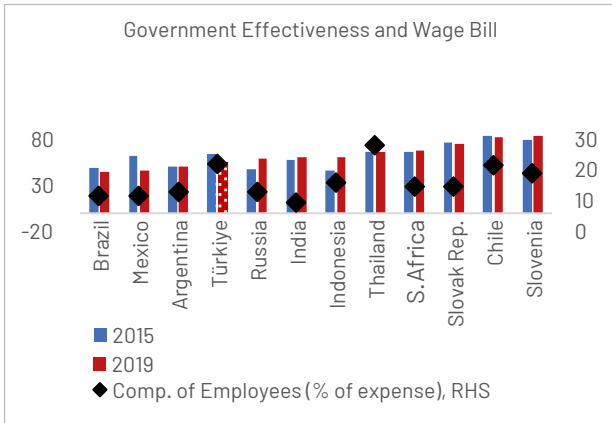
Figure 136: Municipality economic enterprises have increased their share in employment



¹²⁹ The limits were introduced in 2005 by the Law on Municipalities, No. 5393, whereby expenditures on personnel should not exceed 30 percent of metropolitan municipalities' revenues in the previous year (40 percent for other municipalities).

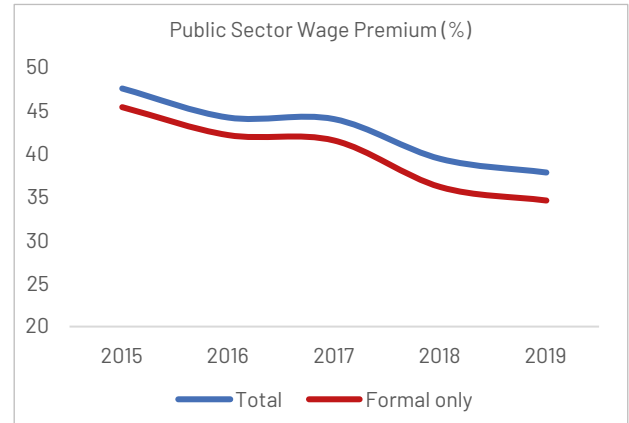
¹³⁰ "Türkiye Local Government Reform Experience and Outlook", Mimeo, May 2020, World Bank.

Figure 137: Government effectiveness has seen a decline over the past 5 years



Source: WDI Government Effectiveness, World Bank

Figure 138: Municipality economic enterprises have increased their share in employment

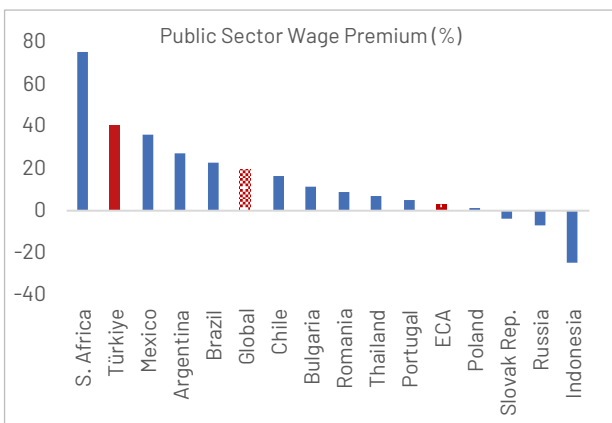


Source: TURKSTAT Household Labor Force Statistics microdata 2012-2019, WB staff calculation.

Note: Figure 138 shows average nominal wage (hourly) in the public sector/average nominal wage in the private sector. The red line represents the ratio of total public sector wages to formal employee wages in the private sector. Figure shows the coefficients of the dummy variable public taking on the value 1 if the employee is in the public sector, estimated separately for different years. The following regression model is used: $\log(\text{hourly wage})_i = b_0 + b_1 \text{public}_i + b_2 X_i + e_i$ where X_i is a vector including age, age squared and dummy variables for education levels. Heteroscedasticity robust errors are used in the estimations.

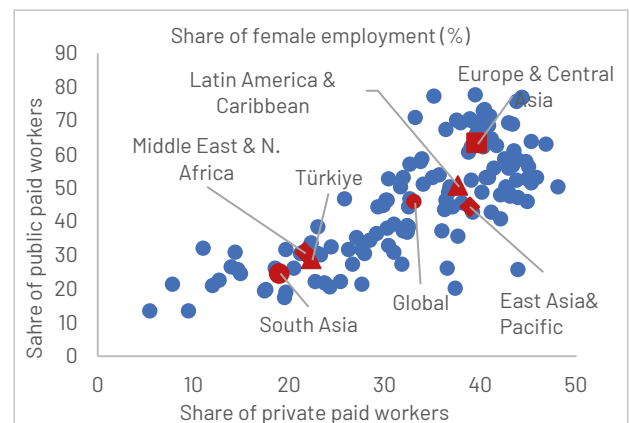
Türkiye's performance on government effectiveness indices has declined despite relatively high public sector wage premia. Türkiye's position on the Worldwide Governance Indicators (WGI)¹³¹ government effectiveness indicator fell from the 62nd to the 54th percentile between 2015 and 2019. Türkiye performs better than Mexico, Argentina, and Brazil but it lags behind other emerging market economies (Figure 137). Though the public wage premium in Türkiye has declined slightly in recent years (Figure 138), it remains one of the highest relative to comparator countries (Figure 139). Türkiye is also an outlier in terms of the share of female employment in the public sector (around 20 percent), one of the lowest globally (Figure 140).

Figure 139: Türkiye has one of the highest public sector wage premiums in the world



Source: Worldwide Bureaucracy Indicators, World Bank.

Figure 140: But the share of female employment lags behind the ECA and global average

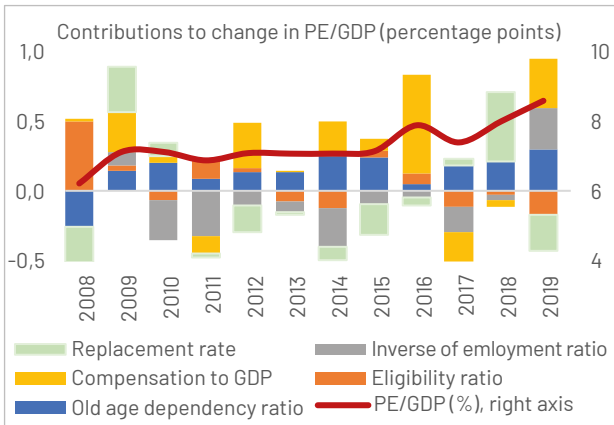


¹³¹ Government Effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Percentile rank indicates the country's rank among all countries covered by the aggregate indicator, with 0 corresponding to the lowest rank, and 100 to the highest rank. Percentile ranks have been adjusted to correct for changes over time in the composition of the countries covered by the WGI.

Pension liability is also growing with demographic trends

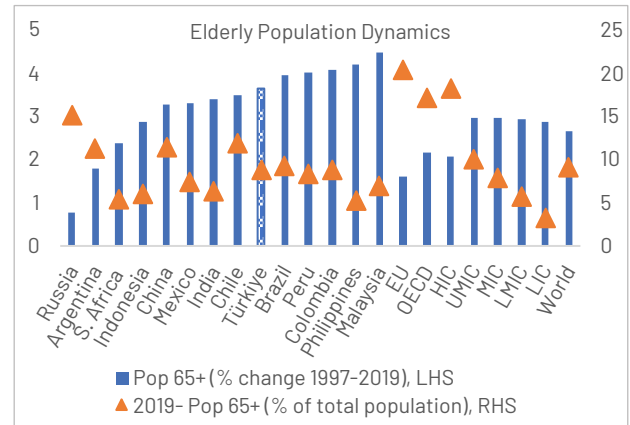
Pension expenditures have continued to increase over the past decade with changing demographics. Pension expenditures¹³² as a share of GDP have risen from 7 percent in 2010 to 8.5 percent in 2019 (Figure 141), and their share in social expenditures (education, health, and social protection) from 44 percent to 50 percent over the same period. Old age pensions accounted for almost two-thirds of total pension expenditures. Decomposition of the contributions to change in pension expenditures to GDP ratio (Box 11) shows that demographics, rise in old-age dependency ratio (share of 65+ population in 15-64 aged population), consistently made a positive contribution to rising pension expenditures. Moreover, ad-hoc increases in pension salaries contributed to the recent rising trend.

Figure 141: Population aging weighs on pension system



Source: PSB, Social Security Institution, TURKSTAT and WB staff calculations

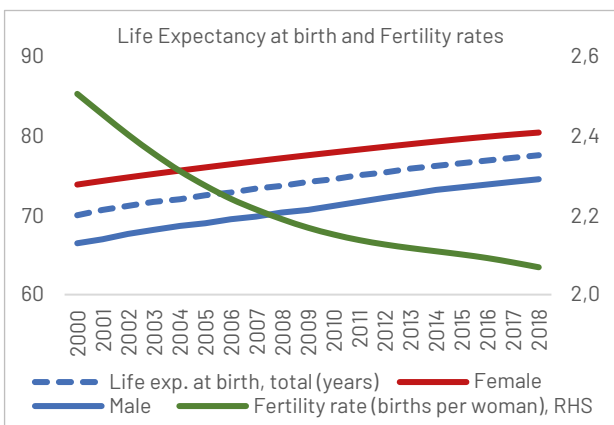
Figure 142: Türkiye is aging relatively rapidly



Source: WDI World Bank

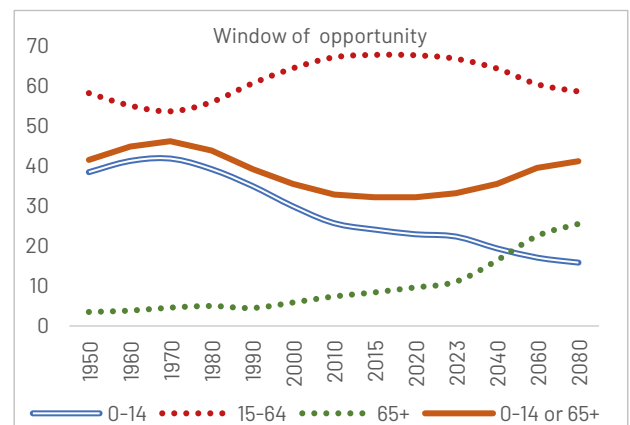
Türkiye has a young population but is aging relatively rapidly. The share of people aged over 65 currently represents 8.7 percent of the total population in Türkiye. However, old age population growth over the past two decades has been fast, and surpassing that of Indonesia, South Africa, India and Mexico as well as the average for upper middle income and middle-income countries (Figure 142). Türkiye currently has a young population, but life expectancy is increasing, and fertility rates are decreasing fast. Life expectancy at birth has increased by around 8 years over the past decade whilst fertility rates have fallen from 2.5 to 2.1 (Figure 143). The share of people aged over 65 is projected to double by 2040, reaching 16.3 percent (Figure 144). A demographic shift that took over four decades for many advanced countries in the past decades will happen in Türkiye over two decades.

Figure 143: Life expectancy at birth is increasing, and the fertility rate is on a declining trend



Source: WDI World Bank

Figure 144: Türkiye has entered the demographic window of opportunity period in the early 2000s



Source: TURKSTAT Population Projections

¹³² This is a broad definition of pension expenditures including survivors' benefits categorized under Public Sector Social Expenditure Statistics released by PSB.

Box 11: Decomposition of Public Pension Expenditures

Factors Driving the change in public pension expenditure can be analyzed by decomposing public pension expenditure (PE) as a share of GDP (PE/GDP) into four main drivers: 1) aging (measured by the old-age dependency ratio) 2) eligibility rates (the number of pensioners as a proportion of the population aged 65 and older), 3) an inverse of the employment rate (share of population of working age (15 to 64) relative to the number of employed. 4) replacement rates (the ratio of average pensions to average wages), capturing the generosity of pension benefits and 5) compensation shares.

$$\frac{PE}{GDP} = pensioners * \frac{Average\ Pension}{GDP} * \frac{1}{workers} * \frac{Pop\ 65 +}{Pop\ 15 - 64} * \frac{Pop\ 15 - 64}{Workers}$$

$$\frac{PE}{GDP} = \frac{Pop\ 65 +}{Pop\ 15 - 64} * \frac{Pensioners}{Pop\ 65 +} * \frac{Average\ Pension}{GDP} * \frac{Pop\ 15 - 64}{Workers}$$

$$\frac{PE}{GDP} = \underbrace{\frac{Pop\ 65 +}{Pop\ 15 - 64}}_{\text{Old-age dependency ratio}} * \underbrace{\frac{Pensioners}{Pop\ 65 +}}_{\text{Eligibility ratio}} * \underbrace{\frac{Average\ pension}{Average\ wage}}_{\text{Replacement Rate}} * \underbrace{\frac{Pop\ 15 - 64}{Workers}}_{\text{Inverse of Employment Ratio}} * \underbrace{\frac{Compensation}{GDP}}_{\text{Compensation share}}$$

Source: IMF (2011) The Challenge of Public Pension Reform in Advanced and Emerging Economies. Fiscal Affairs Department, December 28. Washington, DC, IMF.

This demographic change is likely to pressure the fiscal space as the demographic window of opportunity narrows. Türkiye entered the demographic window of opportunity¹³³ in the early 2000s and has only two decades left before facing pressures from an aging population (Figure 144). Türkiye needs to prioritize its spending accordingly. This includes spending to raise the skills and productivity of the workforce, and enhancing employment opportunities –especially for women and older age people–, thereby reducing the burden of dependents on workers.

Despite the young population, pension expenditures are already high. The differences in public pension spending across countries mainly reflect differences in old-age dependency ratios, the generosity of benefits, and coverage rates. Public pension spending tends to be low in countries with favorable demographics. However, Türkiye spends on public pensions at the OECD average level despite being the second youngest OECD country in demographic terms (Figure 145). This points to rising age-related fiscal pressures, both on health and pension expenditures over the coming decades as the window of opportunity closes.

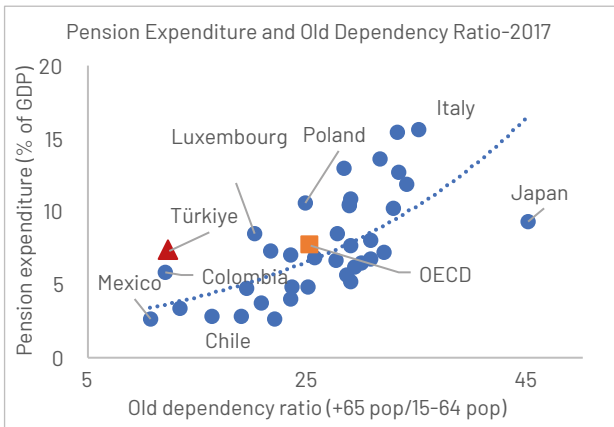
Türkiye has a relatively low retirement age and a long duration of retirement benefits. Türkiye's average retirement age (at 51 years) is the lowest among OECD countries (Figure 146). The Social Security Institution Law and the Social Security and General Health Insurance Law introduced in 2008 made significant strides in overhauling the public pension system.¹³⁴ This reform increased the retirement age to 60 for men and 58 for women who entered the system in September 1999–October 2008. For those that entered after October 2008, the retirement age gradually rises to 65 for men from 2036 to 2044 and 65 for women from 2036 to 2044. Due to the generosity of the old system¹³⁵, the retirement age is increasing very gradually, and thus is associated with relatively high benefit period (over 20 years) in Türkiye compared to other countries. The pension benefits are second only to Luxembourg in the OECD, with the contributory minimum pension constituting the overall benefits (Figure 147).

¹³³ The demographic window of opportunity is the period in which the working-age population is rising, but the old cohort is still small- when the country has the benefit of an experienced, but young workforce without the burdens of old age. The window of opportunity allows governments to invest more in human capital and become more productive.

¹³⁴ Following the reform, social security system coverage of increased from 80 percent to 85 percent in a decade.

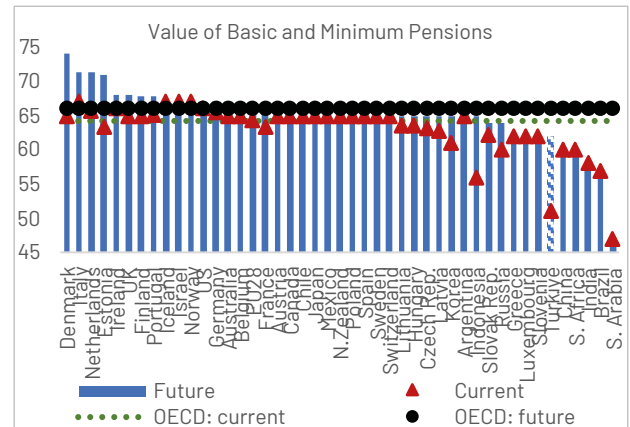
¹³⁵ In the old system before the reform of 2008, there was no statutory entitlement age and pension collections were based on contributory days alone. Thus, it was possible for men to retire at 45 and women at 40 under the pre-reform system.

Figure 145: Türkiye has high pension spending, despite its young demographic profile



Source: WDI World Bank and OECD

Figure 146: Türkiye has one of the lowest future retirement age 62 among OECD countries

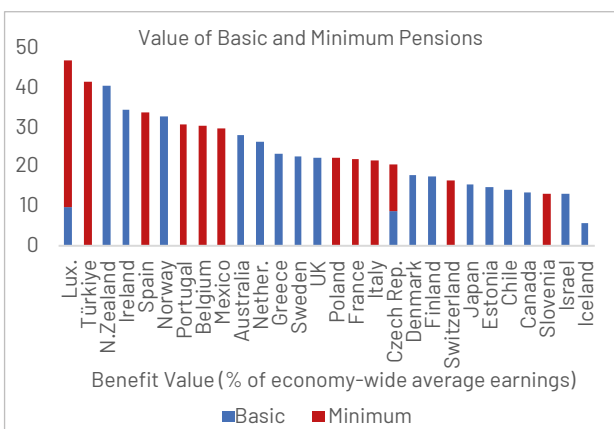


Source: Pensions at A Glance 2019, OECD

Note: Current and future normal retirement ages for a man with a full career from age 22. Current and future refer to retiring 2018 and entering the labor market in 2018, respectively

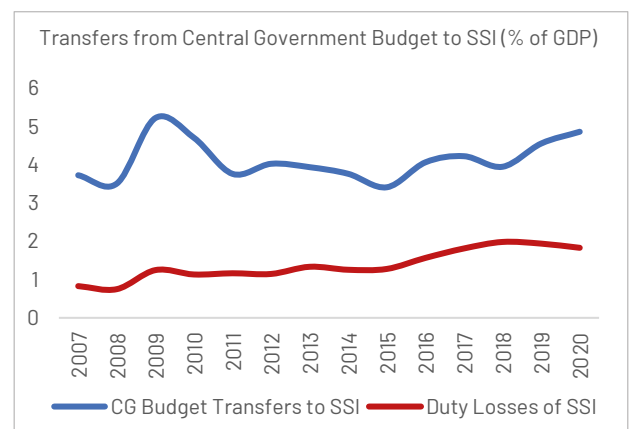
These aspects of the pension system combined with underlying demographics and rising health expenditures threaten the sustainability of the social security system. Total transfers from the central government budget to social security institutions have remained high at around 4 percent of GDP. The share of social security deficit finance represents around one-third of this total transfer (Figure 148). Moreover, duty losses of SSI account for 90 percent of the duty loss transfers of the central government and constituting around 8 percent of total central government expenditures. The active-passive ratio (worker to retiree ratio) is low at around 1.8 against the desired level of 2. This coupled with low compliance of employers with pension laws, exerts pressure on the sustainability of the social security system.

Figure 147: The contributory minimum pension constitute the overall benefits of pension benefits



Source: OECD Pensions at a Glance 2017

Figure 148: Transfers to SSI (incl. duty losses) from CG budget is at around 6 percent of GDP



Source: MoTF and Haver Analytics

Enhancing the long-term fiscal sustainability of the social security system requires policy steps to overcome structural challenges in the labor market (Chapter 4). In its current structure, social security expenditures is likely to remain an increasingly heavier financial burden on the government budget. This could divert public resources away from growth friendly social and physical infrastructure expenditures and threaten long-term fiscal and growth sustainability. An already high labor tax wedge signals that there is not much room to increase social contribution rates and statutory retirement age moves gradually under the current system (Chapter 2). Employers tend to underreport wages to avoid paying high social contributions.¹³⁶ This also may be due to the fact that many employees are claiming minimum wages, although their total take-home pay is larger due to additional unofficial payments.^{137,138} Going forward, in the short term strengthening monitoring and auditing system and thereby increasing compliance¹³⁹ and in the medium to long terms reducing informality, increasing labor force participation would help expand the premium base, increase active passive ratio and ease pressures on the system. These are discussed in more detail in Chapter 4.

Low coverage of the unemployment insurance program

Unemployment insurance in Türkiye, while limited coverage, has tended to act in a countercyclical fashion as generally the case elsewhere, stabilizing household income during downturns. Unemployment insurance programs are important as automatic stabilizers and are transfers that compensate for the loss of income of the jobless people. Unemployment insurance spending is overwhelmingly countercyclical, both in the industrial and developing world.¹⁴⁰ This countercyclicity stems mainly from cyclical changes in the number of unemployed workers claiming those benefits. On the other hand, most of these countries follow an acyclical behavior pattern regarding the average real spending per beneficiary. The results for Türkiye (Figure 149) confirms this trend, with countercyclicity of unemployment insurance spending mainly driven by short-term fluctuations in the number of beneficiaries, rather than average real spending per beneficiary. Unemployment insurance spending represents just 0.5 percent of general government expenditures in Türkiye.

Figure 149: Unemployment benefits are countercyclical

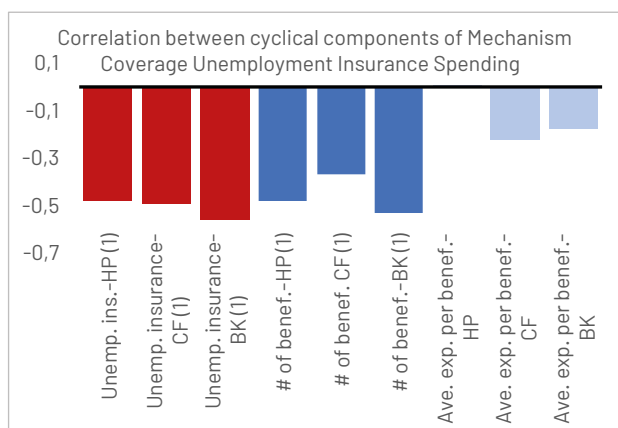
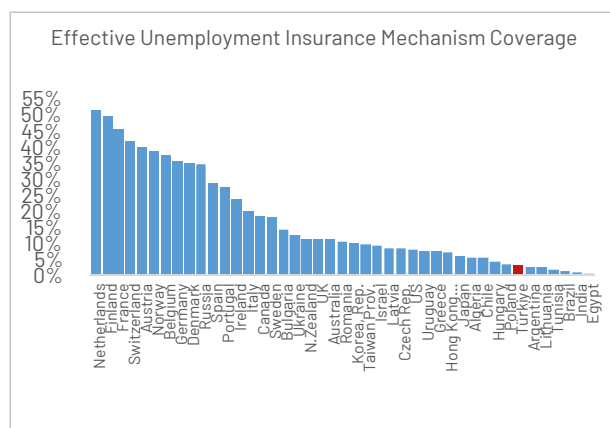


Figure 150: But largely inadequate



Source: ISKUR, WB Staff Estimates.

Note: The figures on the right hand side are obtained from Galeano et al. (2021). Türkiye's effective coverage figure is recalculated based on updated unemployment benefit coverage figure from an official source (ISKUR).

¹³⁶ The share of minimum wage earners in total formal employment is around 40 percent.

¹³⁷ World Bank (2014). Türkiye Public Finance Review : Türkiye in Transition—Time for a Fiscal Policy Pivot? Washington, DC.

¹³⁸ During national budget discussions in Parliament in 2012, the Minister of Finance stated that only about 45 percent of minimum wage workers in the records of the Social Security Institution were actually receiving the minimum wage (European Commission (2016) ESPN Flash Report 2016/21 Increase of minimum wage in Türkiye and its potential impacts).

¹³⁹ Total premium collection ratio (82.9 percent in 2018) is targeted to increase to 88 percent in 2023 in the 11th Development Plan.

¹⁴⁰ Luciana Galeano, Alejandro Izquierdo, Jorge P. Puig, Carlos A. Vegh and Guillermo Vuletin (2021) Can Automatic Government Spending Be Procyclical?, NBER Working Papers 28521, National Bureau of Economic Research, Inc.

The low coverage of unemployment insurance in Türkiye, as in other developing economies, is a drag on the effectiveness of automatic stabilizers. Only 40 percent of developing countries currently have some kind of unemployment insurance mechanism, typically with negligible coverage. This is evident in the level of effective unemployment insurance mechanism coverage for developing economies.¹⁴¹ Türkiye has very low effective coverage due to low gross replacement rates, limited contributions and limited eligibility (Figure 150). Around 13 percent of 4.5 million unemployed people benefitted from unemployment insurance in 2019, noting that eligibility varies and a range of other social benefits are available depending on the nature of unemployment. This is well below peer countries. Türkiye relative to many OECD countries has stricter rules for access to unemployment benefits. Claimants in Türkiye need to be employed for at least one and a half years before qualifying for unemployment benefits, while employment requirements can be less than six months in several other countries. For those receiving benefits, maximum benefit durations are 10 months in Türkiye, below many OECD countries.¹⁴² A range of various social insurance and social transfers are currently used in Türkiye to mitigate risks associated with income shocks, and unemployment insurance policies are best evaluated within the framework of eligibility, benefits and linkages between programs.

Along with unemployment insurance, public social transfers in general, whether contributory or non-contributory, or subsidized and targeted, play a vital risk-sharing role but are not a panacea for productive recovery at scale. Importantly, policies should be well-targeted and equitable, but avoid inefficient long-term entitlements that risk the crowding out of other productive public expenditures. Importantly, policies should be well-targeted and equitable, but avoid inefficient long-term entitlements that risk the crowding out of other productive public expenditures. As discussed in the macro fiscal chapter, the growth impact of the transfers starts to fade as inefficient entitlements crowd out other spending required to promote job growth and incentivize work or formal employment. The transfers should be complemented with retraining programs to ensure that the unemployed can be productively reabsorbed into the labor market. Social protection programs, labor market programs and unemployment benefits are discussed as part of an overall integrated system in detail in the human capital chapter (Chapter 4).

Decentralization of selected expenditures could contribute to greater efficiency

Government spending in Türkiye is highly centralized. Subnational spending in Türkiye accounts for around 10 percent of general government spending (Figure 151), which is below most OECD and EU countries. Türkiye has a unitary administrative system. The responsibilities of municipalities exclude basic public services such as education and health care unlike local governments in some of the OECD and EU countries. The Turkish government has been gradually strengthening local administrations since the beginning of 2000s but progress in decentralization has remained limited. Türkiye's subnational expenditure¹⁴³ is below the average of other unitary countries, which is around 19 percent of total general government expenditure. The main reason behind the low level of spending is the low level of locally collected revenues in Türkiye.

Decentralization in Türkiye is low relative to the size of the country and population density. Decentralization can help get public services closer to the people; it is therefore reasonable to expect decentralization to be positively associated with land mass, and inversely related to population density (Figure 152). To assess Türkiye's decentralization relative to other countries in that regard, composite Z scores are derived for country size and population density (Figure 153).¹⁴⁴ Türkiye's decentralization is relatively low when the country's size and population density are considered. The relationship between country size/population density and spending decentralization is stronger for larger countries (Figure 154). High-income countries tend to be more decentralized,¹⁴⁵ whilst low-income countries tend to be more centralized (Figure 151). However, this does not hold for upper middle-income countries.¹⁴⁶

¹⁴¹ The effectiveness of unemployment insurance is defined as the product of these two indicators: (i) the ratio of unemployed people covered by the unemployment insurance program (extensive margin) (ii) unemployment insurance gross replacement rate (the ratio of unemployment insurance benefits a worker receives relative to the worker's last gross earning, intensive margin).

¹⁴² OECD (2018) Economic Outlook 2018.

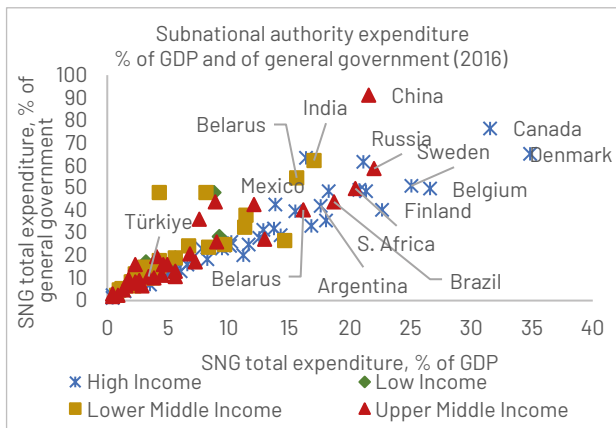
¹⁴³ Subnational expenditures cover expenditures of provincial special administrations, metropolitan municipalities, municipalities, local authorities unions, development agencies, youth, and sports provincial administrations.

¹⁴⁴ After dividing the countries into quartiles based on density and area, Z scores for density and area are derived and then a composite Z score is obtained as a simple average of these two sub Z scores. Z scores for each series are calculated by: (i) subtracting the average from the series for each country's value; and (ii) dividing by the standard deviation.

¹⁴⁵ There are some exceptions like Israel, Ireland and New Zealand which are highly centralized countries.

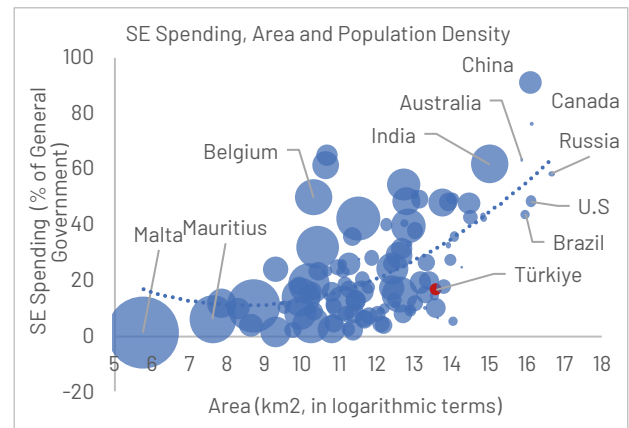
¹⁴⁶ OECD (2019) 2019 Report World Observatory on Subnational Government Finance and Investment.

Figure 151: High-income countries tend to be more decentralized



Source: OECD

Figure 152: Türkiye's decentralization is relatively low given its size

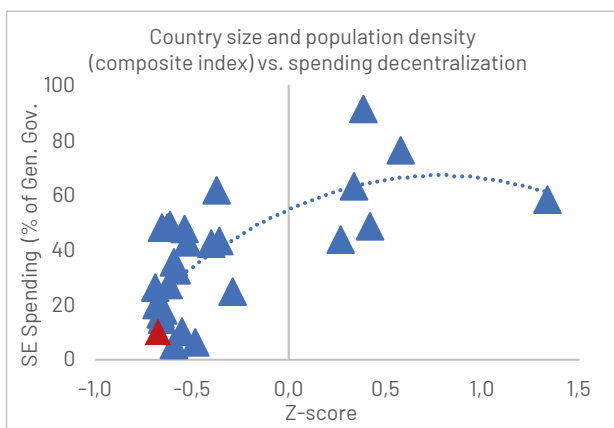


Source: OECD and WB staff calculations.

Note: The size of the bubble indicates population density.

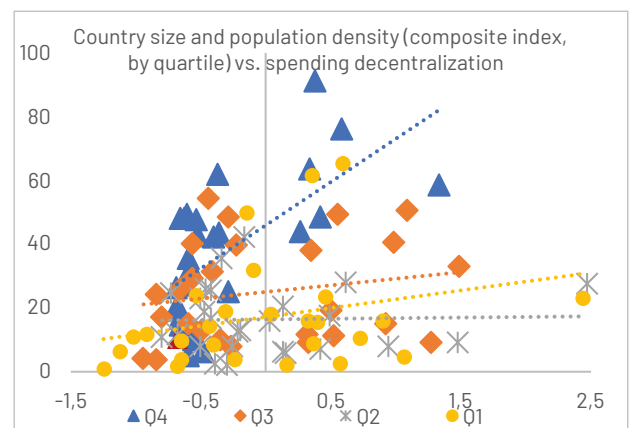
Spending assignments of local administrations are limited. Despite some decentralization efforts¹⁴⁷ over the past two decades, core functional responsibilities particularly education, health, and social protection have been the responsibility of the Central Government. The level is below both that of UMIC and peer group averages. (Figure 155). The main municipal responsibilities are (a) transportation, including the construction and maintenance of urban roads and public transportation (bus, trams, metro, and so on); (b) water and wastewater services; (c) solid waste management; (d) building and maintenance of recreational areas; and (e) land use planning and development.¹⁴⁸ Within the subnational authorities budget, general public services, housing and community amenities and transport account for two-thirds of total expenditures. Local administrations determine their spending allocations based on the priorities set in their strategic plans, needs and their financial situations.

Figure 153: Large countries with low population density tend to be more decentralized



Source: OECD and WB staff calculations.

Figure 154: The relationship is stronger for the group of larger countries

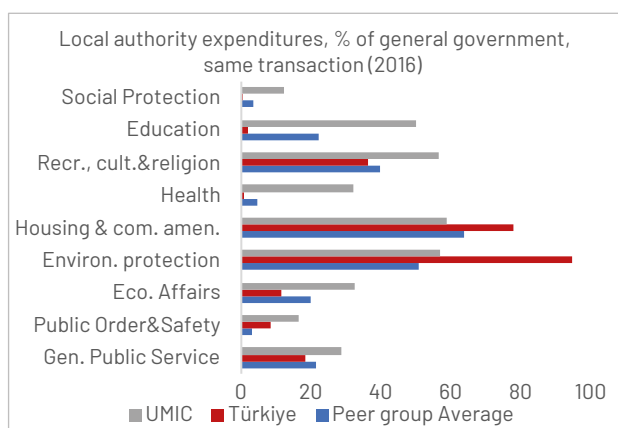


¹⁴⁷ Türkiye underwent several reform waves that provided subnational authorities with additional powers. The Special Provincial Administrations (SPA) became self-governing entities and gained some powers with the 2005 reform. In 2008, there was both a territorial reform ("Scale Reform Act") and a local finance reform (Act no. 5779) (OECD, 2019). The amalgamation reform in 2012 increased the number of metropolitan municipalities, expanded their borders to provincial borders, and reduced the number of local administrations. The 2012 reform has also increased the share of central government tax revenues transferred to local administrations (World Bank 2020, Mimeo). Despite these efforts, progress in decentralization was modest.

¹⁴⁸ Special provincial administrations (SPAs) are responsible for providing municipal services outside of municipality-controlled areas.

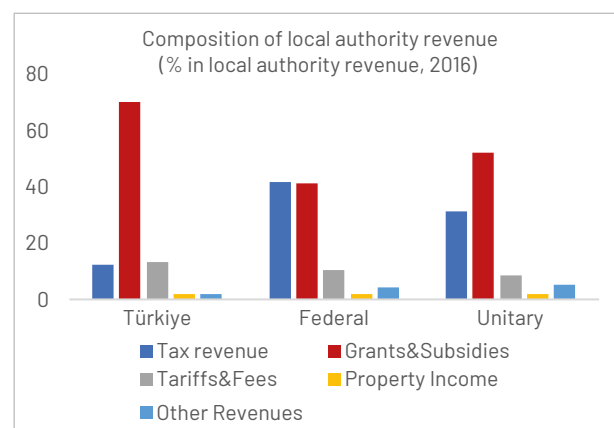
Türkiye has a low level of subnational revenue, and spending power is highly limited through regulations and transfers. Türkiye's sub-national revenues as share of general government revenue are at only 10 percent compared to 50 percent on average for federal countries and 20 percent for unitary countries. Own source revenues, which includes receipts other than "grants, aid, and donations" and "transfers from central government tax revenues," are very low. Central government transfers make up the lion share of sub-national receipts. Transfers include shares from tax revenues¹⁴⁹ and grants and subsidies (around 70 percent of total revenue) while the share of own tax revenues represents a very small share (12.5 percent) compared to the share of unitary countries of around 30 percent (Figure 156). The property tax is the most important tax item and accounts for around 60 percent of local administrations' tax revenue.

Figure 155: Local administrations spending on social expenditure is low



Source: OECD and WB staff calculations

Figure 156: Local administrations revenue in Türkiye is highly reliant on transfers from the central government



Decentralization may help improve the efficiency of public service delivery¹⁵⁰. Fiscal decentralization is justified on the grounds of subsidiarity and allocative efficiency (Bahl 1999; Cohen and Peterson 1999; Dillinger 1994; Bird 1993).¹⁵¹ Decisions on public expenditure made by a level of government that is closer and more responsive to a local constituency are more likely to reflect the demand for local services than decisions made by a remote central government. Through decentralization, subnational governments have a greater incentive to improve their services and enhance innovation to satisfy their constituency's demands and hence it is more likely that subnational governments will act to satisfy the wishes of citizens (Bahl 1999). Another rationale for decentralization is that people are more willing to pay for services that respond to their priorities, especially if they have been involved in the decision-making process to deliver these services.

Recent World Bank studies highlight the importance of certain priority reform actions.¹⁵² These include: (i) reducing local administrations dependence on the central government by granting the municipalities autonomy within the limits of determining their tax base and local tax rates. The latter could include measures related to property valuation and incentives for enforcing local tax collections (ii) improving the administrative capacity of local administrations¹⁵³, (iii) creating a digital platform for the central government to monitor local administrations, for local administrations to benchmark themselves, and for citizens to be informed about their local administrations' performance so that they can hold it accountable, (iv) assessing the performance of the metropolitan municipality in predominantly rural provinces by checking whether municipal services reach rural neighborhoods (old villages) satisfactorily and affordably.

¹⁴⁹ The state allocates a portion part of tax revenues to local authorities based on a formula that considers the surface area and population of municipalities.

¹⁵⁰ The positive impact of fiscal decentralization on the efficiency of public service delivery depends on some conditions. Sow and Razafimahefa (2015) defines three specific conditions. First, the decentralization requires adequate political and institutional environments. Second, a sufficient degree of expenditure decentralization seems necessary to obtain favorable outcomes. Third, decentralization of expenditure needs to be accompanied by sufficient decentralization of revenue. They point out that fiscal decentralization can worsen the efficiency of public service delivery in absence of these conditions. Sow, M. and F. Razafimahefa (2015) "Fiscal Decentralization and the Efficiency of Public Service Delivery", IMF Working Paper 2015/059.

¹⁵¹ Cohen, J. M. and Peterson, S.B. (1999) Administrative Decentralization: Strategies for Developing Countries. Kumarian Press, United Nations, Washington DC. Dillinger, W. (1994) Decentralization and Its Implications for Urban Service Delivery. Urban Management Programme Series 16. World Bank, Washington, D.C. Bird, R.M. (1993) Threading the Fiscal Labyrinth: Some Issues in Fiscal Decentralization. National Tax Journal 46(2): 207-27.

¹⁵² "Türkiye Local Government Reform Experience and Outlook", Mimeo, May 2020, World Bank. "Rise of the Anatolian Tigers" Türkiye Urbanization Review, 2015, World Bank and TEPAV.

¹⁵³ Capacity problems for municipalities is widespread and enduring. To address this, the Union of Municipalities can establish specific curriculum and training programs for newly elected mayors, council members and newly appointed civil servants in municipalities. Also, standard applications/programs should be developed in various areas of municipal management such as accounting, land use planning, asset management, HR management etc., for the use of smaller municipalities.

Conclusion and Policy Options

Spending trends in Türkiye have supported a gradual alignment with development needs, although obstacles to further progress remain. Over the past two decades, Türkiye's public expenditures have shifted in favor of social expenditures, which has contributed to important improvements in social outcomes as discussed in the next chapter. This chapter identifies several challenges going forward: (i) efficiency of spending on education, health, and infrastructure remains below that of peer countries; (ii) public investment has declined despite its importance for long-term growth; (iii) a rising share of rigid expenditures has reduced the flexibility of resource allocation to priority areas; (iv) Türkiye is rapidly aging, exerting additional spending pressure on health and pensions; (v) high informality, low labor force participation, and low compliance threaten the sustainability of social security system. All of these represent a challenging reform agenda and requires holistic approach as Türkiye heads towards high-income country status.

Cuts to public investment have accelerated due to recent economic developments. A rebalancing towards public infrastructure investment could boost to long-term growth given its high multiplier effects (chapter 1). However, translating investment into effective and sustained long-term growth would depend on the type and quality of public investment. Data envelopment analysis reveals the scope for improving public investment efficiency in Türkiye which will require careful cost benefit analysis, prioritization, and efficient project execution. Public investment will also have to play a pivotal role in promoting green transformation (Chapter 6). While prioritizing public investment projects, policy makers need to ensure public investment is aligned to climate and development goals.

This rebalancing of spending is challenged by a high and rising share of non-discretionary spending. Both cross-country and Türkiye specific analyses reaffirm increased budget rigidity. This signals low flexibility to reallocate public resources towards changing priorities or needs. Expenditures pressures are likely to increase with changing demographics and a rising need to invest in human and physical capital. More rigid government expenditures and increasingly more cyclical government revenues limit fiscal space going forward. Thus, it is important to ensure expenditure discipline in rigid items going forward.

The rapidly growing wage bill accounts for a large share of non-discretionary spending. Small increases in compensation or employment levels have large implications for the fiscal balance, forcing cuts in more growth enhancing expenditures. Even though public employment has increased recently, it remains at reasonable levels. Going forward, ensuring salary increases in line with inflation, maintaining a monetary stance consistent with price stability (chapter 1), and completing the restructuring process in public institutions will be important for effective and sustainable wage bill management.

Another important source of budget rigidity is the pension bill. Despite being the second youngest OECD country in demographic terms, Türkiye's pensions' bill is equal in scale to the OECD average. The demographic shift that took more than four decades for many advanced countries over past decades will occur in Türkiye within just two decades because of its rapidly aging population. This will place a heavy financial burden on the government budget. An already high labor tax wedge limited room to increase social contribution rates. In the short-term, strengthening monitoring and auditing systems to increase compliance with pension laws will be important. In the medium-to-long term reducing informality, and, increasing labor force participation would help expand the premium base, increase the active passive ratio, and ease pressure on the system.

Focusing public sector efforts on social sectors, an important enabler for sustained and inclusive growth, will require more fiscal space going forward. Whilst the bulk of social expenditures goes to pensions, direct income support (e.g. social assistance and the unemployment benefit system), which has increased over the last decade, account for a small share of social expenditures. The social assistance program in Türkiye is assessed in depth in Chapter 5. The low coverage of unemployment insurance in Türkiye, as in other developing economies, is a drag on the effectiveness of automatic stabilizers. A cross country comparison reveals that the unemployment insurance program has a low effectiveness in Türkiye (Chapter 4).

Decentralization could yield certain expenditure efficiency gains. Local administrations have limited spending responsibilities, especially when controlling for the size of the country and population density. Türkiye has low subnational revenue and the degree of spending power is limited through regulations and transfers. While Turkish local administrations have some room for expansion in the short term, over the long run, as local administration capacity expands, there would likely need to be further devolution of service responsibilities from the central to local administrations. This calls for efforts to reduce local administrations dependence on the central government and improve local revenue collection and administrative capacity.

Annex A: Data Envelopment Analysis- Methodology, Data and Literature review

Data Envelopment Analysis Methodology

Data Envelopment Analysis (DEA) uses linear programming techniques to measure the relative performance of a decision-making unit (DMU) that uses resources (inputs) to produce goods or services (output) in a production process. DEA is first introduced by Farrell (1957) and has gained popularity following Charnes et al. (1978).

Afonso and Kazemi (2017) summarize the DEA methodology as follows: Assume that there are Z DMUs with N inputs and M outputs. If X is the N*Z input matrix and Y is the M*Z output matrix, then x_i is an input column vector and y_i is an output column vector for the ith DMU. Then,

$$\begin{aligned}
 & \text{Max}_{\phi, \delta} \phi \\
 & \text{Subject to } -\phi y_i + Y\delta \geq 0 \\
 & x_i - X\delta \geq 0 \\
 & n1' \delta = 1 \\
 & \delta \geq 0
 \end{aligned}$$

where, δ is a scalar and $1/\delta$ is the output-oriented efficiency score and satisfies $0 < 1/\delta \leq 1$.

DEA can be conducted according to constant (CRS) or variable (VRS) returns to scale technology assumptions. In CRS, the convexity assumption is ruled out. In Figure 1, three countries are shown with different output and input levels. Based upon the CRS assumption only country A is efficient. However, under the VRS assumption both A and C are efficient countries. Country B is inefficient for both assumptions. The reason is that country B can achieve the same level of output by using lower level of input.

Figure 1a: Frontiers in DEA According to Different Technology Assumptions

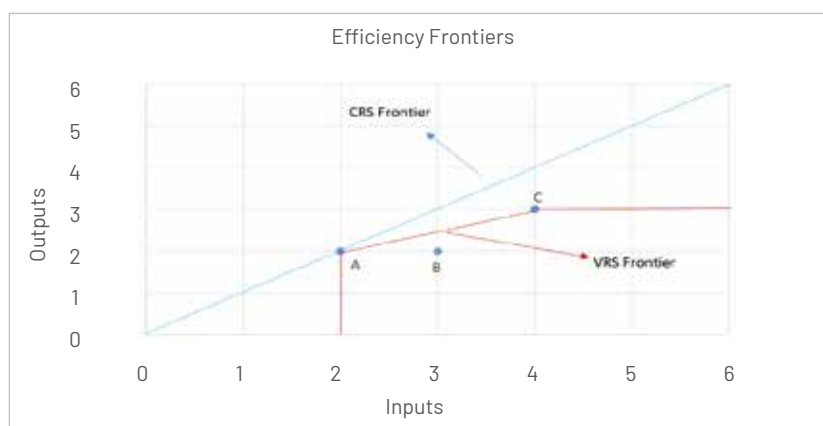


Figure 2a: Input Indicators (public and private education spending over GDP)

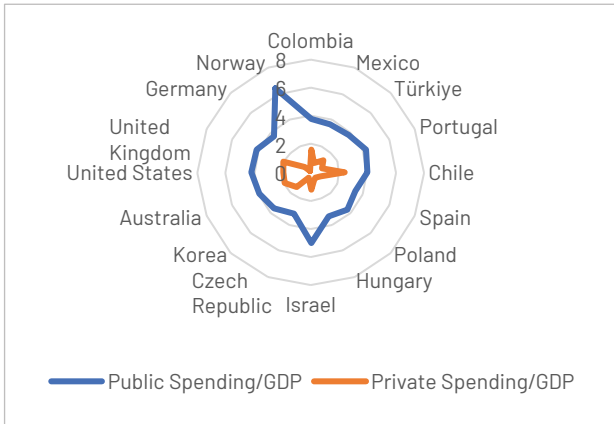


Figure 2b: Composite Output Indicators (PISA scores, the average quality of education, and educational attainment)

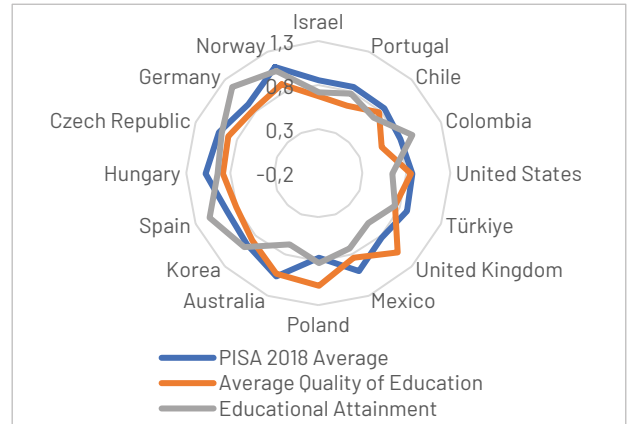


Figure 3a: Input Indicators (public and out of pocket health spendings over GDP)

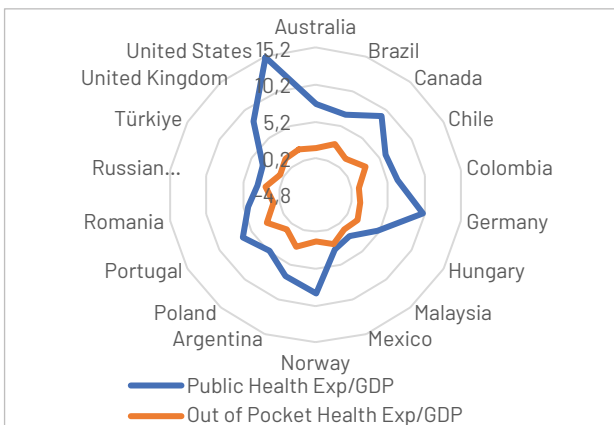


Figure 3b: Composite Output Indicators (infant mortality rate, life expectancy at birth, and healthy life expectancy)

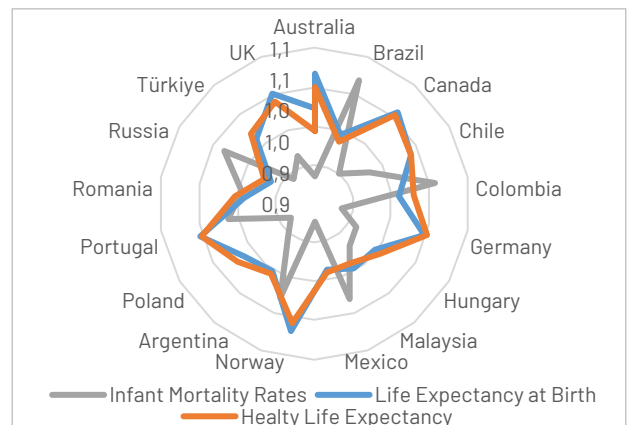


Figure 4a: Input Indicators (quality of roads, railroads, ports and airports, electricity supply, internet usage, mobile phone subscriptions, and access to safe drinking water)

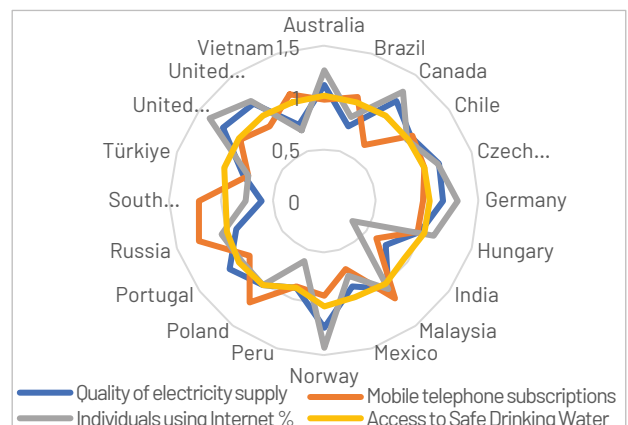
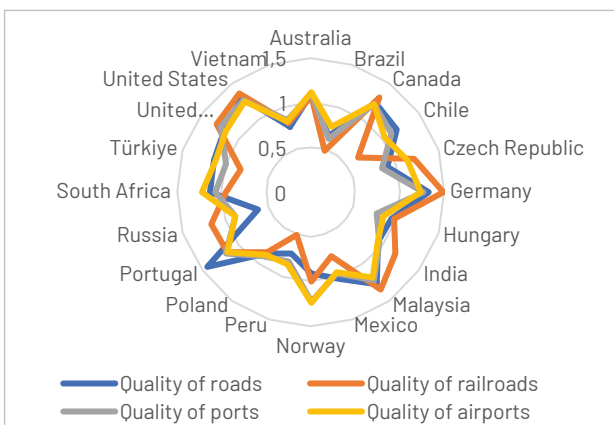


Table 1: Summary of Literature on Public Sector Spending Efficiency

Authors	Methodology	Country Coverage	Sample Period	Results
Tandon et al. (2001)	FDH	191 Countries	1997	Authors sort out countries in terms of health efficiency. In addition, they find that there is a positive relationship between higher health expenditure per capita and efficiency.
Herrera and Pang (2005)	FDH, DEA	140 Countries	1996-2002	Authors show that higher government spending leads to lower efficiency scores.
Afonso and St. Aubyn (2005)	FDH, DEA	OECD Countries	2000	Authors find that higher output is possible with the
Afonso, Schuknecht, and Tanzi (2005)	FDH, DEA	23 OECD Countries	1990 and 2000	Authors argue that large governments can improve
St. Aubyn et al. (2009)	DEA, SFA	26 EU Countries as well	1990 and 2000	Authors argue that large governments can improve
Afonso, Romero, and Monsalve (2013)	DEA, SFA	23 Latin American and Caribbean Countries	2001-2010	Same output level can be achieved by spending less.
Cetin and Bahce (2016)	DEA	34 OECD Countries	2011	Authors argue that governments can produce the same level of health output with lower public resources by utilizing resources more efficiently.
Afonso and Kazemi (2017)	DEA	20 OECD Countries	2017	Countries with a higher level of expenditures perform less efficiently.

Table 2: List of Selected Variables used as Input and Output in the Literature¹⁵⁴

	Health	Education	Infrastructure
Monetary Inputs	Health expenditure/GDP	Spending per student	Spending on infrastructure
	Health expenditure per capita	Education spending/GDP	Public capital stock/GDP
	Out of pocket spending		
Physical Inputs	Bed per 1000 patients	Teachers per pupil	
	Physicians per 1000 patients	Average class size	
	Nurses per 1000 patients	Instruction hours	
	Number of MRI's	Availability of teaching materials per student	
Outputs	Infant mortality rate	PISA scores (simple average of reading, mathematics, and science literacy)	Quality of infrastructure index
	Life expectancy at birth	Course enrollment	Road, rail, airport, port quality indices
	Health life expectancy	Completion rates	Mobile phone subscriptions
	Maternal mortality rates	Study duration	Internet bandwidth
		Level of education	Individuals using the internet
		Access to clean water	

Note: The data used in the analyses is the period average of 2013-2017 for infrastructure, 2015-2019 for education and 2015-2019 for health where data is available.

¹⁵⁴ Table includes variables that are commonly used in the literature while measuring public spending efficiency on health, education, and infrastructure.

Data Sources of DEA Analysis

Public and private spending on education/GDP: OECD, Primary to Tertiary education (ISCED2011 levels 1 to 8),
<https://stats.oecd.org/Index.aspx>

PISA 2018 scores: OECD,
<https://www.oecd.org/pisa/publications/pisa-2018-results.htm>

Educational attainment: World Bank,
<https://data.worldbank.org/indicator/SE.SEC.CUAT.LO.ZS>

The average quality of education: WEF, The Global Competitiveness Index Historical Dataset,
<http://reports.weforum.org/global-competitiveness-index-2017-2018/downloads/>

Public health expenditure: World Health Organization Global Health Expenditure database
<http://apps.who.int/nha/database>

Out of pocket health expenditure: World Health Organization Global Health Expenditure database
<http://apps.who.int/nha/database>

Infant Mortality Rates: World Bank,
<https://data.worldbank.org/indicator/SP.DYN.IMRT.IN>

Life Expectancy at Birth: World Bank,
<https://data.worldbank.org/indicator/SP.DYN.LE00.IN>

Healthy Life Expectancy: The Global Health Observatory,
<https://www.who.int/data/gho/indicator-metadata-registry/imr-details/66>

Quality of roads, railroads, airports and ports: WEF, The Global Competitiveness Index Historical Dataset,
<http://reports.weforum.org/global-competitiveness-index-2017-2018/downloads/>

Quality of electricity: WEF, The Global Competitiveness Index Historical Dataset,
<http://reports.weforum.org/global-competitiveness-index-2017-2018/downloads/>

Individuals using internet (%): WEF, The Global Competitiveness Index Historical Dataset,
<http://reports.weforum.org/global-competitiveness-index-2017-2018/downloads/>

Mobile telephone subscriptions: WEF, The Global Competitiveness Index Historical Dataset,
<http://reports.weforum.org/global-competitiveness-index-2017-2018/downloads/>

Access to safe drinking water: FAO, AQUASTAT Database,
<http://www.fao.org/aquastat/statistics/query/index.html?lang=en>

IV. Human capital expenditures and jobs: Resetting the trajectory |

Sustaining Türkiye's impressive advances in human capital development requires a review of social spending policies to address a rapidly evolving global economic context given COVID recovery, the green transition and women's and youth inclusion across regions. Public spending over the past decades has played a strong role in reducing population-wide infectious disease, averting premature mortality, boosting basic literacy, and creating opportunities to allow a middle-class to emerge. But skills needed for a 21st century economy are inequitably distributed, especially digital, and advanced non-cognitive skills. In terms of social protection, one-third of Türkiye's total labor force of 34 million remain uncovered as informal workers. The demand for social expenditures is increasing rapidly in the face of both a young population and an increasing cohort of over 65-year-olds. Taken together, these factors put households' ability to find gainful employment, cope with shocks and boost productivity, into a vicious cycle, as highlighted by COVID-19. Needed now is the long-term vision of strategic social investments to put Türkiye back ahead of the curve as the digital and green economy takes root.

As with many countries at the crux of the youth bulge and an emergent aging population, Türkiye faces three key challenges to human capital investments and jobs for recovery: equitable coverage, fiscal capacity, and, importantly, adaptability to a changing labor market. This chapter analyzes social investments and human capital, focusing on skills, labor, and integrated approaches to social security (contributory and non-contributory) policies within the context of evolving labor market needs. It covers: (i) programmatic expenditures over time at the central and regional levels; (ii) equity in terms of coverage and benefit incidence across household quintiles; and (iii) fiscal and policy scenarios pertaining to improving the performance of social expenditures (see Box below for a methodological discussion on data sources). The chapter adopts a macro perspective and does not cover specific education or health care service delivery organization or investment projects.¹⁵⁵

Box 1: Data sources for Human Capital Expenditures analysis

The analysis of intersectoral human capital expenditures in this paper is based primarily on available data published by the Government of Türkiye and does not include a detailed analytic evaluation of different methods or sources. Total public expenditure reflects all main public spending at a societal level including all contributory and non-contributory social security benefits, wage subsidies and spending beyond the central government, compiled across sources from the central government and individual institutions. Where cross-country comparisons are made, data from both international and national sources are referenced for the sake of highlighting general ranges and trends most relevant to policy challenges at a macro perspective. Historically, Türkiye has had a relatively strong framework for compiling, analyzing and publishing data on public finance and service delivery indicators in the social sectors. Primary data have been sourced from the Ministry of Treasury and Finance; Social Security Institution (SGK); Ministry of National Education; Ministry of Labor and Social Security, ISKUR; Ministry of Family and Social Services; Ministry of Health; TURKSTAT; and compared with data from the OECD, EUROSTAT and WDI data review where needed. The Turkish Statistical Institute TURKSTAT/TUIK provides the majority of the data used for the intra-national, cross-provincial analysis. For detailed Türkiye education expenditures used for the remainder of this work, see TURKSTAT and MoNE sources available at:

<https://data.tuik.gov.tr/Bulten/Index?p=Education-Expenditure-Statistics-2019-33670&dil=2#:~:text=The%2074.0%25%20of%20education%20expenditure%20in%20Türkiye%20in%202019%20was,expenditure%20by%20households%20was%2020.8%25.&text=While%20the%20education%20expenditure%20per,thousand%20769%20TL%20in%202019.>

MoNE: https://sgb.meb.gov.tr/meb_iys_dosyalar/2021_09/10141326_meb_istatistikleri_orgun_egitim_2020_2021.pdf

¹⁵⁵ The data used for the analysis is based mainly on international databases for the case of cross-country comparisons, the Ministry of Treasury and Finance and associated line ministries, and data provided on the TURKSTAT for regional and household-specific indicators. While there may be modest differences in data sourced from different agencies or by year given recent updates after the time of writing, the macro trends and associated policy implications discussed in the chapter largely remain unchanged. Further work and analytic work can address further policy questions based on discussions with the authorities and stakeholders as needed.

In addition, regarding the methodological approach and interpretation of results, given Türkiye's strong advances in human capital over the past four decades, the analysis is based on cross-country comparisons for the sake of identifying next-generation key opportunities to progress even further. Based on inputs and discussions with the authorities, the analysis acknowledges that cross-country comparisons are wrought with complications, as policy context varies and hence comparing relative efficiency and equity of public spending may not be done in a vacuum. For this reason, these comparisons should be taken as illustrative and areas for further work rather than as the basis of definitive or absolute policy conclusions.

A holistic, life-cycle view of public expenditures and human capital permits an analysis of the relative efficiency of policies and programs, informing how best to invest in an inclusive post-COVID jobs and growth recovery. A life-cycle analytic perspective entails evaluating spending and outcomes from early childhood to old-age across different dimensions. This approach is based on the synergies between equity and efficiency of spending across life stages and dimensions¹⁵⁶. The analysis applies a conceptual framework examines selected, intersectoral investments for boosting productive labor force participation and the resilience needed for recovery. Subsequently, in terms of developing policy responses to boost human capital, a whole-of-government policy framework helps to design reform measures that take into account linkages between policies and programs, particularly for areas most directly tied together. Key areas of focus include programmatic, disaggregated expenditures for skills, with a focus on basic and secondary education and active labor market programs; main social protection and labor policy spending, with a focus on non-contributory and contributory programs for social assistance, unemployment benefits, pensions and health insurance; and a brief review of health expenditure trends and social risk profile. A detailed, microanalysis of all sector-specific issues is beyond the scope of this analysis. The analysis and policy discussion focuses specifically on selected cross-sectoral strengths and gaps regarding allocative efficiency that complement more detailed sector-specific analysis elsewhere.¹⁵⁷

A. Overall human capital expenditures and trends

Human capital expenditures have remained steady over the past decade

Public investments in households and workers have remained constant over the past ten years yet modest in the face of COVID-19 challenges. The cost of managing the impact of COVID-related shocks on households and workers while addressing underlying vulnerabilities is expected to be significant, with a need to ensure efficiency and equity. The COVID-related shock also provides an important opportunity to reform economic and social welfare policies early and implement "early alert adaptive" systems. The choice of instruments is key to striking a balance between supporting immediate needs and building long-term resilience.

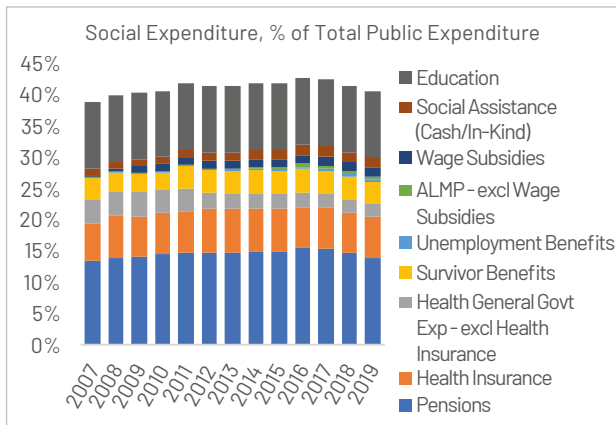
Türkiye has spent a significant share of GDP on social investments at approximately 16 percent, which has remained stable for over a decade. Social expenditures represented the single largest share of public expenditures at approximately 40 percent as of 2020, up from 38 percent in 2007, indicating that the share has been remained relatively constant (Figure 157). As a share of GDP, social expenditures saw a spike of nearly 2 percentage points over 2007-2009 (11 to 13 percent), subsequently decreasing somewhat until COVID-19, when the Government's fiscal stimulus benefiting households and workers is estimated to have been the equivalent of 0.5 to 1 percent of GDP given modest amounts and coverage. As of 2020, pensions accounts for the bulk of public social expenditures (5.6 percent of GDP). This is followed by education (4.5 percent of GDP), health care (3.4 percent), survivor benefits (1.4 percent), wage subsidies (0.6 percent), unemployment benefits (0.2 percent), active labor market programs (0.2 percent), and non-contributory social assistance and in-kind services (0.06 percent)¹⁵⁸. Türkiye's contributory social insurance policies are financed mainly through employer contributions, employee contributions, and public transfers (for non-contributory programs such as social assistance and health insurance subsidies)(Figure 158).

¹⁵⁶ World Bank (2021). Investing in Human Capital for a Resilient Recovery: The role of public finance. Washington DC: World Bank.

¹⁵⁷ World Bank (forthcoming). Education Sector Analysis; World Bank(forthcoming). Pandemic Preparedness and Response Assessment. World Bank(forthcoming). Occupational Skills and Labor Market Programs Assessments.

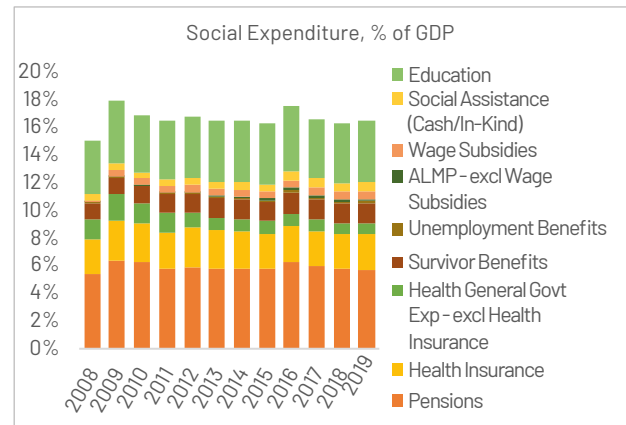
¹⁵⁸ World Bank staff estimates based on detailed definitions of programmatic and thematic expenditures irrespective of agency implementation, using Government of Türkiye data and OECD Social Expenditures database, 2020.

Figure 157: Social Expenditures by type as a percent of Total Public Expenditures, Türkiye



Source: World Bank staff calculations; Data from Ministry of Treasury and Finance; Social Security Institution (SGK); Ministry of National Education; Ministry of Labor and Social Security, ISKUR; Ministry of Family and Social Services; Ministry of Health; TURKSTAT; and compared with OECD, EUROSTAT and WDI data. Total public expenditure reflects all main public spending at a societal level including all contributory and non-contributory social security benefits, wage subsidies and spending beyond the central government, compiled across sources from the central government and individual institutions

Figure 158: Social Expenditures by type as a percent of GDP, Türkiye

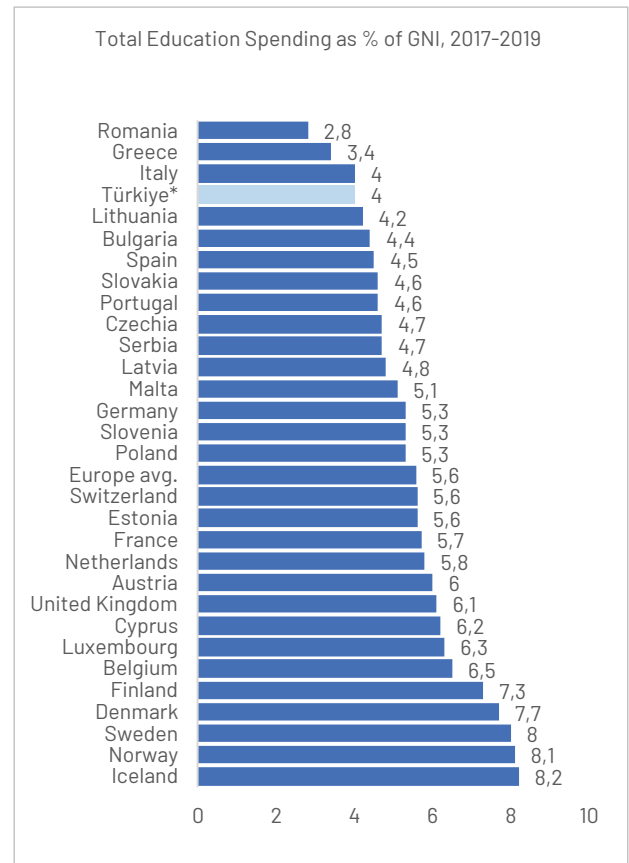
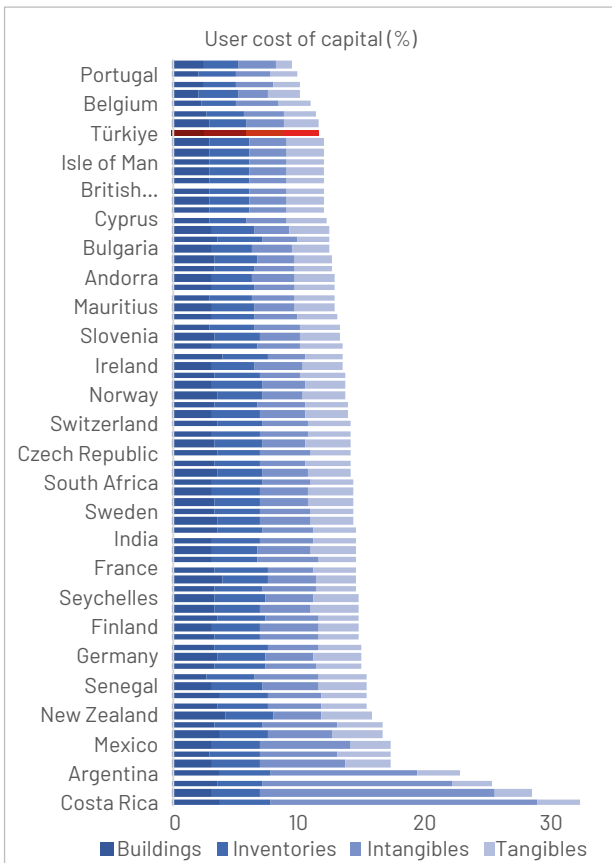


Source: World Bank staff calculations; Data from Ministry of Treasury and Finance; Social Security Institution (SGK); Ministry of National Education; Ministry of Labor and Social Security, ISKUR; Ministry of Family and Social Services; Ministry of Health; TURKSTAT; and compared with OECD, EUROSTAT and WDI data. Total public expenditure reflects all main public spending at a societal level including all contributory and non-contributory social security benefits, wage subsidies and spending beyond the central government, compiled across sources from the central government and individual institutions

By comparison, the OECD spent nearly 25 percent on average pre-COVID. Compared to most OECD countries, Türkiye's spending on education, health and active labor market programs is relatively modest.¹⁵⁹ In the OECD, the drop in economic growth during 2007–2009 of around 6 percentage points (2.7 to -3.5 percent) was met by an increase in social expenditures of nearly 3 percentage points of GDP on average (17.7 percent of GDP to 20.7 percent of GDP) (Figure 159). This level has been maintained since, owing to demographic changes, and long-lasting impacts on jobs and consumption in general. Similarly, because of COVID-19, most advanced countries mobilized emergency social measures that accounted for 1-2 of GDP over 2020; Türkiye's support packages targeting households and workers' wages and benefits were relatively modest and estimated to account for up to 0.5 percent of GDP (Figure 160).

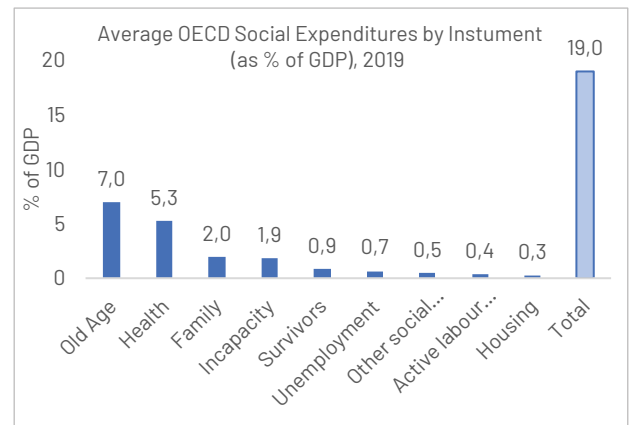
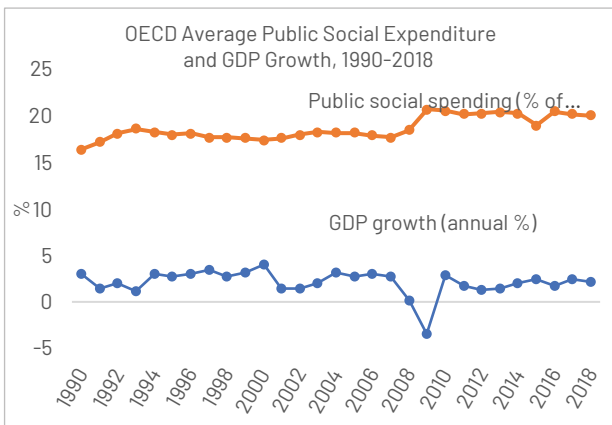
¹⁵⁹ Note OECD estimates are based on national data; estimates that may vary from recent national estimates may be due to methodological, currency exchange or accounting differences. For detailed Türkiye education expenditures used for the remainder of this work, see TURKSTAT and MoNE sources: TURKSTAT [https://data.tuik.gov.tr/Bulten/Index?p=Education-Expenditure-Statistics-2019-3670&dil=2#:~:text=The%2074.0%25%20of%20education%20expenditure%20in%20Türkiye%20in%202019%20was,expenditure%20by%20households%20was%2020.8%25.&text=While%20the%20education%20expenditure%20per,thousand%20769%20TL%20in%202019](https://data.tuik.gov.tr/Bulten/Index?p=Education-Expenditure-Statistics-2019-3670&dil=2#:~:text=The%2074.0%25%20of%20education%20expenditure%20in%20Türkiye%20in%202019%20was,expenditure%20by%20households%20was%2020.8%25.&text=While%20the%20education%20expenditure%20per,thousand%20769%20TL%20in%202019.). MoNE: https://sgb.meb.gov.tr/meb_iys_dosyalar/2021_09/10141326_meb_istatistikleri_orgun_egitim_2020_2021.pdf

Figure 159: Social Expenditures by type as a percent of GDP, Global



Source: WDI data and OECD Social Expenditures data.

Figure 160: Social Expenditure trends, OECD Average



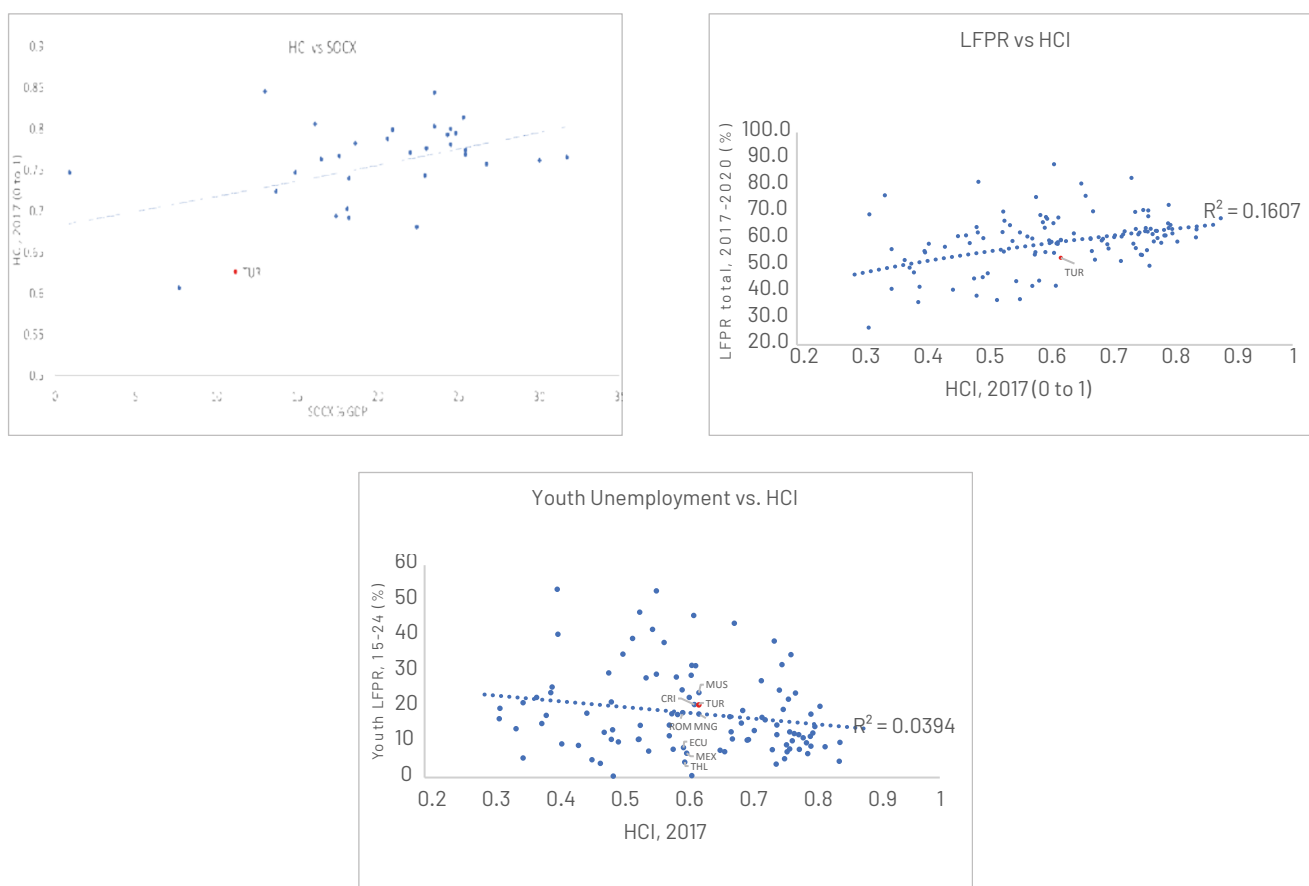
Source: WDI data and OECD Social Expenditures data.

Accelerating human capital achievements will require increased allocative efficiency

In Türkiye, social expenditures have a synergistic effect, leading to an integrated approach for evaluating expenditures and human capital outcomes. Within social expenditures, choices are made on how to invest from the early to the later years of the life cycle, in which policies and programs, and how to generate the greatest pay-off in terms of productivity, resilience and inclusive growth. In terms of outcomes, Türkiye has achieved considerable gains concerning basic, or “first-order”, human capital levels, but significant blind spots remain on higher-order human capital “plus” areas, such as labor, skills for the twenty-first century, and evolving health needs. The human capital index (HCI) shows that first-order needs have largely been met in terms of basic literacy and infant and maternal mortality, although HCI skills outcomes lag in Türkiye relative to comparable countries. In addition, the HCI labor dimension, or utilization, also shows that overall employment levels are relatively lower and gender gaps wider than elsewhere.

Türkiye’s HCI, at 0.65 (on a scale of 0 to 1) prior to COVID was on par with most middle-income countries, although HCI by socioeconomic level reveals gaps.¹⁶⁰ HCI by income level shows minimal differences in life expectancy but vulnerabilities in health status and learning, made worse during COVID. In Türkiye, the percentage of children in the top 20 percent of households who are not stunted is 96 percent while it is 69 percent among the poorest 20 percent, a gap of 27 percentage points. This gap is larger than the typical gap across the 50 countries (19 percentage points). Students from the richest 20 percent of households in Türkiye score 521 (out of a learning index ranging from 300 to 625) while those from the poorest 20 percent score 426, a gap of 94 points. This gap is somewhat wider than that observed across the 50 countries (55 points) assessed.

Figure 161: Relationship between Social Expenditures and Human Capital Aggregates, Global



Source: World Bank staff calculations. World Development Indicators, 2017-2020

¹⁶⁰ World Bank (2019). Türkiye - Insights from Disaggregating the Human Capital Index. Human Capital Project October 2, 2019, brief. Washington DC: World Bank Group.

At an aggregate level, for its level of social expenditures, the allocative efficiency of Türkiye's spending is lower than comparable countries. In terms of basic HCI, Türkiye's outcomes are somewhat lower than comparable countries. HCI-utilization, or overall labor force participation rate (LFPR), is also lower than expected for its level of social spending, indicating inefficient spending and likely broader factors such as demand-side (private investment) and social dynamics. Similarly, youth unemployment is higher in Türkiye than expected for its level of HCI. Examining higher-level aspects of human capital further reveal inefficiencies regarding public spending in three main areas: (i) boosting competitive skills, (ii) facilitating labor market entry and (iii) matching to the demand side (Figure 161).

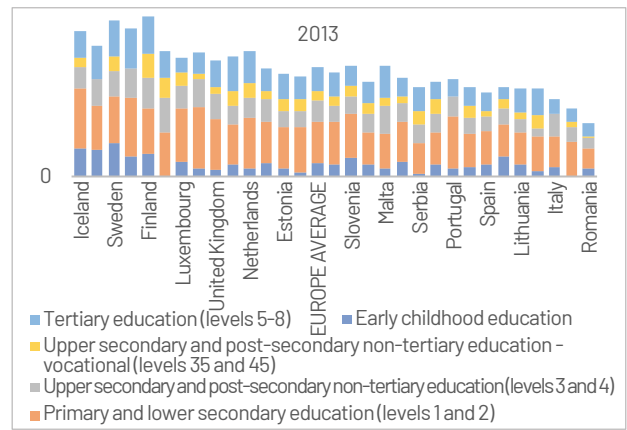
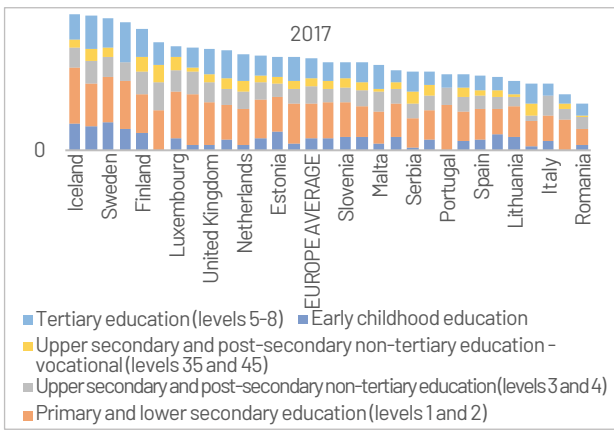
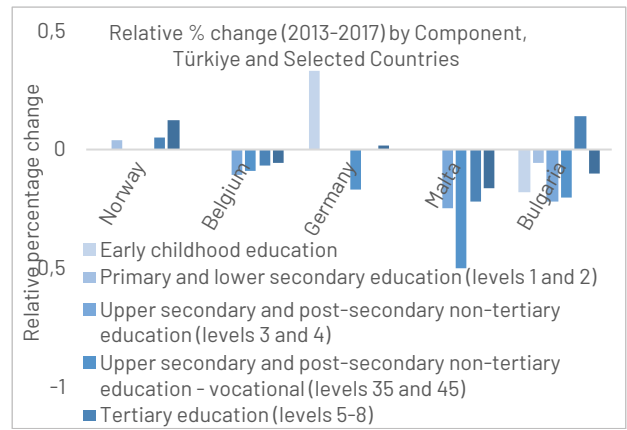
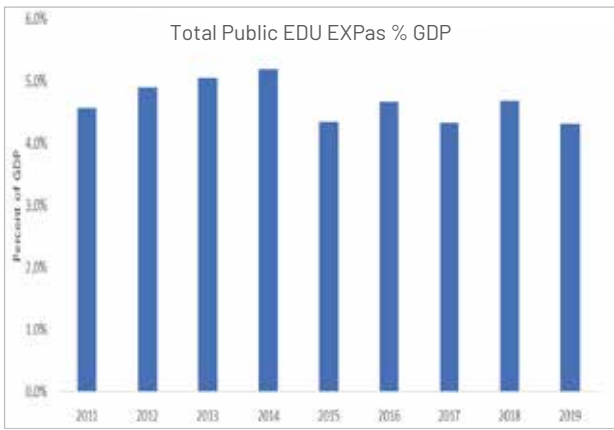
B. Skills investments and outcomes

Relatively lower public spending on secondary education and rising out-of-pocket spending

Education spending over time shows strengths in terms of basic literacy and challenges in terms of twenty-first century competitiveness for a new economy. Public expenditure on education as percent of GDP has largely been stable in Türkiye over the past decade (2011-2019), reaching approximately 4.3 to 4.6 percent of GDP as of 2020. This level is lower than the OECD average of approximately 5.6 percent, although it falls within the range of comparable countries of between 4-6 percent. At the same time, while not directly comparable in terms of size or populations, Türkiye's expenditure is considerably lower than Costa Rica at 7.4 percent and Tunisia at 6.6 percent, with some differences in the relative share of spending compared to OECD countries. Nearly 80 percent of spending finances wages and benefits of the teacher workforce, with the remainder spent on capital and other current expenditures. In terms of expenditure components, emphasis on secondary education has been decreasing while that on tertiary education has been increasing since 2013, although most OECD countries have seen the reverse trend (Figure 162). Further, in line with comparable countries that have increased investment in early childhood education significantly, Türkiye has gradually started to boost resources in this area to avoid lagging behind, including a new initiative launched to increase investments and infrastructure in kindergarten and pre-schools to close the inequity gap.¹⁶¹ In addition, for its level of secondary education spending, noting that the relationship between expenditure and PISA scores is complex, PISA scores appear to be average; however, other comparable countries appear to have higher PISA scores for the same or less secondary education expenditure (Figure 163). This trend shows that factors beyond the level of spending on secondary school and beyond the scope of this analysis likely play a critical role in maximizing the returns to investment, such as organizational, human resource and curriculum design.

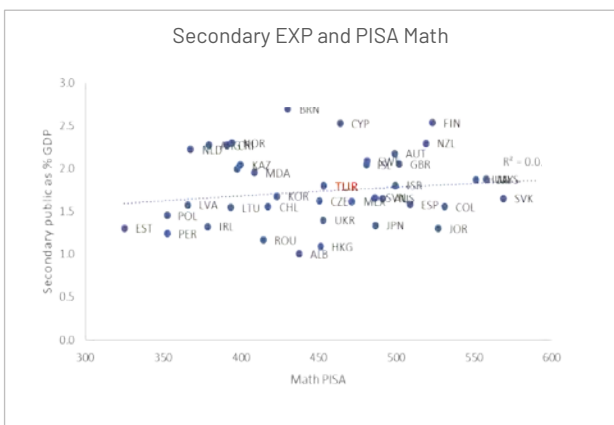
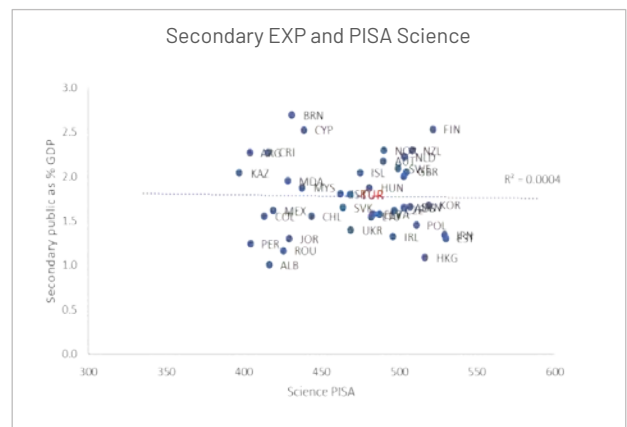
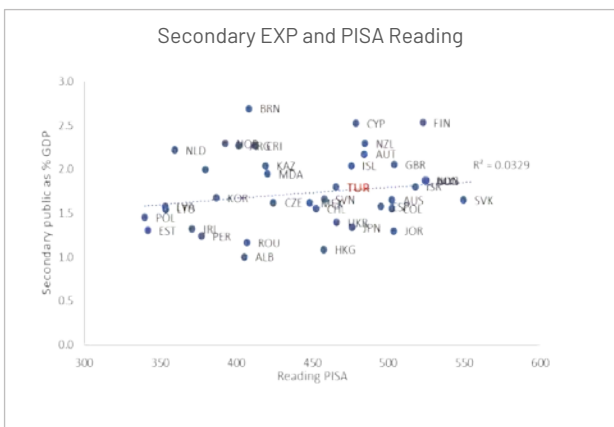
¹⁶¹ See Ministry of National Education's "10,000 Schools Project" <https://www.meb.gov.tr/ministry-of-national-education-starts-the-10000-schools-in-basic-education-project/haber/25536/en>

Figure 162: Detailed Education Expenditures by type as a percent of GDP, Türkiye, Global



Source: World Bank staff calculations, *shows updated figures as percent of GDP.

Figure 163: Relationship between Secondary Education Expenditure and Learning Outcomes (PISA), Türkiye



Source: World Bank staff calculations, World Development Indicators and OECD PISA Scores, 2018.

While generally maintaining the level of public expenditures, private expenditure by households on education has doubled over the past two decades since 2002.¹⁶² This pattern may reflect changes in preferences and/or the relatively lower public expenditure on secondary education as tertiary education has absorbed more resources over the same period. While education has comprised a modest part of household consumption expenditure, the level has been increasing over time, compared to health which has accounted the same share over time, at approximately 2.2 percent as of 2019 (most recent available data) (Figure 164, 195). By contrast, out-of-pocket expenditure on education has gone from 1.3 to 2.5 percent between 2002 and 2019, driven by higher-income households. The highest-income households have gone from spending 2.2 percent of total household expenditure on education to 4.2 percent, while the lowest-income households have hovered at 0.1 to 0.2 percent of total expenditure. The socioeconomic gradient in out-of-pocket education spending is also greater than that of health. By 2019, while the lowest-income households spent nearly half on health as that of their wealthiest counterparts, they spent only 3 percent of what the wealthiest spent on education, primarily secondary education. These differences may partially explain the socioeconomic differences in learning outcomes such as PISA in Türkiye and its higher HCI-health outcomes as compared to HCI-education relative to comparable countries.

Basic education is predominately public with broad nationwide outreach, with 4 percent of all primary students in Türkiye attending private schools as of 2019, which has increased to 5.5 percent over 2020-2021, noting that MoNE reports updated figures routinely.¹⁶³ Although beyond the scope of this analysis, COVID-19 may have played a role in the distribution of private versus public basic education as well. The public teacher workforce is significant at one million, covering nearly 18 million students from early education to secondary school, with teacher-student ratios generally within a similar margin across province. Primary education is wide covering at a 94 percent schooling rate, while secondary education hovers at 85 percent with wide regional variation ranging from 72 percent to 92 percent (Figure 166).¹⁶⁴ Lower ratios are partially explained by somewhat lower female secondary schooling ratios. In Southeastern Anatolia and Middle east Anatolia regions, girls' secondary enrollment was 4 percent and 2 percent lower than that of boys, respectively, noting that MoNE regularly updates these figures to reflect annual indicators.¹⁶⁵ Lower secondary schooling rates appear to be similar in regions with higher secondary student-to-teacher ratios with slight differences, which range from 11 to 15 students per teacher nationwide for general secondary education and 8 to 13 students per teacher for technical and vocational secondary education. Given student-to-teacher ratios and PISA outcomes by region described earlier at the macro level, further analysis is needed to determine the role of different factors in influencing learning at the micro level at this stage of Türkiye's skills path, such as teacher effectiveness, performance incentives and school management.

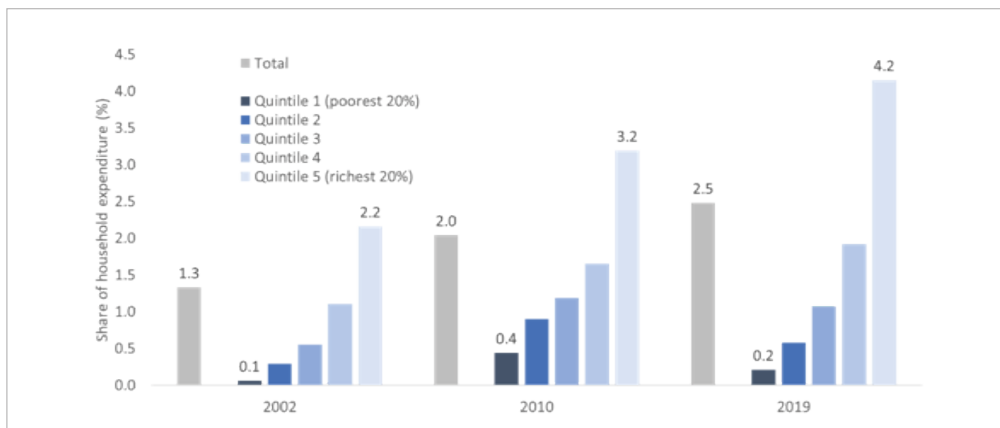
¹⁶² TURKSTAT Household Budget Survey, 2011-2019.

¹⁶³ Data updated and reported by MoNE in the National Education Statistics Formal Education report, indicate that while the share of private education in primary school in total in 2019-2020 was 5.2 percent for primary school students and 6.3% percent for secondary school students, it was 5.1percent for primary school students and 6.1 percent for secondary school students in 2020-2021.

¹⁶⁴ TURKSTAT Education Indicators, as of 2019.

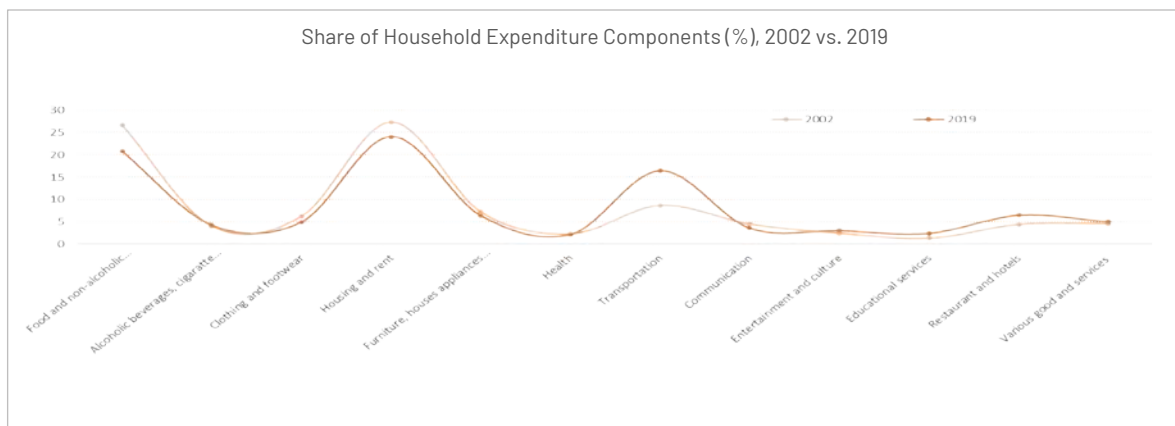
¹⁶⁵ Data updated and reported by MoNE indicate 4% and 1% difference, respectively, available at: <https://biruni.tuik.gov.tr/bolgeselstatistik/anaSayfa.do?dil=en>

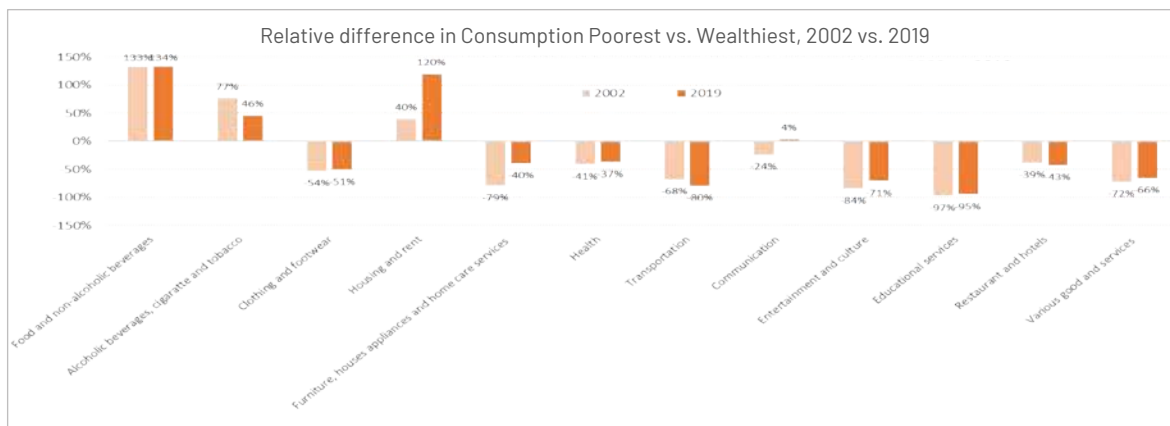
Figure 164: Public vs Private Education Expenditures as a percent of GDP, Türkiye



Source: World Bank staff calculations, TURKSTAT Household Budget Survey.

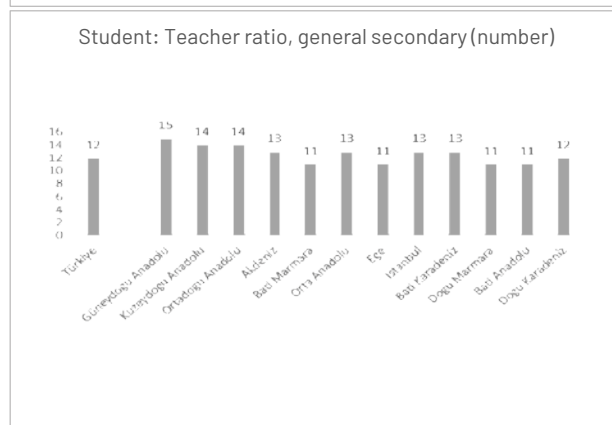
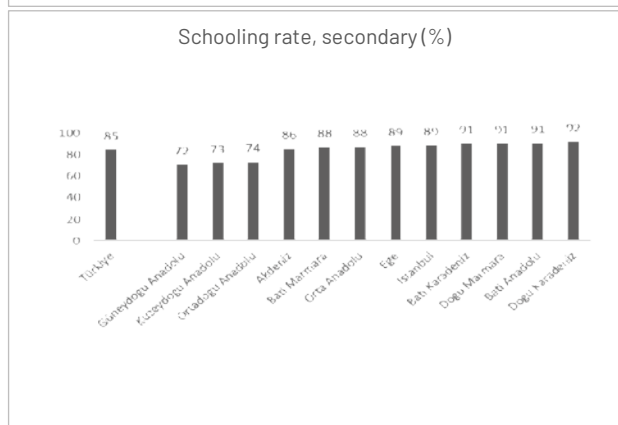
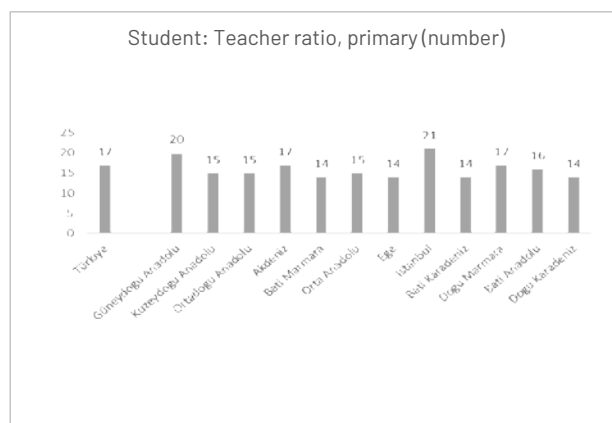
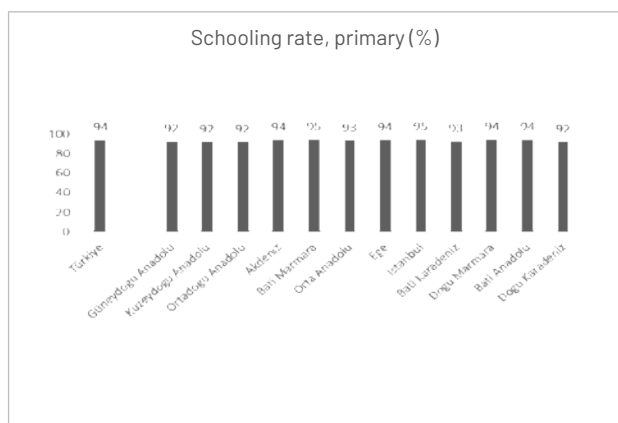
Figure 165: Comparison of Private Household Expenditures on Education versus other expenditures, Türkiye



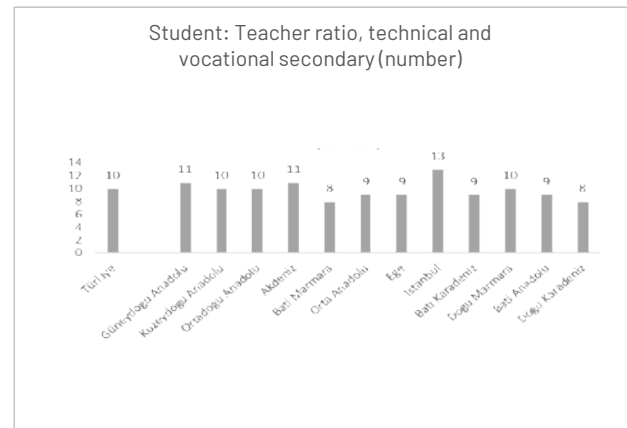
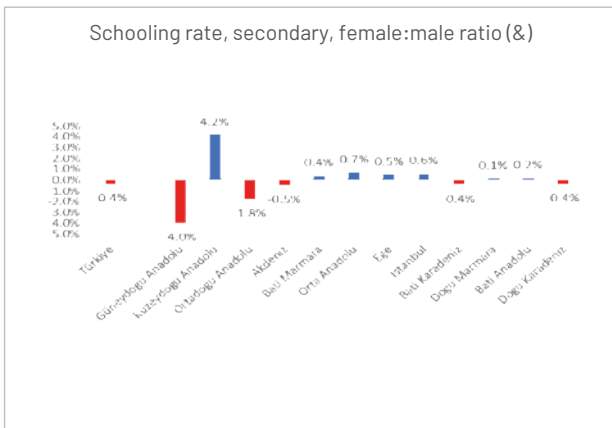


Source: World Bank staff calculations, TURKSTAT Household Budget Survey.

Figure 166: Schooling rates and Teacher coverage by educational level and regional zones, Türkiye¹⁶⁶



¹⁶⁶ Data accessed from TURKSTAT in analyzable format at the time of writing, while routinely updated by MoNE.



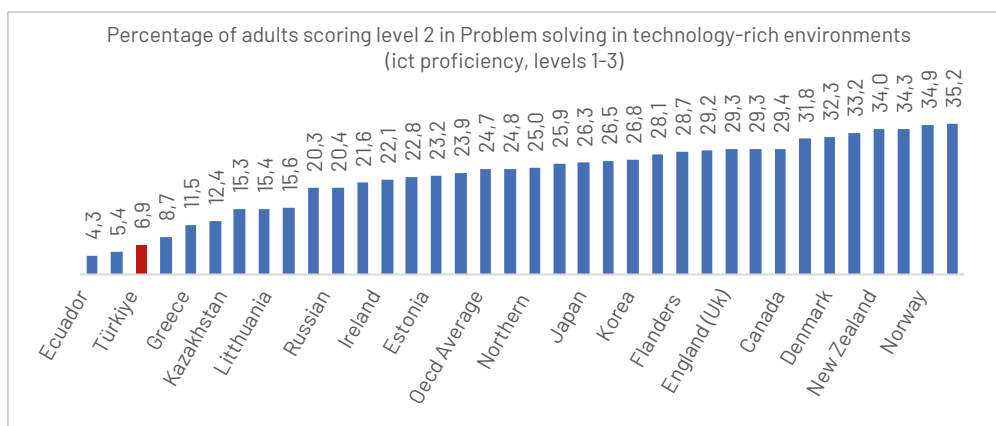
Source: World Bank staff calculations, TURKSTAT.

Growing challenges on skills development and return to education

While Türkiye's overall HCI prior to COVID-19 was on par with most middle-income countries, challenges were already apparent prior to COVID-19 regarding skills. Based on PISA¹⁶⁷ 2018, Türkiye, while lagging the OECD average, was one of the top improvers, having increased reading scores relative to 2015 by 37 PISA points, roughly equivalent to a year of schooling; yet significant losses to learning accrue with each month that passes. While the digital economy is gaining momentum particularly among the services sector, on average only a minority of Turkish adults are digitally-savvy; by way of comparison, 6.9 percent have a medium-level proficiency of problem-solving skills in technology-rich contexts, compared to the OECD average of 24.7 percent, showing similar relative scores for numeracy and literacy.¹⁶⁸ These patterns leave most workers vulnerable to exclusion from digitally based learning and jobs over the near-term (Figure 167).

Regional disparities in learning outcomes have grown since 2006, which appear to also be associated with regional GDP. PISA scores show a gap of over 60 points between the best-performing regions and worst-performing regions in Türkiye for Science, a pattern repeated in Math and Reading scores. This gap is the equivalent to that seen between scores in low-income and high-income countries globally. Socioeconomic differences are also evident in Türkiye, where the wealthiest quartile of the income distribution of households outperforms the lowest-income quartile. While similar socioeconomic differences are seen throughout the OECD, what is striking in Türkiye is that the relative gap had been narrowing until 2015 and increased again to 2012 levels by 2018. In line with growing global evidence showing the impact of economic shocks on learning associated with pandemics and financial crises,¹⁶⁹ these trends indicate that learning disparities in Türkiye may also be sensitive to economic disparities, such as challenges in Türkiye since 2016 and evident in regional growth disparities (Figure 168).

Figure 167: Level of Digital Problem-Solving Competencies, Global



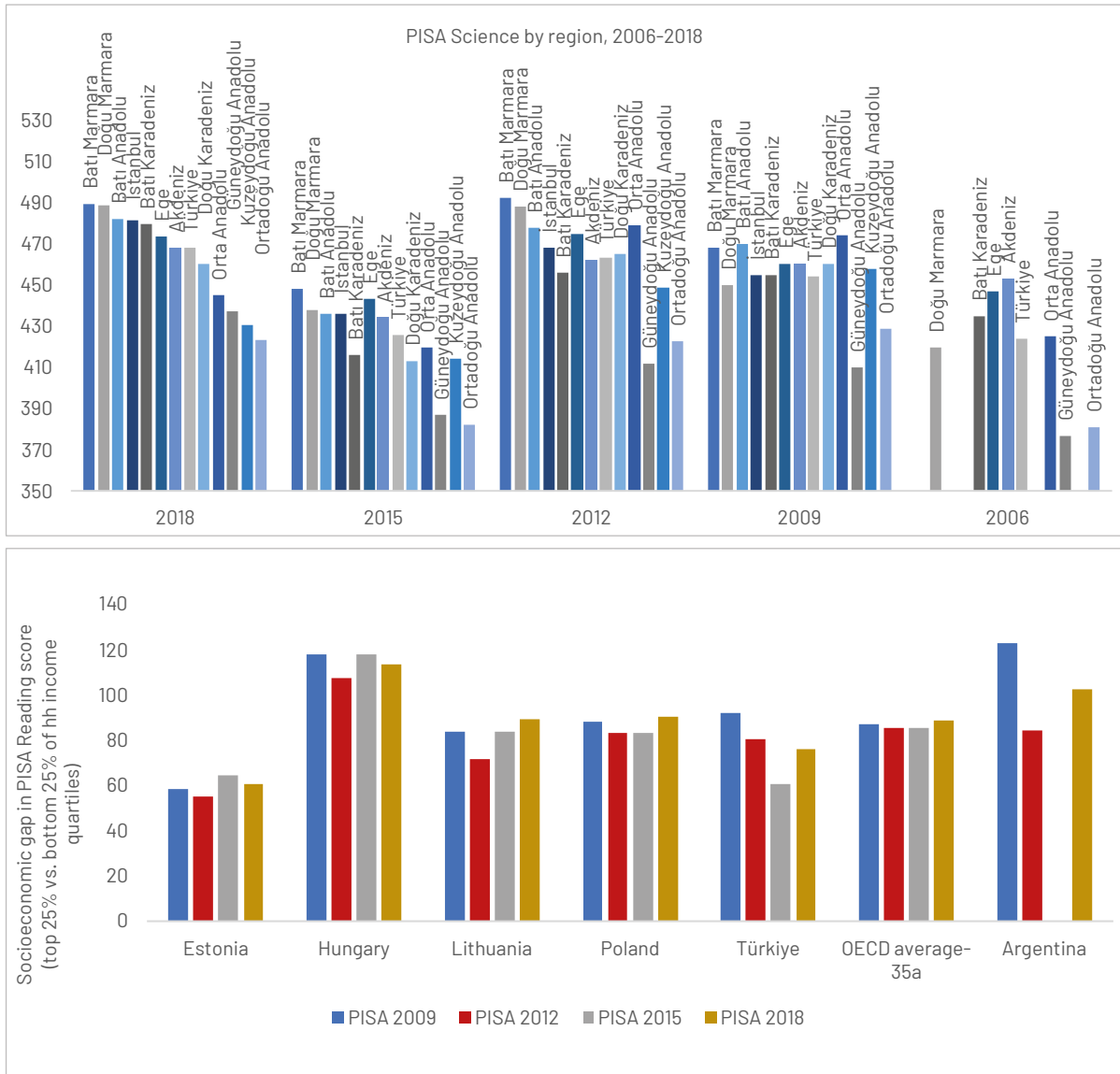
Source: OECD Survey of Adult Skills (PIAAC) 2018 data. Similar trends for numeracy and literacy.

¹⁶⁷ OECD (2019). Programme for International Student Assessment, Results for 2015 and 2018.

¹⁶⁸ OECD Survey of Adult Skills (PIAAC), 2018.

¹⁶⁹ World Bank (2020). The COVID-19 pandemic: Shocks to education and policy responses. Washington, DC: World Bank.

Figure 168: Secondary school learning outcomes (PISA) by theme, regional zones and household income over time



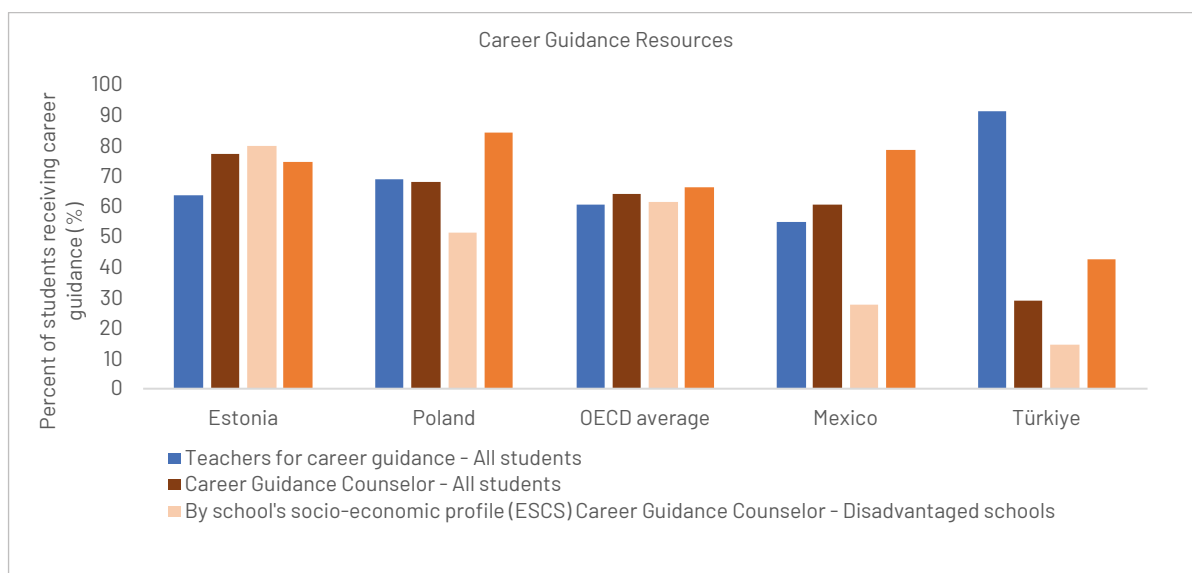
Source: OECD PISA Survey, 2006-2018. Regional differences for PISA for Math and Reading are similar to Science scores. Socioeconomic breakdown mainly available for PISA Reading for 2009-2018.

As an indicator of investments in the quality of secondary education and the school-to-work transition, despite advances, there remain gaps in early career orientation, particularly in light of a rapidly changing global economic context. Türkiye relies mostly on existing teachers to facilitate school-to-work opportunities and orient students to careers, through a system of in-school career guidance and research centers particularly for special needs students.¹⁷⁰ Routine evaluations of the returns to work and the quality of these services would be useful for future analysis. However, using internationally-comparable indicators of exclusive services (i.e., offered by dedicated, full-time career counselors), only 30 percent of schools in Türkiye report the availability of career guidance counselors, dominated by schools in higher-income provinces. Türkiye is an outlier among OECD countries in terms of dedicated job counseling in secondary schools. Its level compares to half that of the OECD average, or 64 percent of schools (Figure 169).

¹⁷⁰ The Ministry of National Education has developed a range of career guidance evaluations and has embedded career development within the national education strategy, Education Vision 2030.

Based on an original analysis using international methods, the rate of returns to general secondary education may be lower than that of vocational and technical education or tertiary education in Türkiye, especially for females. While higher education generally reaps higher returns to education in terms of wages at a global level, the effects are more pronounced in Türkiye. Most recently, when considering the cost-benefit of public expenditures with respect to years of schooling, demographics and labor market earnings, the social returns are also lowest for general secondary education. In Türkiye, the private rate of return is estimated at 16 percent for higher education, with a social return of 10 percent, with an overall average rate of return of 8.8, just above the global average.¹⁷¹ When controlling for having children younger than 15 years, the returns to education for females are higher than those for males. Contrary to patterns seen in other comparable countries, the private returns to those working in the public sector are higher than those in the private sector in Türkiye. Based on this illustrative analysis, results may imply that job prospects for general secondary education graduates are more limited than for vocational training, which is often demanded by more productive sectors in Türkiye such as manufacturing and industry. At the same time, these outcomes may also be driven by broader economic shifts impacting the demand for labor.

Figure 169: School Career Counseling Availability by Type and School Socioeconomic Level, Türkiye, Global



Source: World Bank staff, OECD PISA, 2018.

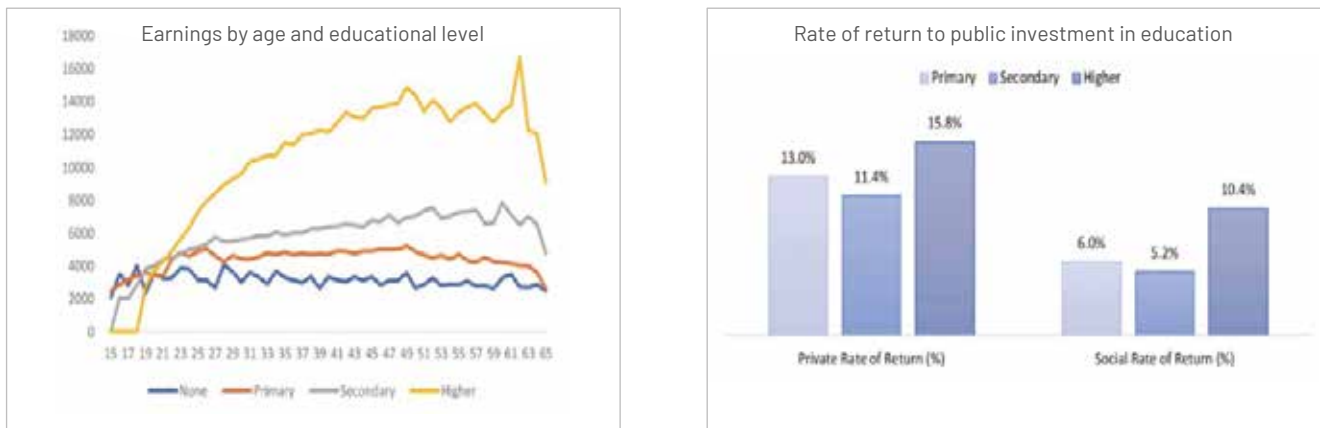
While COVID-19 has potentially hampered returns to education as a result of learning losses expected with long-term school closures, Türkiye has responded by expanding virtual digital education systems. Learning losses among adults, youth and children are expected to retard recovery unless targeted measures are taken to safeguard skills (Figure 170). On average, for example, one year of school closures in Türkiye has been estimated to lead to a 40-point decrease in reading and mathematics PISA scores, reversing recent gains and harming future productivity.¹⁷² Over the long-term, loss learning is expected to lead to HCI and growth losses,¹⁷³ particularly for poor and low-income households. During the COVID-19 school closures, Türkiye has been delivering distance education services through its online Digital Education System, EBA (Eğitim Bilişim Ağı), which comprises public education lessons delivered through television and, for students with access, mobile and computer technology. Teachers, students, and parents have access to the EBA learning environment and interface which can be customized for student-specific learning, including calendar, supportive publications and library resources. The public-school system is obliged to use EBA, while it is optional for private schools. Further investing in expanding and strengthening the EBA system can lay the foundation for future digital learning in-classroom and outside, boosting resilience and equity.

¹⁷¹See Patrinos et al(2021). Private and Social Returns to Investment in Education: the Case of Türkiye with Alternative Methods. Applied Economics 53(14): 1638-1658.

¹⁷²World Bank (2020). Türkiye Safe Schooling and Distance Education Project Appraisal Document, Annex 4 COVID-19 Learning Loss Assessment. Report No: PAD3962. Washington DC: World Bank.

¹⁷³World Bank (2020). Human Capital Project Report, Türkiye Snapshot. Washington DC: World Bank.

Figure 170: Rate of Return to Education Investments, Türkiye



Source: Patrinos et al (2021).

Overall, while educational physical infrastructure is generally distributed across regions, disparities in learning suggest allocative inefficiency within the education system, requiring a redesign of education spending and incentives for boosting 21st century skills. Modernizing educational systems in Türkiye will pave the way for building back a better workforce with a focus on key areas: (i) competitive skills curriculum, (ii) incentives for demand-driven teacher training and school performance, and (iii) early career counseling in line with evolving labor demand. The need to boost connectivity and training of teachers on digital and low-technology curriculum due to COVID-19 is high, especially with a view towards setting in place education in emergency models at the same time. Greater fiscal space is needed for teacher training for expanding twenty-first century skills such as innovation, problem-solving and digital competencies. Additional investment in secondary education and early job training is also needed to improve the school-to-work transition and reduce NEET rates. Finally, enhancing performance-based incentives for teachers and school governance to flexibly respond to rapidly evolving local and national labor market demand can boost competitiveness for an increasingly digital and green economy.

C. Labor market programs and coverage

Growing labor market challenges particularly for women and the youth

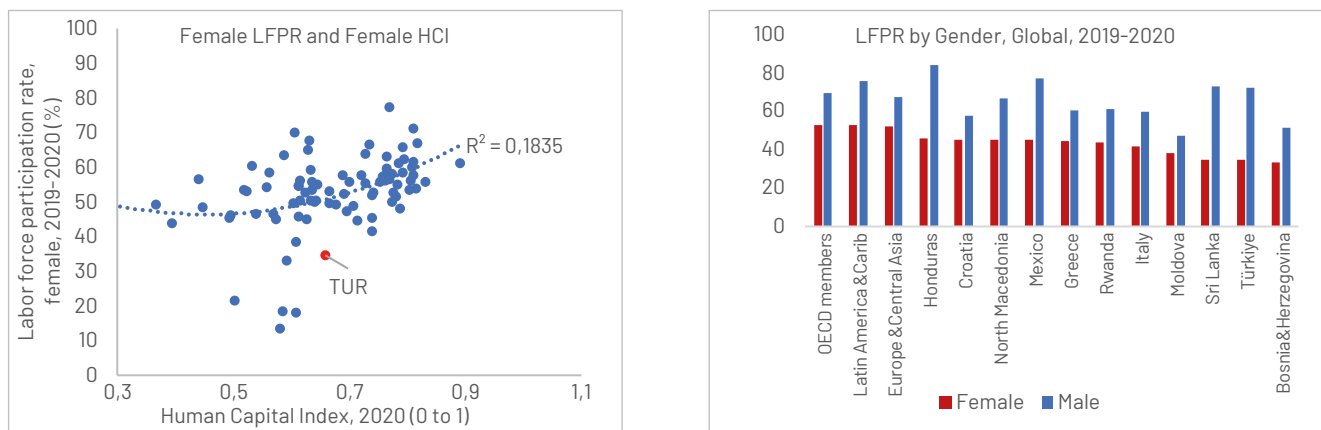
COVID-19 also shows the need for Türkiye to safeguard human capital while orienting the labor force, especially new labor market entrants and recent exits, to new labor market realities.¹⁷⁴ Türkiye's labor force stood at 31.1 million workers as of November 2020, of whom 27.1 million were employed, the lowest levels since 2016-2017,¹⁷⁵ with a modest rebound seen within the first quarter of 2021. This represents a contraction of approximately 3.9 percent and a loss of over 1.1 million workers compared to November 2019, with 61 percent of the losses being borne by women. The bulk of losses at over 750 thousand jobs were in the service, largely informal sector, accounting for over 60 percent of losses. Informal jobs continue to prevail among approximately 30 percent of the Turkish labor force, particularly among the agricultural sector.

Female labor force participation continues to lag that of males, with the bulk of labor force losses since COVID-19 borne largely by women, youth ages 15-24 and semi-skilled workers. Overall, labor force participation losses over the period of November 2019 to November 2020 were nearly equivalent to the gains in employment since 2016. The labor force participation rate (LFPR) decreased to 49.3 percent, versus 52.5 percent in November 2019. LFPR remains highest among the most highly educated (higher education), and lowest among the low- to mid-skilled (high school or just below high school). Female labor force participation continues to be less than half that of males, or 30.6 percent compared to 68.4 percent, down from 34 percent in 2019 and relatively constant around this rate since 2015, lower than comparable regional averages such as Central Europe and the Balkans (45.2 percent) and Latin America and the Caribbean (41.5 percent). Similar to NEET challenges in Türkiye, the share of female labor force participation, at 30 percent is much lower despite its HCI among females, or 0.658 (Figure 171).

¹⁷⁴ This analysis is based on data available at the time of writing, covering through early 2021. This analysis will be updated as needed in future work outside the scope of this paper, as the main emphasis of the policy note is trends and implications over time which remain largely unchanged in spite of modest changes in data and indicators.

¹⁷⁵ Turkish National Statistical Institute (TUIK), February 2021 Labor Force Statistics Quarterly Release reflecting data as of November 2020.

Figure 171: Female Labor force Participation versus Human Capital Index, Türkiye, Global



Source: World Bank staff using Turkstat data and (for female labor force comparisons) and World Development Indicators data.

The unemployed are also more likely to be women and first-time job seekers. Unemployment stands at 13.1 percent as of November 2020, compared to 13.6 percent in November 2019, however, unemployment rates mask, on the one hand, substantive labor force exits and, on the other, job protections provided for the formal sector during COVID-19. Unemployment previously increased significantly during 2007-2009 from 9.2 percent to 13.1 percent and has essentially remained high since. Unemployment stands at 15 percent among women compared to 12.2 percent among men, and 25 percent among youth. Younger and first-time job seekers tend to lack the breadth of skills and networks needed to adapt or transfer between jobs and sectors. Data from the formal sector demonstrates younger workers aged 15-24 years were disproportionately more likely to drop out from the job search compared to workers 25 years or above. In addition, COVID-19 job protections do not apply to workers in the informal sector who, prior to COVID-19, comprised over thirty percent of the workforce. The lack of employment support to these workers accentuates labor market and welfare segmentation which unemployment rates tend to mask.

Females exiting the labor force continued to cite household responsibilities as the main cause. Exit from the labor force was dominated by household responsibilities accounting for 31 percent and driven by women; 46 percent of women who leave the labor force cited this as the factor, compared to zero percent among men. This represents 9.8 million work-able women; were these women to work, this would represent an increase of nearly 30 percent of the labor force. Discouragement and retirement showed an increase relative to pre-COVID levels, notably among women.

Scope to strengthen labor market policies and programs to deal with labor market challenges

In Türkiye, a range of labor market policies and active labor market programs are available to protect vulnerable workers in the formal sector, but on aggregate, these have had limited impact for informal workers, youth, and women's labor outcomes. Key labor market programs include wage subsidies, active labor market programs, and unemployment benefits (Figure 172).

Wage subsidies (employment incentives) have tended to expand following shocks, such as the post-2008 and post-2018 periods. Over thirteen employment subsidies operate in Türkiye, targeting different populations and firms, with a range of different parameters regarding duration and benefits. While some of these programs were introduced before 2008, several were introduced following the 2008 global financial crisis. Among the registered unemployed, subsidies to cover wages and social security contributions are afforded to apprentices, interns and trainees not covered by full-time job contracts, amounting to an estimated 1.5 million individuals as of first quarter 2020. Of the employment incentives afforded for full-time jobs, one main subsidy scheme predominates, Scheme 5510 (or Five-Points Scheme), benefiting nearly 70 percent of all firms receiving SGK employment subsidies. Employment subsidies are primarily financed through the Unemployment Insurance Fund and the Ministry of Treasury and Finance, costing approximately 0.5 percent of GDP as of 2017, with more recent figures showing 0.8-1.0 percent of GDP during 2017-2020.¹⁷⁶ The four largest schemes reached a total of over 1.5 million firms (out of an estimated 3.5 million active SMEs, representing 99.8 percent of all registered enterprises)¹⁷⁷ and 9 million workers in 2019 (out of 28 million).¹⁷⁸

¹⁷⁶ Source: Ministry of Treasury and Finance and Turkish Employment Agency (ISKUR), 2022.

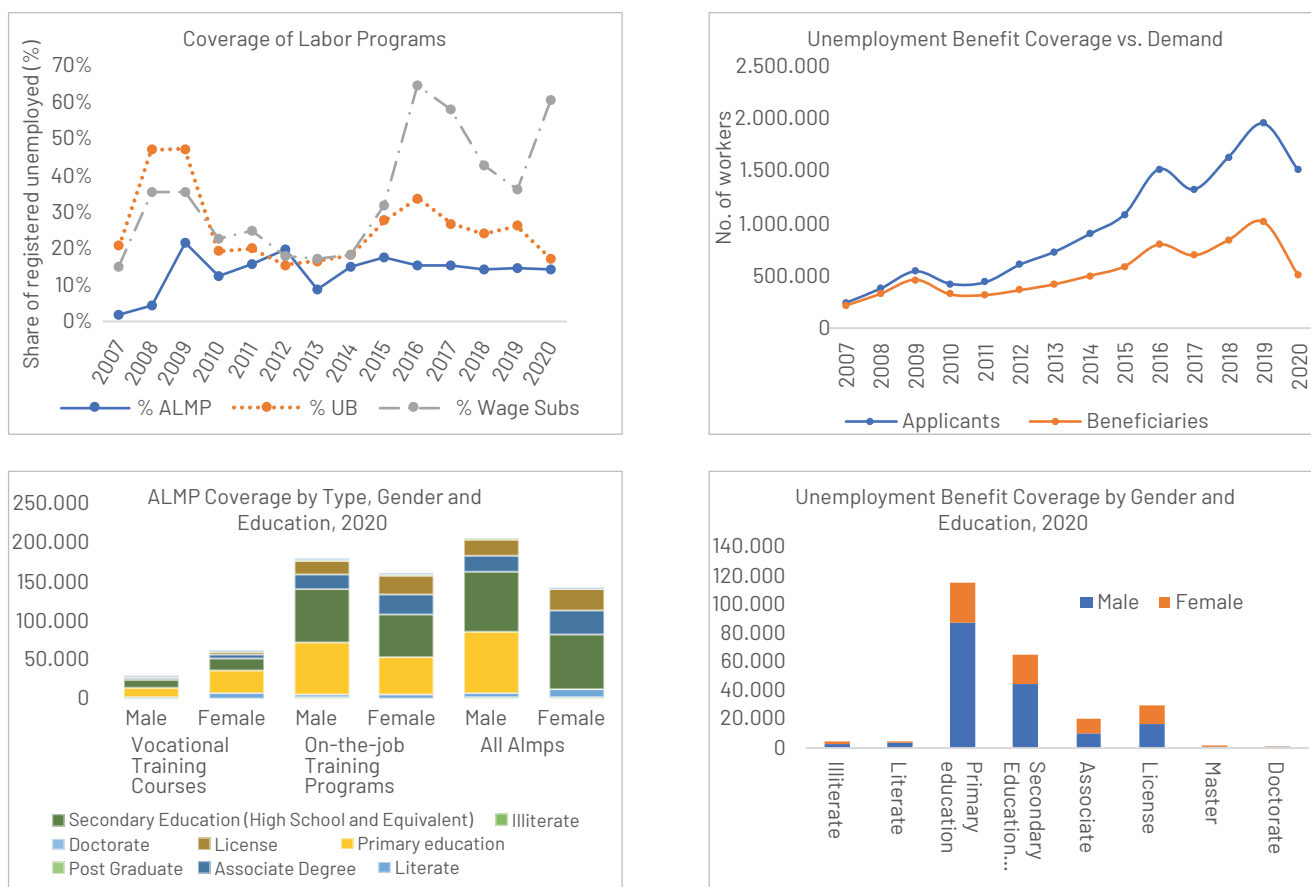
¹⁷⁷ Union of Chambers and Commodity Exchanges of Türkiye (TOBB), <https://www.tobb.org.tr/KobiArastirma/Sayfalar/Eng/SMEsinTürkiye.php>. Accessed March 24, 2020.

¹⁷⁸ World Bank (forthcoming), Evaluation of employment subsidy schemes, from progress reviews for June 2019 and February 2020.

COVID-associated expansions of employment subsidies in terms of wage protection and social security premia have further broadened the scope of beneficiary firms and workers. In terms of the impact of employment subsidies on employment, previous work has shown that formal employment in small firms has tended to increase through the formalization of existing informal jobs and tend to be larger in sector such as construction and manufacturing.¹⁷⁹ Targeting to the most vulnerable workers, notably first-time job seekers and women, would further improve efficiency and employment impacts, although the duration of impacts depends on productivity gains and labor costs over the mid-term.

Active labor market programs (ALMPs) in terms of training programs Türkiye covered 15 percent of the registered unemployed¹⁸⁰ in 2019 and 14 percent in 2020, coverage which has generally increased anti-cyclically since 2007. Until 2019, ALMP coverage has typically been dwarfed by wage subsidies, followed by unemployment benefits, and expansion of wage subsidies in 2019 and other job protections (layoff freeze) during COVID have increased coverage of wage subsidies further, while unemployment benefit coverage has decreased. The decrease in unemployment benefits is closely correlated with the significant decrease in labor force participation, early retirement, and the layoff freeze during 2020. In 2019, ALMPs accounted for over 568,000 beneficiaries (15 percent of the unemployed), compared to 1.013 million recipients of unemployment benefits (26 percent of the unemployed).

Figure 172: Labor program coverage: active labor market programs and unemployment benefits



Source: World Bank staff using Turkish National Employment Agency (ISKUR) and National Social Security Institution (SGK) Statistics, most recent data through December 2020 as of January-March 2021.

¹⁷⁹ Betcherman et al., 2020; World Bank, forthcoming.

¹⁸⁰ Registered unemployed defined as those registered with the Turkish national employment agency, ISKUR. On average, ISKUR data capture approximately 80 percent of the total unemployed estimated through national labor force surveys conducted by the Turkish national statistics institute, TUIK.

As of 2020, of the over 423,000 beneficiaries enrolled in ALMPs, the national On-the-Job Training Program (OJT) remained the dominant choice (80 percent), with the Vocational and Technical Courses Program (VT) accounting for 20 percent. Among the nearly 1,400 VT courses on offer, clothing and textiles was the most common occupational skill in demand, accounting for nearly one out of three beneficiaries (26 percent). Among nearly 34,000 OJT programs on offer, nearly one in three beneficiaries were in sales or retail occupations (26 percent), followed by clothing and textile-related occupations (14 percent), with the remainder split nearly equally across trades (metallurgy, furniture), hospitality, and other services. Over the past decade, the demand for OJT by occupation has evolved, with a shift towards more skilled manufacturing workers at mid-level and client services.

ALMPs tend to cover younger, less-skilled workers and serve as a pathway to re-skilling and facilitating the transition to new jobs and sectors. Most ALMP beneficiaries are young adults under the age of 34 years (77 percent), heavily concentrated among 20-24-year-olds (33 percent). The majority of ALMP beneficiaries continue hold a primary or secondary education (71 percent), although vocational courses are skewed towards primary-schooled workers than secondary (51 versus 27, respectively). By gender, while no major differences are seen overall and among on-the-job training, vocational course enrollment is skewed towards females relative to males (69 versus 31 percent, respectively). These patterns have been generally constant over time.

The impact of ALMPs is tied to how responsive they are to the demand by firms for certain occupational skills, and shifts expected as a result of COVID-19 will heighten the need for demand-driven training. Administrative and online job vacancy data highlights the need for social as well as technical skills in the formal sector and across regions.¹⁸¹ The demand for skills may have shifted pre- and post-COVID-19, as the need for service sector workers has declined and that for construction, for example, has increased, although it is unclear whether the latter is specifically due to COVID-19. Occupations including routine tasks (such as machine operators, call center information clerks and product graders and testers) and occupations requiring non-routine manual tasks (such as customer service) have historically been in high demand, with wide variations across provinces. Increasingly, IT-related and social skills (such as software knowledge, communication and teamwork skills) and professionalism (discipline, time management) also tend to be in high demand, particularly in regions with higher economic activity. As greater attention is given to building back better and the green economy as part COVID-recovery, targeting skills retraining to youth and first-time job seekers, particularly females, may be especially cost-effective.

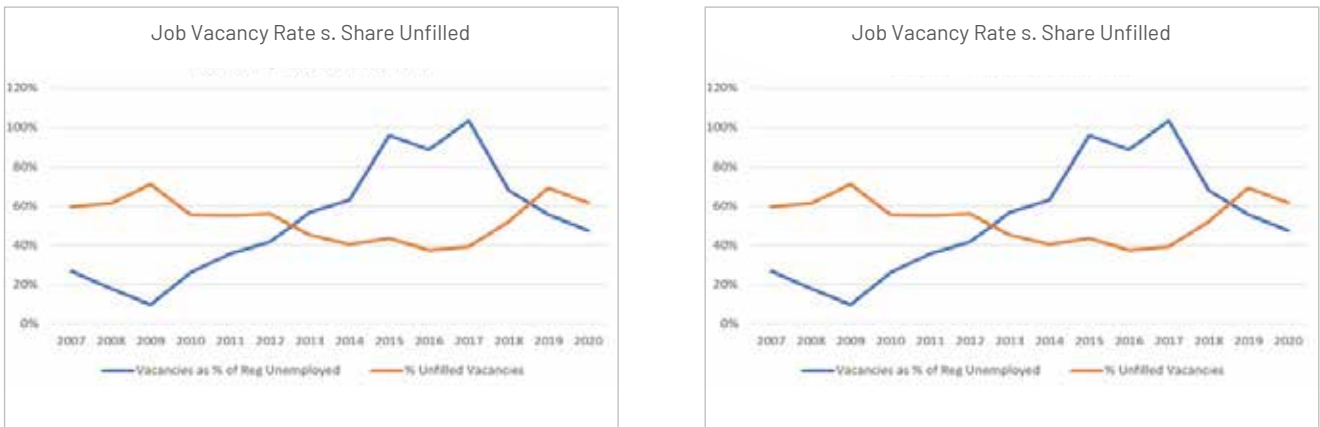
Unemployment benefits also tend to go to less-skilled workers, although they are generally older than ALMP beneficiaries. Unemployment benefits are still relatively nascent in Türkiye, having gone from 221 thousand beneficiaries at their introduction in 2007 to 841 thousand by 2018 as a result of the economic downturn, expanding to 1 million applicants in 2019, with coverage hovering at 26 percent of all registered unemployed. Over 2020, coverage decreased by nearly half to 509 thousand, as labor force exits increased and the layoff ban took effect. Between 2012 to 2018, coverage nearly doubled; at the same time, ALMP coverage remained constant over this period. Unemployment benefits remain concentrated among workers with primary education (50 percent of beneficiaries), followed by secondary (27 percent), suggesting the program appears to be relatively progressive by educational level. Most beneficiaries tend to be younger at 25-44 years (over 70 percent), with 20 percent aged between 45-54 years, and the remainder older. As a policy instrument, unemployment benefits have gradually assumed a greater focus in Türkiye, but the effectiveness of labor market instruments as a whole at improving labor force participation appears mixed.

Job Matching. Along with learning disparities, insufficient early job preparation can delay labor market entry, evident in shifting trends regarding the demand for on-the-job training, but also job matching. While public social investments matter for growth, the nature of spending will be key to effective recovery and long-term inclusive growth. GDP per capita (province-level) is positively associated with student ratio and population density, as well as ISKUR programs (job placements, associated with OJT) and public social sector infrastructure more broadly (Figure 173,174).

Taken together, labor market program investments in Türkiye will need significant strengthening to address the relatively high level of informality, high youth NEET and low female labor force participation rates, exacerbated due to COVID-19. Key areas include: (i) targeting reforms to more transparently identify and include excluded vulnerable informal workers and women in vocational, on-the-job training and wage subsidy programs, particularly in more productive and green sectors; (ii) expanding job matching services and partnerships with the private sector through incentives and regional, routine outreach services; (iii) developing integrated labor market case management services to register and provide routine job counseling to poorer households and vulnerable informal workers; and (iv) consolidating and harmonizing benefit levels across wage subsidy and unemployment benefit programs to ensure more equitable and efficient investments towards boosting job outcomes.

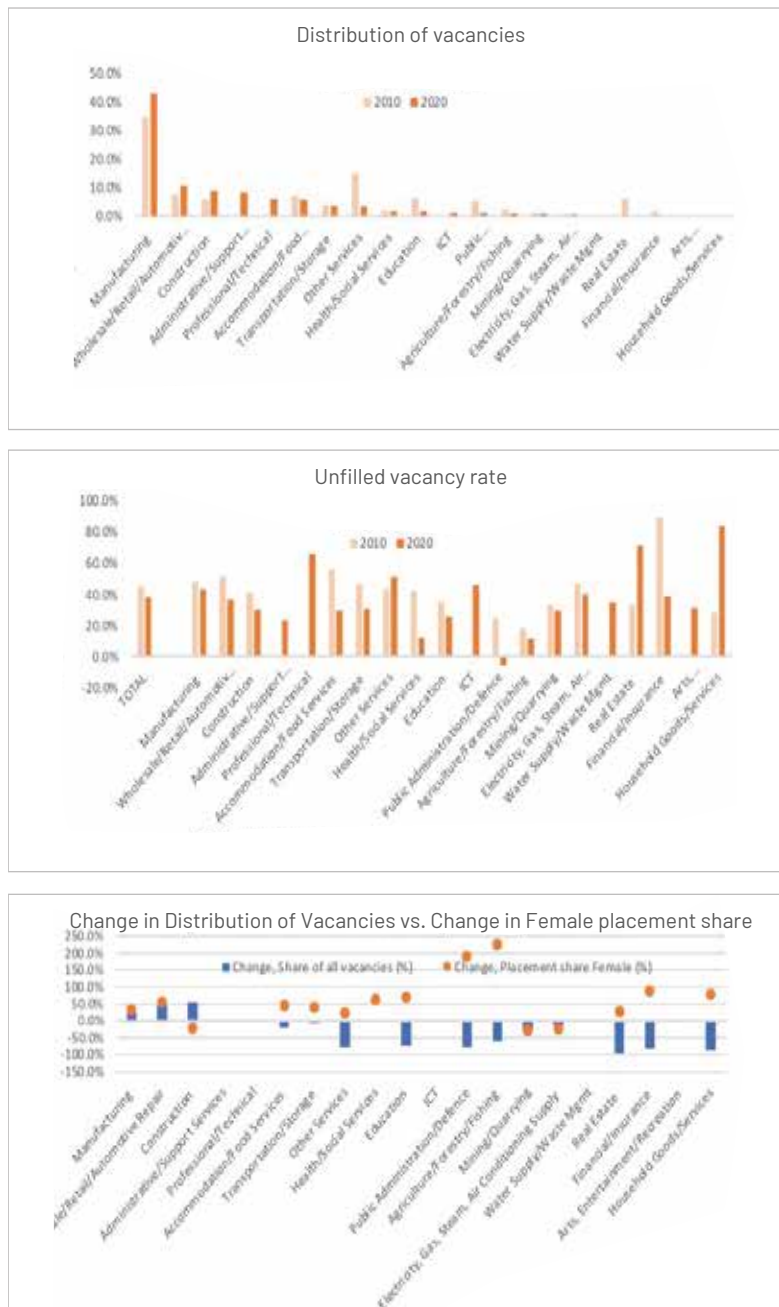
¹⁸¹World Bank, forthcoming; Turkish Employment Agency data.

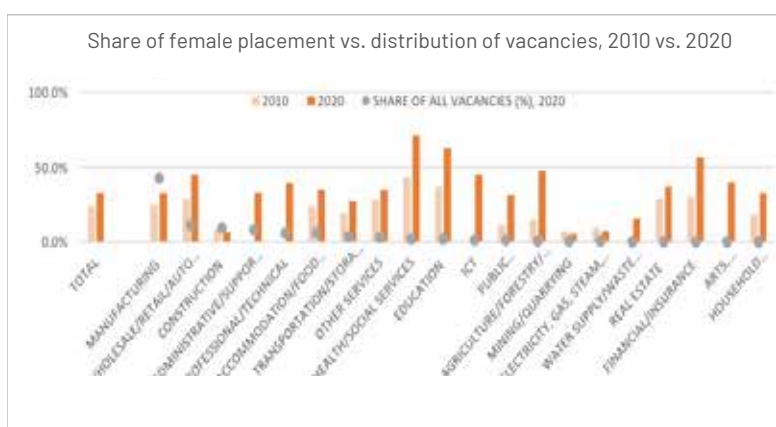
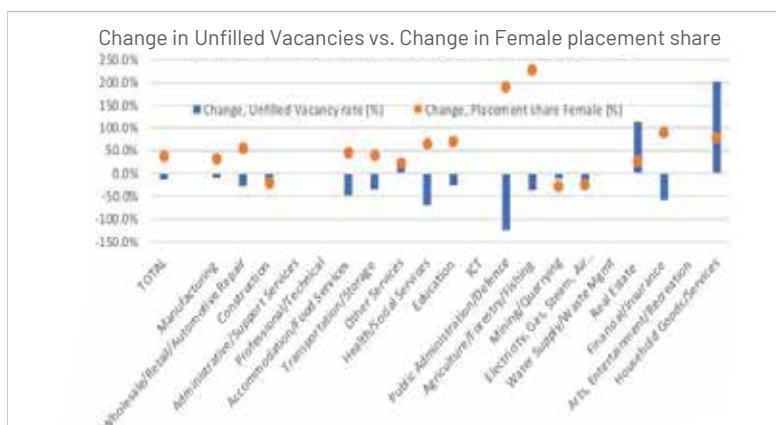
Figure 173: Public Employment Services (ISKUR): Job placement trends



Source: World Bank staff calculations, ISKUR data.

Figure 174: Efficiency of Public Employment Services: Job placement by sector and gender





Source: World Bank staff calculations, ISKUR data.

D. Risk, resilience and integrating social protection and labor investments

Changing demographic profile calls for social protection reforms

As an upper middle-income country, Türkiye's demographic profile is fast approaching its older, more urban counterparts throughout the OECD. Urbanization has been increasing rapidly, with approximately 68 percent of the population living in urban areas across 81 provinces.¹⁸² Integrated indices of socioeconomic development vary across provinces, with northwestern areas faring better compared to southeastern areas.¹⁸³ The proportion of elderly population (65 years and over) is 10.2 percent as of 2019 (most recent data).¹⁸⁴ 22.6 percent of the population is younger than 15 years (0-14 years), and 67.3 percent between 15-64 years. With an aging population, the proportion over 65 years is expected to rise to 16.3 percent in 2040 and 25.6 percent in 2080 according to population projections.¹⁸⁵ By province, the provinces that had the highest proportion of the elderly population were Sinop (18.3 percent), Kastamonu (17.1 percent) and Artvin (15.7), concentrated along the Black Sea.

Türkiye's burden of disease has been shifting to non-communicable diseases, COVID-19 notwithstanding, although health expenditures have not increased significantly on the whole. NCDs account for 89 percent of all deaths,¹⁸⁶ with certain underlying risk factors associated with the COVID-19 disease burden. Underlying risk factors among adults for NCD-attributed mortality include relatively high rates of: tobacco use (28 percent; nearly twice as high among males than females), raised blood pressure (20 percent), diabetes (raised blood glucose (13 percent) and obesity (32 percent; nearly twice as high among females than males).

¹⁸² World Bank (2018). Türkiye Systematic Country Diagnostic. Washington DC: World Bank.

¹⁸³ Turkstat Index of Well-Being, developed by the national statistical institute TUIK, is a composite index covering eleven domains (housing, work life, income and wealth, health, education, environment, safety, civic engagement, access to infrastructure services, life satisfaction), analyzed using 41 indicators. The index value ranges from 0 to 1, with values approximating to 1 state a better level of well-being. See <http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=24561>

¹⁸⁴ Turkish Statistical Institute (2020).

¹⁸⁵ TurkStat (2018) Elderly Statistics 2018. Ankara: TurkStat.

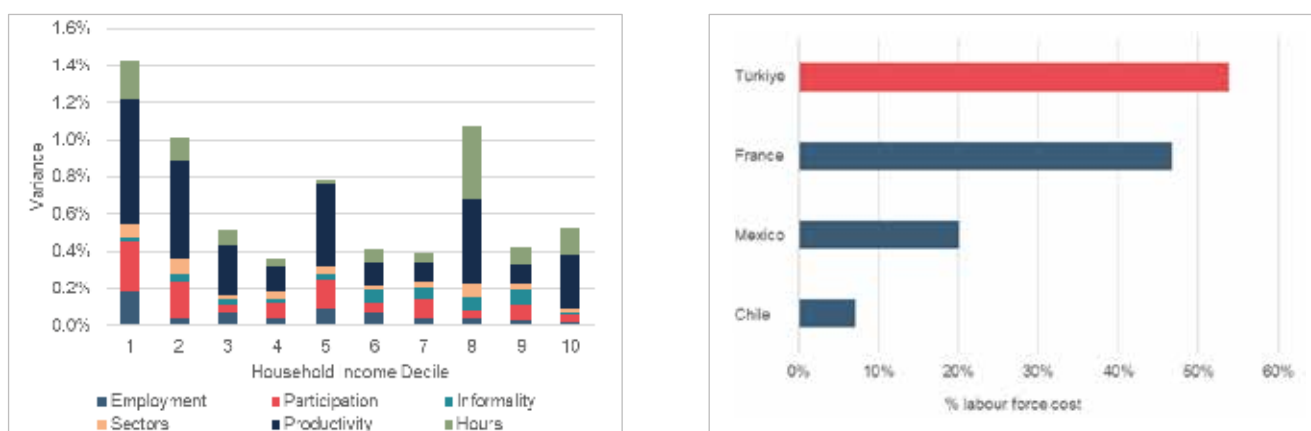
¹⁸⁶ World Health Organization (2018). Türkiye : World Health Organization Noncommunicable Diseases (NCD) Country Profiles, 2018. Geneva: World Health Organization. Most recent data.

Türkiye's overall advanced level of HCI in terms of health has been due to strong investments in public health services and financial protection, which also helped mitigate some of the serious health consequences associated with COVID-19. As part of its national Health Transformation Program since 2003, infant and maternal mortality rates have drastically dropped, the quality of tertiary health care improved, and its research and development capacity have been strengthened, given it aims to boost the sector as an engine of growth. At the same time, health care coverage in terms of human resources, remains below the average for the region and comparable economies, suggesting potential capacity constraints to address pandemics especially in high-density areas. The number of physicians and nurses per capita, for example, is nearly 30 to 60 percent less than the average for the Europe and Central Asia (ECA) region and that of the OECD as of 2015 (most recently available comparative data)¹⁸⁷, despite recent increases in nurse ratios. Türkiye has 536 persons per physician, with a total of over 153 thousand physicians nationwide.¹⁸⁸ The Ministry of Health Strategic Plan emphasizes the importance of increasing the number of the primary health care (PHC) workforce and sets higher targets for 2030.¹⁸⁹

Labor vulnerabilities are particularly evident among the lowest income over the past decade. Over a ten-year period (2008-2019), the likelihood of formal employment, all else held equal, was significantly highest among highly skilled males, adults older than 25 years, and heads of households, and significantly lowest among divorced and widowed workers. Similar determinants are seen with respect to formal self-employment versus informal self-employment. In terms of economic sector, all else held equal, informality is significantly highest in agriculture. For these reasons, the determinants of labor income over a decade show that earnings' growth among the lowest-income households are attributed to labor productivity and hours worked. Earnings declined with working hours and increased with productivity, favoring high-income households. All deciles witnessed a modest boost from switching to more productive sectors and to formal jobs. Likewise, changes in labor income over the same period showed that low-income households were highly sensitive to changes in productivity and working hours. COVID-19 has had a significantly higher impact on employment and earnings, all else held equal, on women, youth, unskilled and informal sector workers, regardless of sector.

Given labor productivity risks, Türkiye's labor market is relatively more sensitive to shocks than in comparable countries. The Future of Work will also increasingly require a holistic view of labor and social risk mitigation.¹⁹⁰ With lagging productivity across sectors with high shares of employment and the exclusion of informal workers, financial inefficiency and inequity are growing in the system. Labor costs in Türkiye at over 50 percent as a share of commercial profits, or overall productivity, are relatively higher than in France, Mexico and Chile, which has among the lowest share of labor costs. Productivity in Türkiye is also low relative to its level of minimum wage. Labor costs in Türkiye are related to social security contributions, including unemployment insurance, old-age pensions, health insurance coverage (with subsidies for informal workers) and implicit costs associated with dismissal procedures. Payments by employers to dismissed workers are relatively generous in Türkiye in terms of the equivalent number of months' wages received compared to Brazil, Malaysia or France. The structure of the system imposes an economic burden on employers, limits portability of benefits, and leads to negative incentives and distortions for hiring and firing. A reformed system should look to decrease costs to employers and increase coverage for workers, within the scope of integration with social insurance (Figure 175).

Figure 175: Labor Productivity Risks



Source: World Bank staff calculations based on World Bank (2019) and Palacios and Robalino (2020).

¹⁸⁶ World Health Organization (2018). Türkiye : World Health Organization Noncommunicable Diseases (NCD) Country Profiles, 2018. Geneva: World Health Organization. Most recent data.

¹⁸⁷ World Bank World Development Indicators (WDI).

¹⁸⁸ TurkStat, 2018. Most recent data.

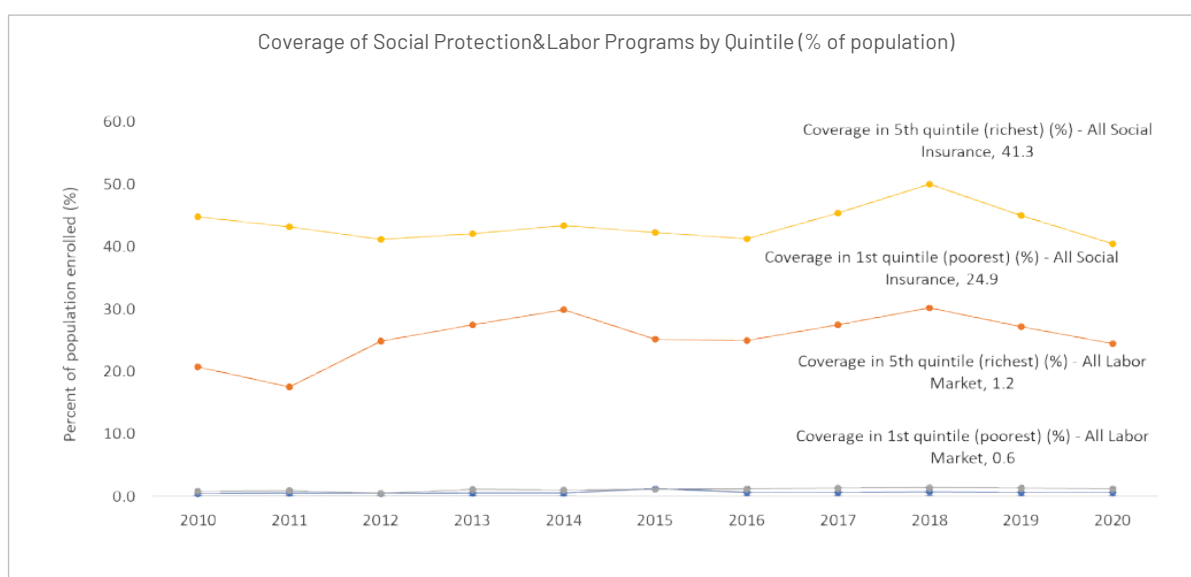
¹⁸⁹ World Bank (2019). Building an improved primary health care system in Türkiye through care integration. Washington DC: World Bank.

¹⁹⁰ See World Bank (2019). Protecting All: Risk Sharing for a Diverse and Diversifying World of Work. Washington DC: World Bank; and Palacios and Robalino (2020). Integrating Social Insurance and Social Assistance Programs for the Future World of Labor. IZA DP 13258. Bonn: IZA Institute of Labor Economics.

Greater integration among Türkiye's social insurance programs can potentially improve coverage, efficiency and equity

Overall Social Insurance. The Turkish social security fund (SGK) currently provides health insurance and protection from old-age risk to approximately 22 million workers, with approximately 15 pensioners in the public and private sector (9 million excluding public sector) as of 2018 and 13.5 million pensioners as of 2021.¹⁹¹ This amounts to nearly 68 percent of the labor force and 86 percent of the older population. By household income, social insurance coverage ranges from 24.9 percent among the lowest-income quintile to 41.3 percent among the highest-income quintile.¹⁹² The demand for social insurance is increasing rapidly in the face of both a young population, a persistent share of the labor force working informally and an increasing cohort of over 65-year-olds. Over the medium-term, given the loss in wages expected due to COVID-19, the financial viability of SGK will need to be rapidly assessed and financing revisited to account for a diversifying jobs landscape (Figure 176).

Figure 176: Overall coverage of social protection and labor programs by quintile



Source: World Bank World Development Indicators and ASPIRE Database. Estimates for 2016-2020.

Pensions. Türkiye's pay-as-you-go pension system has recently consolidated separate schemes, with an effort to align contributions and benefits more closely. The pension fund is financed by a pay-roll contribution of 20 percent (9 percent employees and 11 percent employers). Workers can retire at age 61 if women or 63 if men and replace 2 percent of their last salary for each year of contribution to the system. There is also a minimum pension of TL 1,402, raised to TL 1,500 in 2020, which represents approximately 42 percent of average earnings. The system also offers survivorship and disability pensions and other benefits such as maternity leave, compensation for temporary incapacity, and insurance against work accidents and occupational hazards. However, only the last year of salaries is included in the calculation of the pension; the accrual rate is not linked to the level of the contribution rate, life expectancy at retirement, and the sustainable rate of return of the system; and financing for minimal pensions is effectively implicit. This generates regressive financing, where higher-income workers benefit to a greater extent, potentially reducing incentives to create formal jobs. The system is therefore accumulating unfunded liabilities that harm long-term financial sustainability.

Unemployment Insurance. Expenditures on unemployment insurance, administered by the Turkish Employment Agency, bear benefits that are not closely aligned to contributions; in this case, they may adversely affect low-income workers from seeking more productive employment as design. Türkiye has a standard unemployment insurance scheme for formal wage employees that covers around 22.7 percent of the unemployed at a cost of 0.19 percent of GDP. The scheme is financed by a contribution rate of 4 percent (1 percent employees, 2 percent employers, and 3 percent the government). The unemployment benefit is equal to 40 percent of the salary and has a duration of 4 months.

¹⁹¹ Republic of Türkiye Social Security Institution (SGK) (2019). Organizational Profile and Overview of the Social Security System in Türkiye. Ankara: SGK. Republic of Türkiye and World Bank (2017). Data on retirees receiving pensions benefits reported by SGK as of 2021 shows 13.5 million beneficiaries on a file basis and 12.7 million beneficiaries on a person basis.

¹⁹² World Bank WDI, ASPIRE Social Protection and Jobs database.

Table 20: Detailed Social Protection and Labor Expenditures and Coverage, 2015-2019

A.Pensions	2015	2016	2017	2018	2019
Insured	20,913,338	21,272,012	22,421,748	22,215,231	22,137,342
Pensioners	7,944,373	8,207,381	8,493,984	8,822,664	9,079,479
Coverage (% LF)	70%	70%	71%	69%	68%
Coverage (% 60+ POP)	88%	88%	87%	87%	86%
Expenditures (Millions TL)	166,234	201,754	229,671	266,395	298,615
Pension Payments	133,515	162,139	184,984	214,133	240,032
Survivor Payments	32,719	39,615	44,687	52,262	58,583
Expenditures (% Current GDP)	7.1%	7.7%	7.4%	7.2%	7.0%
Pension Payments	5.7%	6.2%	5.9%	5.7%	5.6%
Survivor Payments	1.4%	1.5%	1.4%	1.4%	1.4%
B.Unemployment Insurance	2015	2016	2017	2018	2019
Insured	14,462,847	15,006,103	16,054,439	15,800,234	15,777,952
Beneficiaries	43,745	64,499	54,958	91,011	1,013,056
Coverage (% LF)	48.7%	49.1%	50.7%	49.0%	48.4%
Coverage (% Unemployed)	1.4%	1.9%	1.6%	2.6%	22.7%
Expenditures (Millions TL)	2,193	3,683	3,834	4,824	7,985
Expenditures (% Current GDP)	0.09%	0.14%	0.12%	0.13%	0.19%
C.active Labor Market Programs (ALMP)	2015	2016	2017	2018	2019
Almp Expenditures (Millions TL)	15,024	19,550	23,748	28,598	32,308
Non-Wage Subsidies	3,564	5,725	5,085	6,252	6,625
Wage Subsidies	11,459	13,825	18,664	22,346	25,682
Expenditures (% Current GDP)	0.6%	0.7%	0.8%	0.8%	0.8%
Non-Wage Subsidies	0.2%	0.2%	0.2%	0.2%	0.2%
Wage Subsidies	0.5%	0.5%	0.6%	0.6%	0.6%

D.Health Insurance	2015	2016	2017	2018	2019
Total Covered Individuals	77,402,060	77,611,638	80,622,172	80,851,993	82,169,815
Individuals Not Paying Health Insurance	53,808,985	54,450,366	55,877,740	56,243,675	57,647,859
Individuals Paying Health Insurance	23,593,075	23,161,272	24,744,432	24,608,318	24,521,956
Coverage Of Paying Individuals (% LF)	79.5%	75.9%	78.2%	76.2%	75.3%
Coverage Of Covered Individuals (% LF)	99.0%	97.9%	100.4%	99.3%	99.5%
Expenditures (Millions TL)	80,463	91,330	103,077	121,444	146,904
Health Insurance Payment (Contributory & Subsidized)	59,356	67,993	77,632	91,512	110,697
Health General Government Expenditures (MOH)	21,107	23,337	25,445	29,931	36,206
Expenditures (% Current Gdp)	3.4%	3.5%	3.3%	3.3%	3.4%
Health Insurance Payment (Contributory & Subsidized)	2.5%	2.6%	2.5%	2.5%	2.6%
Health General Government Expenditures (MOH)	0.9%	0.9%	0.8%	0.8%	0.8%
E.Social Assistance	2015	2016	2017	2018	2019
Coverage Of General Cash Programs	3,271,121	3,493,505	3,580,483	3,694,411	-
Coverage (% All Households)	14.9%	14.9%	14.9%	14.9%	-
Expenditures (Millions TL)	12,828	17,537	20,819	22,874	26,288
Expenditures (% Current GDP)	0.55%	0.67%	0.67%	0.61%	0.61%

Source: World Bank staff calculations based on coverage from data from SGK; Ministry of Labor and Social Security, ISKUR; Ministry of Family and Social Services; Ministry of Health; TURKSTAT; Ministry of Treasury and Finance; and OECD, EUROSTAT and WDI data review.

Figure 177: Illustrative analysis of social insurance financing gaps by household income level, Türkiye



Source: World Bank staff calculations based on World Bank (2019) and Palacios and Robalino (2020).

Health Insurance. While Türkiye has made important strides in subsidizing universal health insurance for low-income households, the challenge is to link financing to the evolving cost of care equitably. Although the subsidized system links contributions to the average per capita cost of the package of health services, the contributory system relies on pay-roll taxes. This implies that workers contributions are not linked to the expected cost of the health services they receive, which depends on age and family structures and health risk profiles. Hence, some workers might be paying more than the expected costs (an implicit tax) while others pay less (an implicit subsidy). This implicit redistribution can be regressive and can also reduce incentives to enroll, particularly among low-risk population such as youth who are single.

Social Assistance. Türkiye’s social assistance schemes (of which-over 45, with cash assistance the dominant form across these schemes) account for 1.36 percent of GDP.¹⁹³ In 2021, 5.9 million households (number of households including pandemic social assistance) receive social assistance (cash or in-kind). The ratio of the resources allocated to cash aids in all aids is 94 percent. The Integrated Social Assistance Information System (ISAS), managed by the Ministry of Family, Labor and Social Services (Social Assistance Directorate), links applicant data across over 120 databases from 28 institutions, using real time information to assess eligibility. Over 17 million households (57 million individuals) are registered in ISAS’s Single Registry. As of 2014-2019, the coverage rate for social assistance (notably cash transfers) in Türkiye was approximately 60 percent among the lowest quintile. Noting that Türkiye has in place other policies to support the poorest households through in-kind social services, Türkiye’s coverage is relatively lower than the coverage rate for the poorest quintile in Chile (93.8 percent), Russian Federation (83.4 percent), Romania (74.7 percent) and Mexico (88.3 percent).¹⁹⁴ In addition, social assistance benefits are generally low, typically approximately 10 percent of household expenditure needs although some cash and in-kind benefits provide higher benefits. In general, however, this level is lower than in comparator countries that provide at least 15-20 percent. Nonetheless, Türkiye has taken an important step in its social assistance system with the “Family Support Program” put into practice in June 2022, building on its well-established institutional, policy and delivery systems foundation through one of the most sophisticated information systems used to monitor, target and deliver benefits nationwide.

Simulating Fiscal Space for Integrating Labor and Social Protection Schemes. Greater integration among Türkiye’s social insurance programs, together with social assistance, can potentially improve coverage, efficiency and equity. Stylized, illustrative analysis shows that while greater fiscal space is needed for an integrated scheme, equity, incentives for productivity and administrative simplification improve for beneficiaries over the long-term. Currently, costs are expected to rise from 12 to 15 percent of GDP, but regressive financing, inequitable benefits and thirty percent informality would remain. Increasing spending by 2 percent of GDP allows a more progressive alignment of contributions and benefits, but coverage remains the same. For both fiscal harmonization and universal coverage to be achieved, an increase of nearly 4 percent of GDP would be needed, essentially putting Türkiye on par with OECD countries. The current social insurance system would need to adapt in

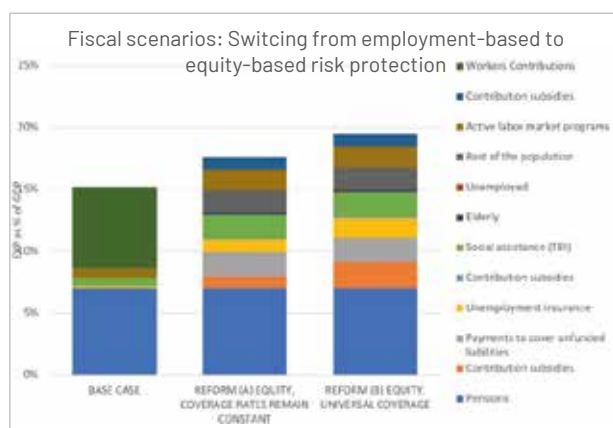
¹⁹³World Bank, Türkiye Social Assistance Review (forthcoming).

¹⁹⁴World Bank ASPIRE Database.

the following ways: (i) similar to health insurance, creating a simplified social insurance means-testing approach to collecting contributions and providing targeted subsidies to informal workers, rendering minimum pension and unemployment benefit-setting explicit; (ii) integrating non-contributory social assistance transfers into the contributory social insurance scheme, effectively rendering them as tiered subsidies (tapered basic income, i.e., TBI) to participate in a national risk pool; and (iii) harmonizing unemployment insurance and active labor market program parameters to strengthen incentives for labor force participation for work-able beneficiaries (Figure 177, 178).

Integrating social protection investments would imply that all workers and households are treated equally. Contributions are more closely linked to benefits, with progressive and appropriately designed subsidies based on capacity-to-pay, regardless of sector or status. Informal workers and the self-employed would be able to enroll in the same system as formal wage workers, similar to how Türkiye’s reformed universal health insurance scheme operates. The key feature is to define benefits, contributions and subsidies more explicitly, a shift from the current system, enabling a more managed financing formula to adjust to evolving demand and unit costs over time. Importantly, integrating non-contributory social assistance with contributory social insurance schemes allows a more rational and equitable approach to offering subsidies based on capacity, facilitation and incentives to work. Building on Türkiye’s well-designed social information management systems, greater harmonization across schemes likewise allows outreach to informal and poor households, including identification, profiling, means-testing and contribution/savings management.

Figure 178: Illustrative Fiscal Scenarios for Integrating Social Risk Mitigation, Türkiye



Source: World Bank staff calculations based on World Bank (2019) and Palacios and Robalino (2020).

Conclusion: Towards a whole-of-government approach to human capital investments

Overall, COVID-19 has exacerbated underlying human capital vulnerabilities in Türkiye, calling for renewed investments to boost allocative efficiency. While a more rigorous analysis of allocative efficiency is needed to more substantively quantify the determinants of human capital over time in Türkiye, key trends emerge. Social expenditures in some dimensions appear increasingly more efficient at boosting outcomes to date, largely due to having been better adapted to future needs early. Human capital as an aggregate index, basic learning outcomes, NEET rates and labor force participation among low-income adults, females, and youth are sensitive to multiple simultaneous factors in Türkiye, but certain investments and policies may boost these outcomes more than others. At an aggregate level and over the last decade, health spending in Türkiye appears to be the most efficient as compared to education, social protection and labor expenditures towards meeting sector-specific aims. This is evidenced by the relatively high health-related HCI components and the relatively lagging education-related components. Further, despite spending on social transfers, poverty has nonetheless increased significantly, suggesting

that targeting, benefit levels across programs and the choice of instruments may be imbalanced. To improve efficiency towards poverty-reduction goals, broadening employment- and skills-related support to female youth, poorer households and informal workers, as opposed to increasing income support alone or expanding support to the formal sector, would likely boost efficiency of social spending. At this stage in Türkiye's trajectory, accelerating the rate of investment in modernizing curricula, technology-based learning and teaching practices would boost learning outcomes to a greater extent than accelerating investments in basic infrastructure.

Given particular challenges facing vulnerable female youth, an integrated approach to social investments based on performance and outcomes can help set a new trajectory. This analysis has demonstrated the limits of addressing their challenges through silo-based policies. High female youth NEET rates, high female labor force exclusion and wide regional disparities in learning and jobs persists. While an exhaustive discussion of all aspects of the quality of public services is beyond the scope of this discussion, key policy measures come to the forefront over the near-term, combined with broader measures below. Emerging programs in Türkiye are already experimenting with conditioning and incentivizing financing on performance, which has shown strong results across domains, from poverty-reduction through cash transfers (conditioned on investing in girls' human capital) to on-the-job training incentives to firms and vocational training (conditioned on females' inclusion). Specifically, performance-based policies can be expanded across three priority areas facing the greatest lag in outcomes, although other programs can follow suit: (i) basic education in lagging regions to retain girls in school; (ii) across MoNE vocational training and ISKUR on-the-job training in key sectors with low female participation (manufacturing, industry and technology-based services); and (iii) within access to finance policies for firms, such as that being piloted currently by the Development and Investment Bank of Türkiye (TKYB).¹⁹⁵

Moving forward, a whole-of-government approach to human capital will boost key equality of opportunity, mainstreaming outreach to lagging regions and among female youth for the greatest aggregate impact. Greater fiscal space and adaptation to evolving needs for social expenditures is needed to boost post-COVID recovery efficiently. In sum, key policy areas include:

- **Over the short-term: stepping up incentives for closing the access gap in key areas by:** (a) substantively increasing investment in digital and green curricula and training, particularly in key lagging regions with lower PISA scores; (b) despite adequate basic school infrastructure and the number of teachers, in line with the first aim, introducing new competency assessments and incentives for teacher training and performance to level the playing field across regions, in close cooperation with the private sector and line agencies responsible for industry, trade, agriculture, environment and others;
- **Over the mid-term, closing the quality of the school-to-work gap by:** (a) strengthening investments in secondary education through dedicated job counseling and training early on to facilitate the school-to-work transition; (b) expanding coverage, new mechanisms for targeting and a more strategic design of demand-driven active labor market training programs and wage subsidies to address female labor force participation, digital transformation, and green jobs;
- **Over the long-term, unifying risk-sharing mechanisms and coverage by:** (a) harmonizing benefits, parameters and financing approaches to social assistance, unemployment benefits, old-age (pensions) and health insurance programs within a unified, holistic social insurance system; (b) reforming eligibility for the poorest and informal workers to labor market programs; and (c) modernizing delivery systems through greater mobile outreach counseling, technology-based payment, identification, registration and training systems for the most vulnerable households, particularly lagging regions.

Overall, while human capital in Türkiye has achieved strong gains in recent decades, the time is ripe for it to reset its trajectory through bold policy reforms for a new era.

¹⁹⁵World Bank (2020). Project Appraisal Document for a Formal Employment Creation Project (P171766). Report No PAD3491. Washington DC: World Bank.

V. Social assistance in Türkiye: Expenditure, performance and outlook |

Social assistance¹⁹⁶ programs, also known as social safety nets, are called to play an important complementary role to support the poor and vulnerable households' access to basic income and services, and cope with adverse situations. While the main drivers of poverty reduction are human capital, good jobs and access to markets, all of which show significant progress in Türkiye, international evidence shows that social assistance programs can also be instrumental to mitigate structural and transitory elements of poverty and inequality and support the formation of human capital.. There is widespread evidence of the effectiveness of safety nets and cash transfer programs to support vulnerable household's basic needs and promote human development outcomes. Across many countries and contexts, including in Türkiye, those programs have helped boost household consumption, and improve health and education outcomes of children.¹⁹⁷ Their effectiveness varies around the world, and depends on balancing and achieving a good design, an adequate expenditure level, and functioning implementation arrangements.

As COVID-19 pandemic increased vulnerabilities, Türkiye's social safety nets have played a key role in responding to the crisis. The COVID-19 pandemic has posed important risks to the welfare of Türkiye's population. The social assistance system has reacted quickly to support the poor and vulnerable households. One-time income support programs have been enacted for both the formal and informal sectors. Beneficiaries of the social assistance system have been supported with additional cash transfers to cope with increasing costs of health expenditure during COVID-19 pandemic.

The objective of this report is to assess the social assistance system in Türkiye with a forward-looking perspective as the country seeks to deepen the significant poverty reduction achieved in the last two decades and the setbacks caused by recent shocks. The chapter is organized in 3 sections. Section A presents the main features and evolution of Türkiye's social assistance system, including expenditure trends, programs, and implementation arrangements. Section B looks at main performance indicators: coverage, adequacy of benefits, incidence, and impact on poverty. The assessment is done for the system as a whole, and for program types. Section 3 provides a forward-looking policy discussion, with opportunities for improvement that emerge from the analysis.

A. Social Assistance System and Expenditure

Social assistance system is relatively young in Türkiye

Social assistance (SA) has been in a continued process of development since its inception and its share in the overall social protection (SP) is increasing. The SP system has historically been based on a traditional model of social security, whereby pensions (old-age, survivors' and disability), health insurance, work injury, non-pension disability benefits, and unemployment benefits, are all linked to employment in the formal sector and are financed by employer and employee contributions.¹⁹⁸

As the overall social assistance system evolved, a greater focus was placed in developing non-contributory social protection schemes, including social assistance transfers and services. The foundations of the current social assistance system were created in 1976 with the approval of Law 222,¹⁹⁹ which provided a small monthly benefit payment to the elderly or disabled poor, though coverage remained low (Figure 179). It was supplemented in 1986 with Law 3294,²⁰⁰ which established the Social Assistance and Solidarity Fund (SASF) as the primary institution for providing social assistance to poor citizens who remained outside the social insurance system. The government has increasingly utilized the SASF since the second half of the 1990s (Murakami 2011).

¹⁹⁶ This chapter draws on the World Bank report, "Social Assistance Review".

¹⁹⁷ Ferre and Sharif 2014 in Bangladesh; Barrera-Osorio et al 2008 in Colombia; Fiszbein et al 2009 in developing countries; World Bank 2011 in Indonesia; Saavedra and Garcia 2012 in developing countries; Osei-Akoto et al 2014 in Ghana; Pellerano et al 2014 in Lesotho; Orbeta Jr. et al 2014 in Philippines.

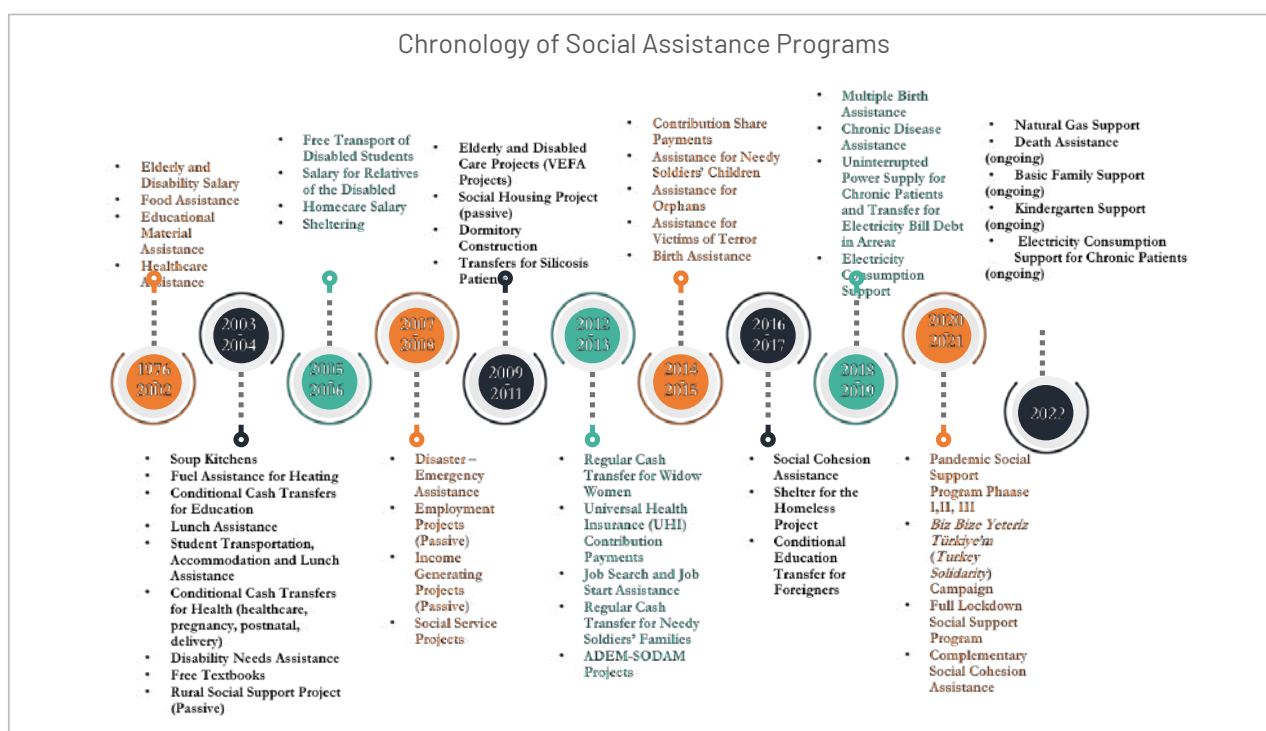
¹⁹⁸ Social security in Türkiye was first introduced in 1949 (old age) and 1957 (old-age, disability and survivors). Under the current legal provisions, social security covers employees working under a service contract in the public or private including civil servants, self-employed persons, and full time household workers. Voluntary coverage is available as well. See: Social Security Programs Throughout the World 2016. <https://www.ssa.gov/policy/docs/progdesc/ssptw/2016-2017/europe/Türkiye.pdf>

¹⁹⁹ Law on the Payment of Pensions to Old-Aged Persons [65 years old and over] who are Destitute.

²⁰⁰ Law on Social Assistance and the Solidarity Fund.

The government made social assistance²⁰¹ a consistent priority over the last two decades. Following the financial crisis in 2001, the flagship universal health insurance program for the poor (previously known as the Green Card Program) was rapidly expanded,²⁰² and several new programs, including the provision of coal and food and a conditional cash transfer (CCT) program, were established. Education programs were also implemented in order to facilitate access to basic education, including free textbooks, school lunches, and a transport and shelter subsidy. In 2005, following the adoption of the Turkish Disability Act, the disability non-contributory pension under Law 222 was significantly increased and a new Home Care Support Program for those caring for disabled family members at home was implemented. Housing programs were implemented in 2006 and 2009. New pensions for the widows and families of soldiers serving compulsory military service were implemented in 2012 and 2013, respectively. These programs successfully increased the coverage of low income households that would not be able to participate in the labor market due to their vulnerabilities (disabled, widow women, elderly etc.). In 2021-2022, the government announced new social assistance programs, gas and electricity bills support for the poor and transfer for families with multiple births (twins, triplets, etc.). Türkiye began to implement a minimum basic income program ("Family Support Program) in June 2022. This program aims to deliver cash transfers to low income households independent of their vulnerabilities.

Figure 179: Social Assistance System in Türkiye expanded rapidly over the last two decades



Source: Ministry of Family, Labor and Social Services

²⁰¹ The Ministry of Family and Social services defines social assistance as all non-contributory transfers that are delivered to households. Although some of these transfers are not managed by the Social Assistance department, it is still categorized as social assistance.

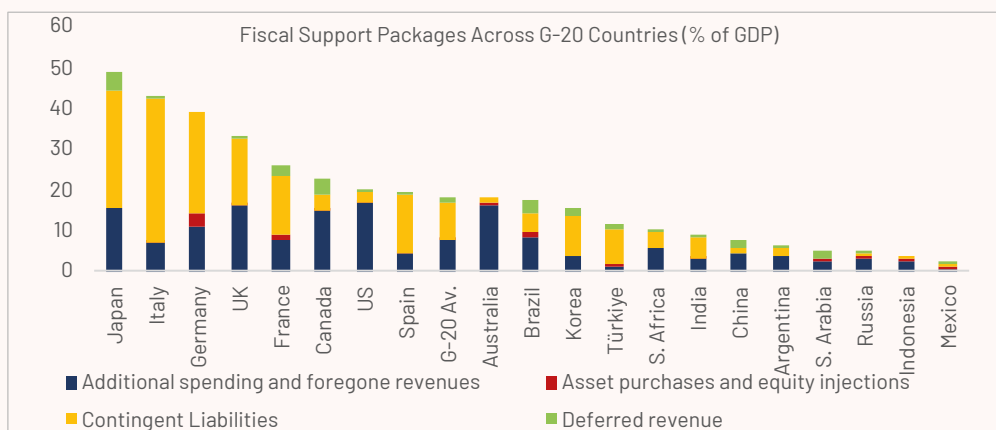
²⁰² In general, universal health insurance (UHI) does not normally get counted as social assistance, since essentially, it is an issue of access to health and health care financing. However, fee waivers are generally considered as part of social assistance, and in Türkiye the UHI program is waiving insurance premiums for the poor.

In response to COVID-19 pandemic, the social assistance system has reacted swiftly, and income support actions have been enacted for vulnerable households. The COVID-19 pandemic has affected many households significantly and increased the vulnerabilities. The government has taken additional measures to mitigate the adverse impact of the pandemic (Box 12). One-time income support programs have been enacted for both the formal and informal sectors. Beneficiaries of the social assistance system have been supported with additional cash transfers to cope with increasing costs of health expenditure during COVID-19 pandemic. On the other hand, as shown in Box 12 below, without the government response (social transfers, unemployment insurance benefits, and unpaid leave subsidies), poverty could have increased almost three times as much.

Box 12: Measures taken by the SA System during the COVID-19 Pandemic

The COVID-19 crisis has caused a health emergency and a widespread slowdown in economic activity where many firms forced to ask employees to take unpaid leave or had to lay off their informal workers. As many households were impacted by the pandemic, the social assistance system has reacted swiftly, and income support actions have been enacted for vulnerable households. The following measures have been taken by the SA system

- **Social Support Program was implemented:** One-time cash transfer program for over 7.2 million households was delivered. Each household was entitled receive 1.100 TL , reaching a total of 10.9 billion TL²⁰³.
- **“State of Emergency” was declared:** Additional support was delivered to households, that were entitled to receive only periodic transfers, if those households were evaluated as unable to meet their basic needs by the SASFs.
- **Monetary value of some programs was increased:** The amounts of certain social assistance programs have been increased around 40 percent to 328 percent.
- **Periodic payments were increased:** To provide more rapid support to vulnerable households, periodic payments to SASFs was increased from 188 million TL to 229 million TL
- **Additional periodic payments were delivered:** Over 1 billion TL was distributed to SASFs as additional periodic payments.
- **In kind transfers, potatoes, and onions, were distributed to households.**



Thanks to ISAS and SASFs, Turkish social assistance system delivered additional supports to vulnerable households in a timely manner with high targeting accuracy. The COVID-19 social assistance measures managed to mitigate to a large extent the negative effects of the crisis. According to simulation results, poverty in 2020 could have increased to 17.4 percent without any measures by the government. While social insurance and labor market emergency programs decreased the incidence of poverty from 17.4 percent to 13.6 percent, first three phases of the Social Support Program helped to further reduce poverty from 13.6 percent to 13.2 percent.

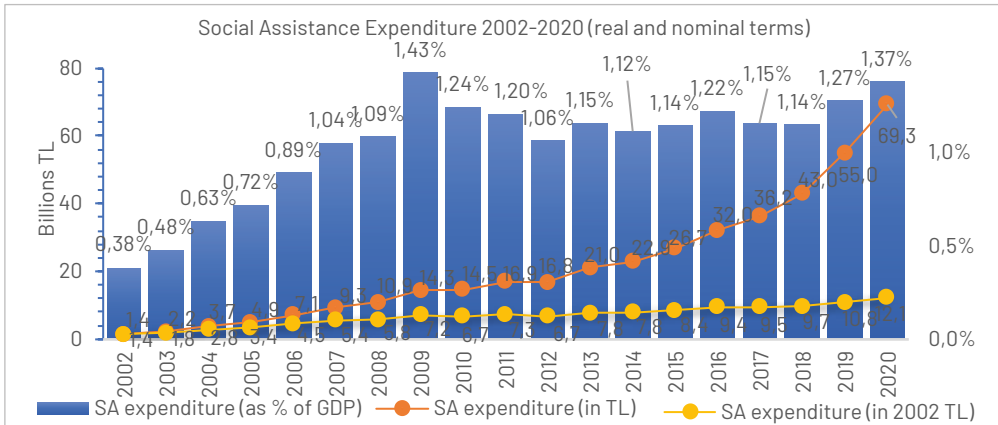
²⁰³ Between 29 April and 17 May 2021, a new program has been introduced to provide support to households during strict restrictions.

Social assistance spending has been growing but there is room for improvements

Social assistance spending has increased significantly in monetary terms. Total coverage of the social assistance system has increased, with programs now providing support, in the majority of cases in cash, to roughly 3 million discrete households, which amounts to about a seventh, or 14 percent, of all Turkish households. In 2021, the number of households benefiting from social assistance programs reached 5.9 million when the number of people covered by the COVID-19 programs are included. Overall, public social assistance has developed slowly over time. Spending on social assistance as a share of GDP has increased 0.38 percent in 2002 to 1.37 percent in 2020 (Figure 180). In real monetary terms, during that period social assistance expenditure increased 8-fold from 1.5 to 12.1 billion TL (using constant TL of 2002). The trend clearly reflects the period of more rapid expansion of the system from 2002 to 2009. After 2009, social assistance expenditure continued its upward trend but at a much slower pace. In real terms, the increase from 2009 to 2019 reached 70 percent, and relative to GDP social assistance efforts stagnated.

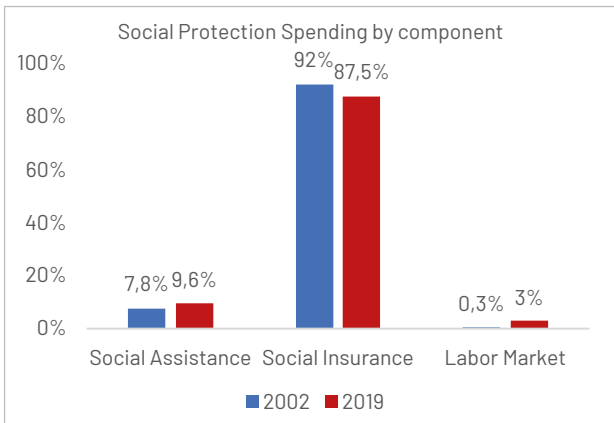
Share of the public social assistance has been growing, but still remains a relatively small component of the whole social protection expenditure. Social assistance expenditure has more than tripled in the last 15 years, but while the overall social protection system takes around 9 percent of GDP, social assistance takes only 1.4 percent. It represents around 9.6 percent of social protection expenditures (Figure 181). The lion’s share of social protection spending is taken by social insurance, with over 7 percent of GDP. This disparity is to a large extent expected since contributory pensions will generally represent more resources than any other category of expenditure as highlighted in Chapters 3 and 4.

Figure 180: Social Assistance Expenditure rose significantly in monetary terms



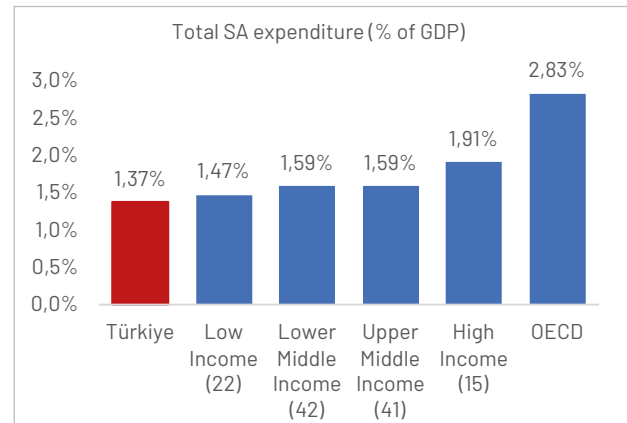
Source: Ministry of Family, Labor and Social Services

Figure 181: Social assistance expenditure represents around 10 percent of social protection expenditures



Source: TURKSTAT, WB staff calculations

Figure 182: Social assistance expenditure in Türkiye lags behind OECD average



Source: The Atlas of Social Protection Indicators of Resilience and Equity, World Bank, 2020

Türkiye's overall spending on social assistance continues to be relatively low compared to other countries. As percent of GDP, the average OECD country spends almost twice the amount that Türkiye spends (Figure 182). After a decade of developing its social assistance system, Türkiye spends 1.37 percent of its GDP. This is lower level of spending than the average low-income country and middle-income country. On a positive note, the share of social assistance in social protection spending increased between 2002 and 2020. Once in place, the planned "Family Support Program" will contribute to continue growing the spending on social assistance.

Social assistance programs address multiple dimensions of wellbeing

There are 45 social assistance programs or schemes in Türkiye, focusing on supporting access to 5 different dimensions of wellbeing or needs: basic income, housing, food, education and health²⁰⁵. All in all, the system does not seem excessively fragmented²⁰⁶, and there does not seem to be evident problems of overlap or duplication between programs. Transfers can be divided into long-term (continual) cash programs and one-time support programs. The General Directorate of Social Assistance (GDoSA) delivers 18 long-term cash transfer programs (3 of which funded by the European Union for Syrian refugees in Türkiye) to households while the rest of the programs are one-time supports to households to mitigate emerging risks and generally led by other ministries and institutions. Long-term social assistance transfers accounted for the 83 percent of the resources transferred to the social assistance programs carried out by the GDoSA in 2021. The new programs considered by the Government seek to cover households that are not meaningfully supported by the existing social assistance schemes.

Income support transfers to direct beneficiaries is the most common modality to support vulnerable populations. Income support programs include in-kind transfers of food and coal to the household; conditional cash transfers (CCT) to promote children's access to education and health; and cash transfer to widowed women, elderly, disabled, and home-base caretakers of elderly and disabled.

Another important modality of support includes fee waivers or subsidies to service providers. These are used in particular to promote access to health care, education, and housing. The Universal Health Insurance program transfers to the Social Security Institution a subsidy to facilitate access of poor households to health care. Basic and secondary education support programs transfer subsidies to the Ministry of National Education (MoNE) to cover for textbook²⁰⁷, lunch and transport costs of all eligible public-school students.²⁰⁸ The Social Housing program transfers to TOKI a subsidy to provide housing to the poor.²⁰⁹

The majority of social assistance programs are poverty-targeted

An important feature of Türkiye's social assistance system is that it is highly targeted based on socio-economic vulnerability. Compared to other countries, Türkiye stands out in this regard. The proportion of social assistance spending on targeted programs is significantly higher than the average high- or middle-income country. While targeted programs take about 60 percent of the budget in upper-middle settings, they take 96 percent of the resources in Türkiye (Figure 183).

²⁰⁵ According to the classification of the social assistance department within the MoFSS, transfer programs are grouped in six categories; family, housing and food, education, disability-elderly, health, and project based. For this report, we follow the classification of the World Bank's categorization.

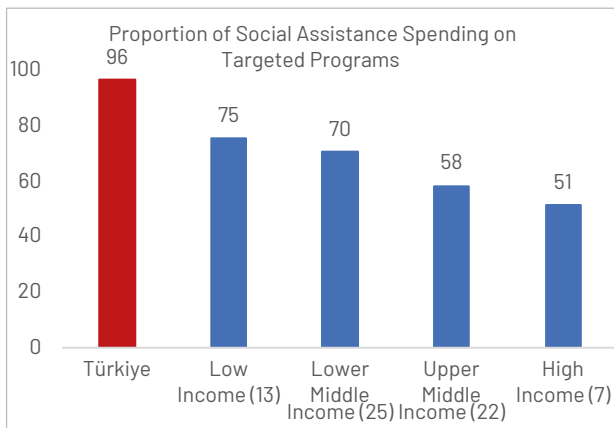
²⁰⁶ Number of social assistance programs vary significantly across countries; South Africa 16, Indonesia 28, Poland 45, Romania 65, Chile 135 (World Bank, 2018) and Russian Federation on average 150 in each region (Yemtsov et al., 2019)

²⁰⁷ Free textbook program targets all students in public schools while free lunch and transport subsidies target only students who do not have school in their neighborhood and have to travel to go the nearest school.

²⁰⁸ Rationale why health and education related programs are counted as social assistance: some programs are more related to health and education, but since they are meant for the poor families and financed through the same entity and implemented by the same ministry/ agency, we are looking at all of them. Note that these programs are not included in the majority of the report where the focus is on cash and in-kind assistance. Nevertheless, this longer list of programs is what the government includes in its definition of social assistance.

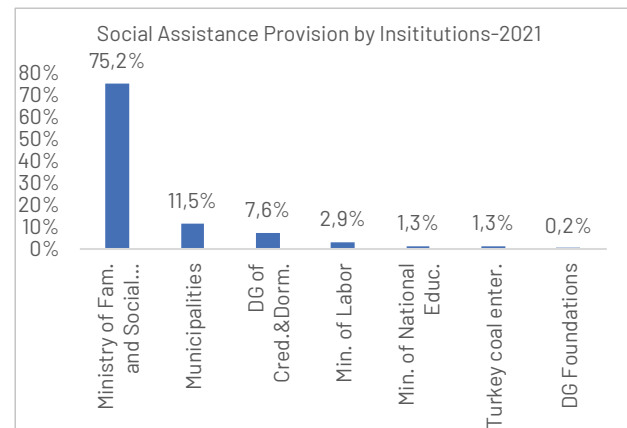
²⁰⁹ Under this program 33,337 houses were built for poor households, but this program has paused since 2014.

Figure 183: Türkiye's social assistance is well targeted



Source: The Atlas of Social Protection Indicators of Resilience and Equity, World Bank, 2020

Figure 184: Social assistance delivery is highly centralized



Source: Ministry of Family, Labor and Social Services. Social assistance expenditures made by the municipalities has been estimated by the projection method.

To operationalize its poverty-targeting approach, Türkiye uses two types of criteria, depending on the program: having a household per capita income lower than a certain threshold (very often it is one-third of the minimum wage, 1,417,80 TL in 2022) and having no-income from formal employment for long-term social assistance programs (i.e. not registered in the social security system through employment or contributory pension)²¹⁰. The former criterion is used by the coal, food, and education material programs as well as the elderly and disability pensions. The latter criterion is applied to most of the long-term programs that provide ongoing support, such as the programs for the widows and families of soldiers, and the health and education CCT programs. Although this can discourage workers from becoming formal, 77 percent of beneficiaries are individuals who are not able to work for several reasons, disability, old-age, taking-care of children or disabled family members. In addition, the Ministry has the right declare “State of Emergency” during natural disasters or unforeseen incidents. In these periods, additional support can be delivered to households without means-testing. Those households that may not be eligible or may be entitled to receive only periodic transfers could benefit from emergency transfers if they are evaluated by the SAFs as unable to meet their basic needs.

It is important to note that municipal authorities continue to implement a range of social assistance programs at local level financed from their own budget (Figure 184). The scope of these, and the degree to which they are coordinated with national efforts varies significantly from municipality to municipality. Overall municipal spending on social assistance represents a modest share of overall spending on social assistance, 11.5 percent in 2021. There are ongoing efforts by the MoFSS to improve coordination of both targeting and programming with municipal governments. Municipal spending on social assistance is not included in this report.

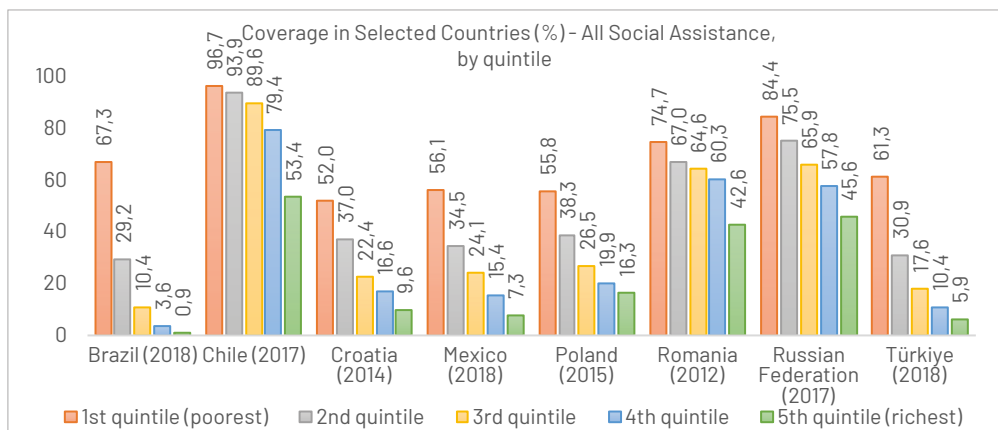
B. Performance of the Social Assistance System

The coverage of social assistance system is moderate

Social assistance programs’ coverage of the poor and vulnerable population is average among peers and may improve with the universal approach being introduced. In 2018, the system as a whole achieved a coverage rate of 61.3 percent among households of the poorest quintile of welfare (Figure 185). This is a better performance than Mexico, Poland and Croatia, but significantly lower than the coverage rate for the poorest quintile in Chile (96.7 percent), the Russian Federation (84.4 percent) and Romania (74.7 percent). However, the reason these three countries achieved high coverage rates in the poorest quintile is that they adopt a more universal approach, and therefore, coverage rates are also higher across all quintiles of welfare. In other words, they cover a higher share of the poorest by giving more to the well-off too. In Türkiye, only a few households (about 6 every 100) in the richest quintile benefited from Turkish social assistance programs in 2018. Once in place, the planned “Family Support Program” may contribute to greater universal coverage.

²¹⁰ Multiple birth support program and chronic illness support do not have the criteria of having no-income from formal employment. Households that have members with formal employment can still benefit from these two supports if they have a household per capita income lower than a certain threshold (1/3 of minimum wage for multiple birth support and 2/3 of minimum wage for chronic illness support).

Figure 185: Türkiye performs moderately in terms of SA coverage



Source: For Türkiye, WB satff calculations using HBS 2018. For the rest, ASPIRE database, World Bank, 2020.

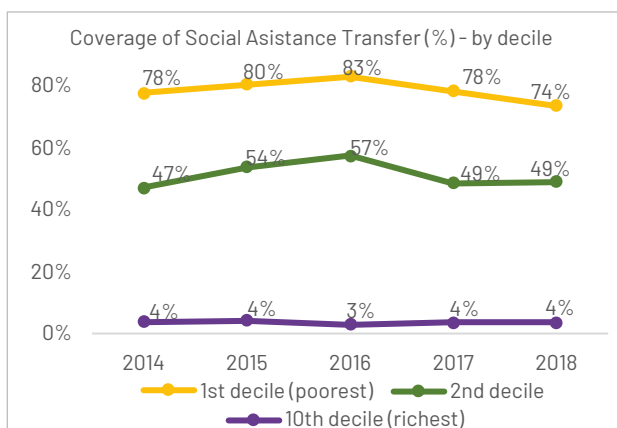
The coverage time-trend exhibits a peak around 2016, which shows the responsiveness of the system to the slowdown in the Turkish economy around that year. Economic growth was 3.3 percent in 2016, compared to 6.1 percent in 2015 and 7.5 percent of GDP growth in 2017. The system was able to increase its coverage for the poorest 10 percent of households (i.e. the bottom decile) significantly between 2014 and 2016, from 78 to 83 percent, and of the second poorest decile from 47 to 57 percent (Figure 186). Since then, coverage levels decreased and converged back to their 2014 figures which could be a result of counter-cyclical nature of social assistance transfers. A similar pattern is also observed during the Great Recession between 2008 and 2010. Coverage increased very rapidly during the recession years (2008-2010).

The system's coverage gap is primarily driven by the hybrid eligibility criteria, mixing economic with demographic conditions. The share of the bottom 20 percent covered by the social assistance transfers is modest compared to other countries, which indicates that some poor households do not receive any assistance to satisfy their basic needs. Although almost all programs are means-tested, they also include a categorical or demographic criterion among their eligibility rules. By design, the Turkish SA system does not deliver assistance to poor households if they do not also satisfy the categorical eligibility criteria, i.e. old-age, disability, widow, orphan etc. This results in the exclusion of households that are poor but do not fit into any of the demographic categories defined by the system. As such, the medium coverage rate of the social assistance system in the poorest quintile has been a concern in the Türkiye context.²¹² However, the new "Family Support Program" that will start in 2022 is going to take advantage of the rich human resources and information systems in place to fill most of the existing gaps in coverage of the poor.

The coverage attained by the social assistance system is mainly driven by the coverage of UHI, followed by in-kind and cash transfers. The coverage rate of UHI for the poorest ten percent was 55.4 percent in 2018 (Figure 187). In-kind transfers have the second largest coverage, reaching around 40 percent of the poorest decile in 2018, down from 49 percent in 2016. Cash transfer programs, including the conditional cash transfer to support children's education and health, complement with the third largest coverage, benefitting 26 percent of the poorest decile, decreasing from 36 percent in 2016. The inverted-U shaped trend of in-kind and cash transfers confirms the efforts to support the poorest during economic slowdown times.

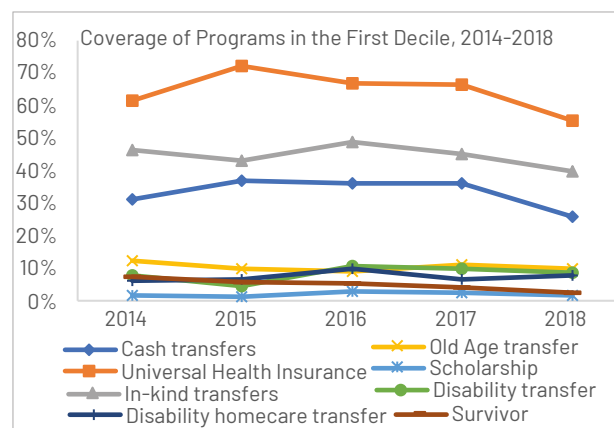
²¹² The coverage rate of the overall social assistance system decreased in all deciles (except a very minor increase in decile 3) between 2014-2018.

Figure 186: The coverage for the poorest group declined after 2016



Source: WB staff calculations based on HBS 2014–2018

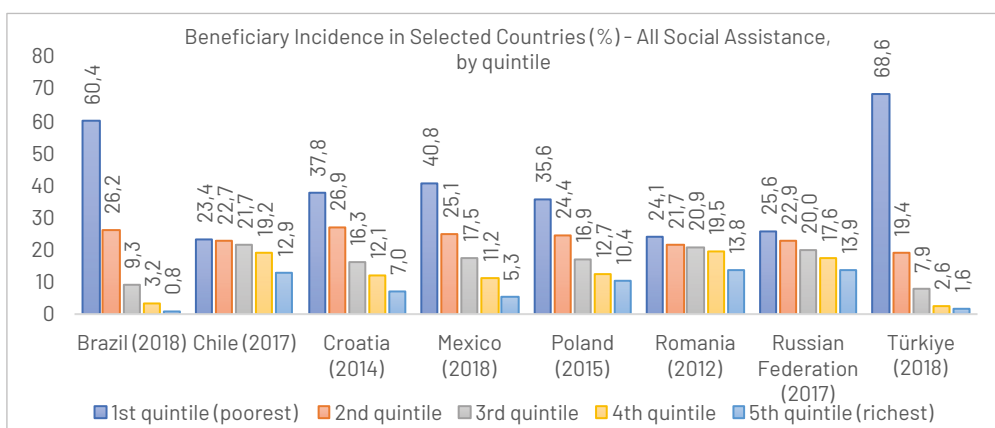
Figure 187: The coverage is mainly driven by the Universal Health Insurance



Beneficiary Incidence: The vast majority of beneficiaries coming from the poorest households

Overall social assistance programs perform well at limiting targeting inclusion errors, with the vast majority of beneficiaries coming from the poorest households. In Türkiye, nearly 69 percent of all program beneficiaries were from the poorest quintile in 2018 (Figure 188). This is significantly higher than other countries, where incidence of beneficiaries in the poorest quintile is 60.4 percent in Brazil, 40.8 percent in Mexico, 37.8 percent in Croatia and 35.6 percent in Poland. This high relative performance is reflective of the investments made by Türkiye on an integrated information system. Through the different checks that ISAS does across multiple databases, the system is able to weed out applicants that are economically better-off, say in the top two or three quintiles of welfare. The ratio between beneficiaries from the bottom 20 to top 20 percent, another indicator of targeting accuracy, is the highest of the lot. In Türkiye, for every beneficiary in the top 20 there are 43 beneficiaries from the bottom 20. Only Brazil shows a more dominant performance.

Figure 188: Türkiye performs well in terms of beneficiary incidence

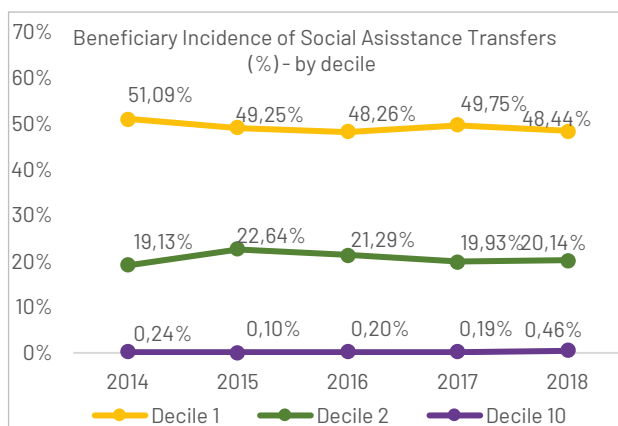


Source: For Türkiye, WB staff calculations using HBS 2018. For the rest, ASPIRE database, World Bank, 2020.

Targeting accuracy remained relatively stable over time in Türkiye. During the period of analysis 2014-2018, the incidence of beneficiaries from poorest and richest deciles stayed relatively constant, which reflects the payoffs of the introduction of ISAS a few years earlier (Figure 189). Around 48.4 percent of beneficiaries came from the poorest decile in 2018, while 20 percent came from the second poorest decile. These shares were 51 and 19 percent in 2014, respectively. The participation of households from the richest decile is negligible, hovering below 0.5 percent throughout the period. Advanced information sharing technology among government agencies through ISAS, household visits by local offices and the shrinkage in size of the informal sector have made mean testing more successful overtime. Amongst other factors, this has led to a strong targeting performance of social assistance programs in Türkiye compared to other countries.

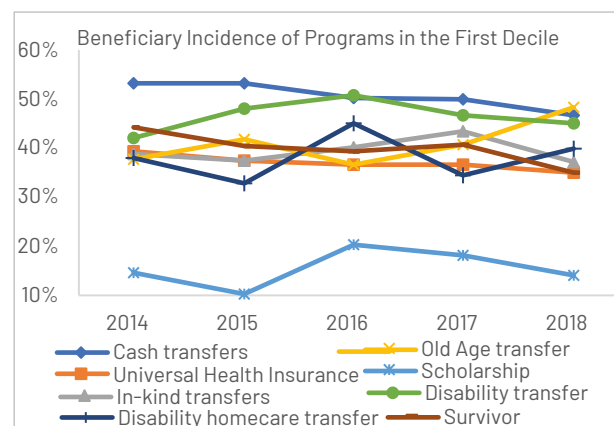
Cash transfers consistently display the highest targeting accuracy among all social assistance programs. Among beneficiaries who receive cash transfers, 47 percent came from the poorest decile in 2018 (Figure 190). Compared to the rest of the programs, cash transfer programs showed the best performance during 2014-2018. Old age and disability transfers have improved over time and caught up with cash transfers in 2018. Moreover, targeting performance of in-kind transfers, UHI, and disability homecare benefits is also good, with 35-40 percent of their beneficiaries arising from the poorest decile in 2018. In contrast, beneficiary incidence of scholarship program in the bottom ten percent is very low, ranging from 14.6 percent of all beneficiaries in 2014 to 14.0 percent in 2018. Since different eligibility requirements apply for the scholarship benefit, performance is worse compared to other social assistance transfers.²¹⁴

Figure 189: The incidence of beneficiaries displayed a stable pattern



Source: WB staff calculations based on HBS 2014 - 2018

Figure 190: Cash transfer programs perform relatively well compared to others



Benefit Incidence²¹⁵: Cash transfers and old-age transfers display the best performance

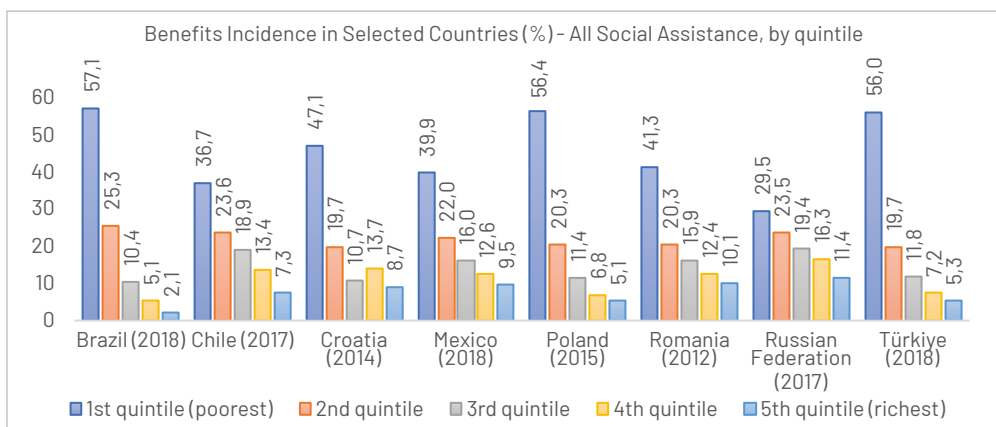
In Türkiye, the share of benefits delivered to poor households is comparable to other countries; 56 percent of benefits go to beneficiaries in the poorest quintile. Although Türkiye has the highest incidence of beneficiaries, it falls slightly behind Brazil and Poland and has higher levels compared to Croatia, Chile, Romania, Russian Federation and Mexico in terms of directing benefits to poor households (Figure 191). The ability to increase the percentage of benefits delivered to poor households is however an important indicator of an effective social assistance system. In this respect, Brazil and Poland’s social assistance system has more effect on protecting vulnerable households from different types of risks and reducing poverty and inequality compared to Türkiye. This is despite the fact that Türkiye has been very successful in reducing poverty between the early 2000s and most of the 2010s. The poverty rate (measured by the US\$5.50 PPP international poverty line for upper middle income countries) falling from 37 to 10.2 percent between 2003 and 2019, driven mostly by very dynamic job creation.

²¹⁴ Different institutions provide scholarships to students in addition to the MoFSP. While the scholarships offered by the MoFSP are means-tested, scholarships from other institutions may not be means-tested which may include the overall targeting criteria estimated in this analysis. As shown in Figure 184, 75 percent of the social assistance provided by all public institutions is carried out by the Ministry of Family and Social Services. However, social assistance transfers are carried out by different public institutions with varying criteria of neediness and targeting methods. This arrangement adversely affects the social assistance targeting.

²¹⁵ Benefit incidence measures how much money is transferred to bottom quintile whilst beneficiary incidence measures only share of beneficiaries coming from the bottom quintile.

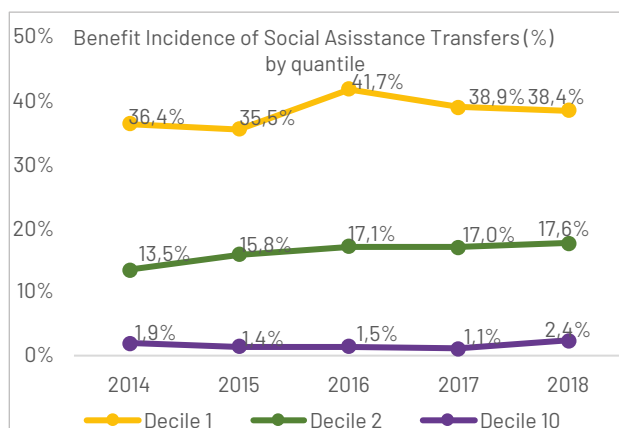
Benefit incidence of social assistance programs varies over time. A significant increase was observed from 36.4 percent in 2014 to 41.7 percent in 2016 yet it decreased to 38.4 percent in 2018 (Figure 192). Inclusion error at the top decile remains low across years, transferring only 2.4 percent of benefits to the richest ten percent of households in 2018. Chile, Croatia, Poland, Romania and Russian Federation achieve a significantly higher incidence of benefit compared to incidence of beneficiaries while Türkiye has similar levels. This suggests that higher levels of benefits are transferred to poorest decile in those countries yet in Türkiye benefit levels are similar for all deciles. In particular, Polish SA system delivers more adequate transfers to the poor to achieve higher benefit incidence (56.4 percent) compared to relatively low beneficiary incidence (35.6 percent).

Figure 191: Türkiye performs well in terms of benefits incidence



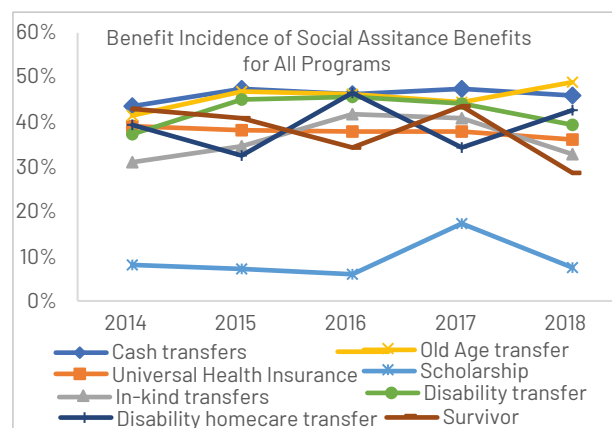
Source: The Atlas of Social Protection Indicators of Resilience and Equity (ASPIRE), World Bank, 2020. Based on government administrative data. And authors calculations using HBS 2018.

Figure 192: The incidence of benefits increased significantly at the second decile



Source: WB staff calculations based on HBS 2014-2018

Figure 193: The scholarship program displays the worst performance



Cash transfers and old-age transfers have the highest incidence of benefits over time. The performance of those programs varies significantly across years which explains the variation in the performance of overall social assistance programs. For instance, 39 percent of disability homecare transfers were transferred to the bottom ten percent in 2014 while this ratio decreased to 32.5 percent in 2015 and increased back to 46.4 percent in 2016 (Figure 193). Benefit incidence of cash transfers, in-kind transfers and scholarship program on the other hand remained constant over time. Moreover, scholarship program again displays the worst performance among all social assistance programs.²¹⁶

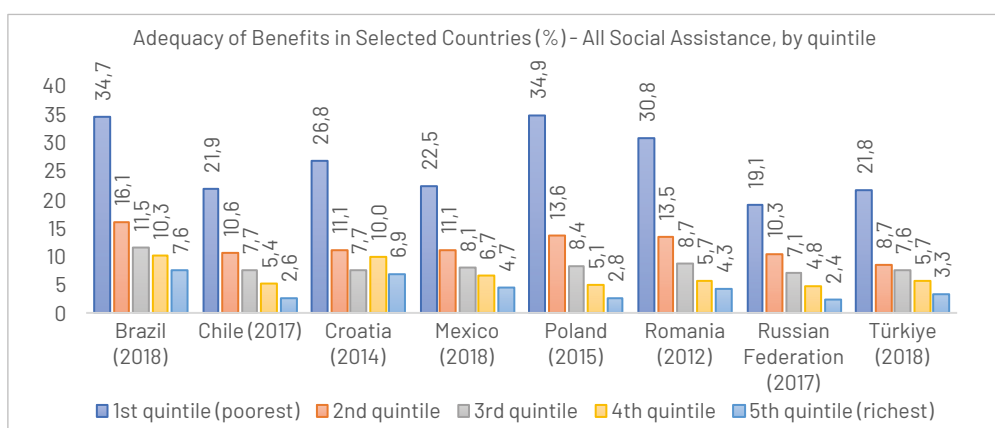
²¹⁶ Different institutions provide scholarships to students in addition to the MoFSP. While the scholarships offered by the MoFSP are means-tested, scholarships from other institutions may not be means-tested which may include the overall targeting criteria estimated in this analysis.

Adequacy: Adequacy of social assistance programs can be improved

Social assistance programs can have a greater impact on poverty and inequality in Türkiye if their adequacy is improved. Adequacy of social assistance transfers was 21.7 percent of household consumption in the poorest quintile in 2018 in Türkiye (Figure 194). In contrast, the adequacy of similar transfers was 34.9 percent of the household consumption in Poland, 34.7 percent in Brazil and 30.8 percent in Romania. To have an impact on poverty reduction, the amount of benefit should be able to close the poverty gap.²¹⁷

Over the period 2014 – 2018 benefit adequacy has trended slightly upward in Türkiye. Adequacy rates display a modest increase from 30.0 percent in 2014 to 34.6 percent in 2016 which is followed by a modest decrease to 32.4 percent in 2018 (Figure 195). The decline in the level of adequacy is prevalent in many countries due to faster increases in overall household consumption (or income) and inflation (Tesliuc et al 2014). While the monetary level of some social assistance programs is indexed to wages of civil servants²¹⁸ (disability and homecare benefits, old-age pension and chronic illness assistance), the monetary level of some programs is updated occasionally (education and health conditional cash transfers, and widow/orphan pensions, etc.). Turkish social assistance programs therefore could benefit from indexing to inflation to compensate for the losses in benefits over time.

Figure 194: Türkiye performs relatively poorly in terms of adequacy



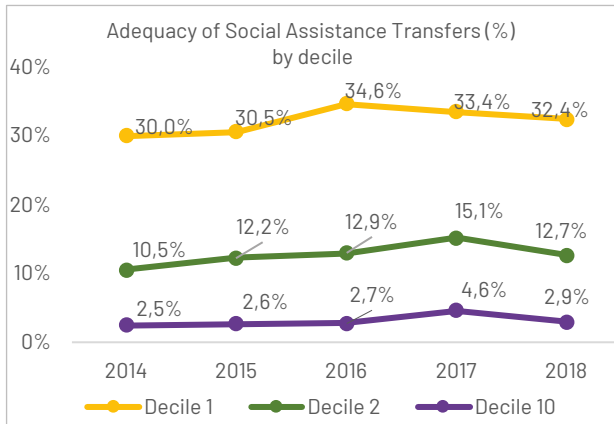
Source: ASPIRE, World Bank, 2020. Based on government administrative data. And authors calculations using HBS 2018.

Social assistance programs differ significantly in terms of contribution to household consumption. Adequacy of disability homecare transfers in the poorest decile is the highest among all social assistance programs in Türkiye, constituting 81.3 percent of the household consumption in 2018 (Figure 196). This suggests that homecare benefit is an important source of income for beneficiary households in the bottom decile and increases the household pre-transfer consumption significantly. Disability and old-age transfers also constitute an important share (around 30 percent) of household consumption. In-kind transfers, as the second largest social assistance program, has very low levels of adequacy across years. In-kind transfers make up to only 4.4 percent of consumption of beneficiaries in the poorest decile in 2018 which significantly lowers the average adequacy level of overall social assistance system.

²¹⁷ Please note that UHI is not included in the analysis since it is not a transfer for households but instead it provides access to health services. It is very difficult to assess which households benefited from health services.

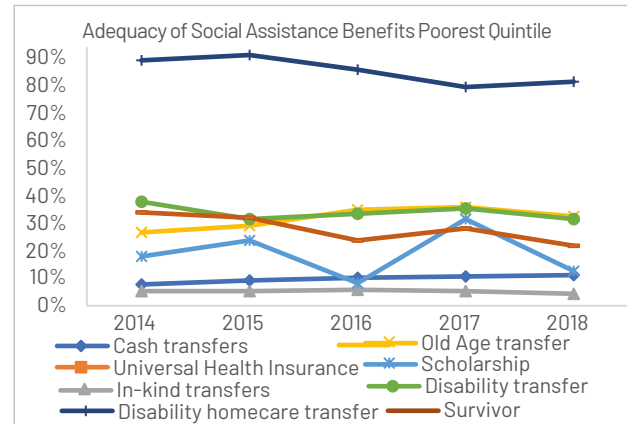
²¹⁸ Civil servants salary usually indexed to inflation.

Figure 195: No significant progress in adequacy was recorded in the last 5 years



Source: WB staff calculations based on HBS 2014–2018

Figure 196: Adequacy of disability homecare transfers in the poorest decile is the highest among all social assistance programs



The effect of social assistance system on poverty is modest

The impact of social assistance transfers on poverty is modest. Türkiye has successfully managed to reduce poverty from 37 percent to 10.2 percent in 2019 thanks largely to strong and pro-poor growth. However, despite their very effective targeting, the relatively low adequacy of social assistance programs and modest coverage of poor households, has made their effects on reducing poverty among those that remain below the poverty line modest. Social assistance transfers helped reduce poverty only by 1.4 percentage points in absolute terms in 2018 in Türkiye (Figure 197).²²⁰ Moreover, poverty reduction in the poorest quintile in Türkiye is only 7.2 percent in 2018. This is significantly lower than all countries in Figure 199.²²¹ In contrast, the poorest quintile poverty reduction is 16 percent in Poland, 17.4 percent in Chile and 23.1 percent in Romania (Figure 199). The impact of social assistance on poverty in Türkiye can be strengthened by tackling certain current aspects (Figure 198). For instance, those programs with high adequacy have very little coverage (disability homecare benefit) while those programs with low adequacy have relatively high coverage (in-kind and cash transfers).

Social assistance transfers have made a relatively small contribution to closing the overall poverty gap among approximately 10 percent of the people that remain poor in Türkiye. To have a significant impact on poverty alleviation, social assistance transfers should reduce the poverty gap proportionately for households below the poverty line. In this respect, the Turkish social assistance system has the lowest bottom quintile poverty gap reduction with 14.8 percent while it is 43.5 percent in Romania, 42.6 percent in Poland, 33.9 percent in Mexico and 28.7 percent in Chile. In absolute terms, social assistance programs reduced the poverty gap by 0.85 percentage points for absolute poverty in Türkiye.

²²⁰ Note: UHI is not included.

²²¹ Simulated effects on poverty. For international comparison purposes, we estimate consumption poverty line that corresponds to 20 percent of the population, X in local currency. We then subtract the social assistance transfers from households' consumption to estimate the poverty rate without any social assistance, i.e. share of people consume below X (in local currency). The difference between poverty rate measured above and 20 percent is assumed to be the impact of social assistance on poverty reduction in the bottom quintile.

Figure 197: Social assistance transfers have limited impact on poverty reduction

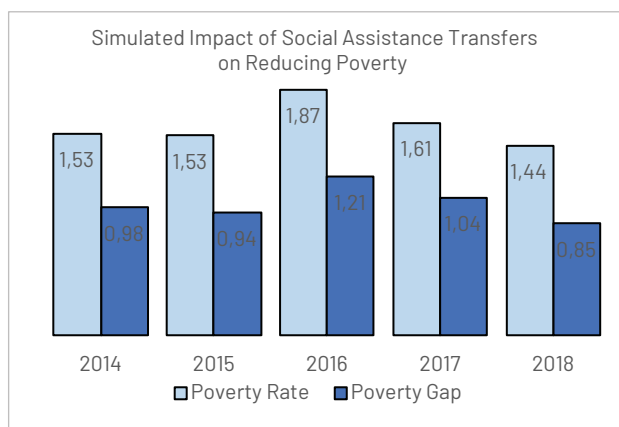
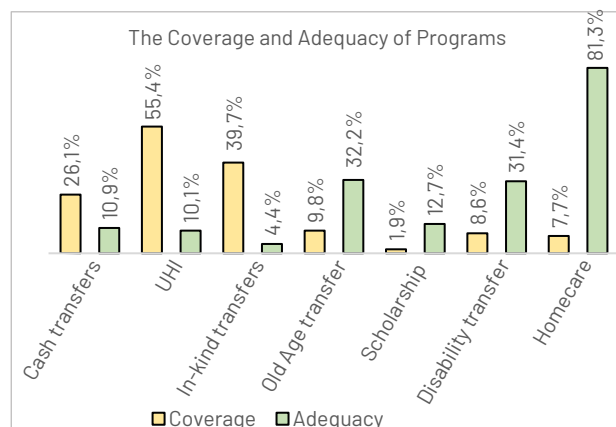
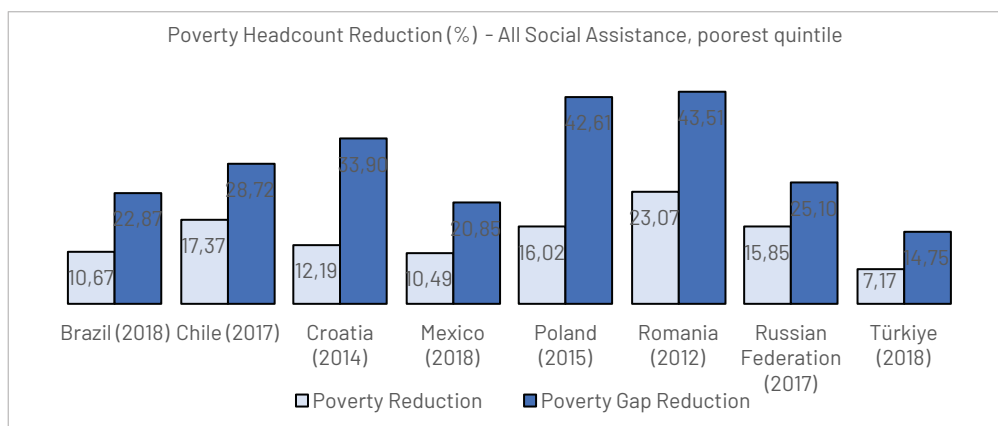


Figure 198: The programs with high adequacy have little coverage



Source: WB staff calculations based on HBS 2014-2018

Figure 199: The poverty reduction in poorest quintile in Türkiye is lower than other countries



Source: ASPIRE, World Bank, 2020. Based on government administrative data. And authors calculations using HBS 2018.

C. Conclusion and Policy Recommendations

Türkiye's social assistance system has developed significantly since 2003. During this period, a number of programs have been introduced to enhance coverage and support of the vulnerable and poor segments of the population. Spending has increased 8-fold and reaches 1.4 percent of GDP, navigating a positive trend towards reaching the levels of high income and OECD countries (which spend 1.9 and 2.8 percent of GDP, respectively).

There have been important achievements in both the program implementation and institutional fronts. ISAS, a state-of-the-art management information system was introduced to integrate all processing steps, from applications to payments, consolidating databases from multiple institutions to assess applicants' eligibility. Capitalizing on this development, most programs are operated under a poverty-targeted modality. Moreover, institutional fragmentation was largely reduced with

the creation of the Social Assistance DG under MoFSS. Performance on the ground of social assistance programs shows encouraging results, and some flanks to be strengthened. Coverage of some programs has been improving, though overall coverage of the system for the poorest households shows a medium performance in comparison to peer upper-middle-income countries from OECD, Latin America and Europe. Targeting accuracy, in contrast, performs reasonably well compared to peer countries. Relatively low adequacy of benefits, finally, is one of the areas that require attention in Türkiye in order for the overall social assistance system to increase its impact on poverty reduction.

Going forward, Türkiye's system has important strengths to build on and walk the path to its 2023 vision. This section will discuss two building blocks stemming from the diagnostic that could contribute to its realization. These are: a) increase adequacy and coverage to meaningfully reduce poverty; and b) improve design to promote better linkages to labor market integration.

Increasing adequacy and coverage: a program of "Basic Income for the Poor" (BIP)

Overall social assistance system in Türkiye has a relatively low effect on reducing poverty and inequality compared to other countries, although this is expect to improve with a new minimum income guarantee program that is currently under preparation by the government. The diagnostic in Section B shows that adequacy of social assistance system is relatively low. Programs help with around 20 percent of household expenditure needs, lower than in comparator countries. In addition, coverage of the bottom 20 and 10 percent is still low. Given the categorical design of individual programs and implementation issues, certain vulnerable and poor households are left out of the system. Categorical design also does not allow the system to respond quickly and effectively in times of shocks. Moreover, the positive coverage trend is mainly driven by the UHI, which is a healthcare fee-waiver program and does not necessarily support basic day-to-day needs of needy households. However, the "Family Support Program", which envisions transferring a minimum level of income to households not covered currently by the existing programs and is planned to begin implementation in 2022, will raise the poverty and inequality reduction effects of the overall social assistance system.

Increasing coverage of the poor with adequate transfers is key to strengthen the Türkiye's SA system moving forward. The system can further promote inclusion by targeting those households that are poor but do not satisfy any categorical criteria asked by the system. Although these households are currently eligible for one-time irregular transfers, delivering regular cash transfers to those households can have positive impacts on household consumption and access to services. Among several options, two alternatives can be more suitable for Türkiye. First, a regular cash transfer program could be introduced to cover poor households that are left out of the SA system due to its categorical design. A meaningful regular cash transfer program would support those households during the time it takes to recover from income loss, i.e. job loss, health shock, natural disasters etc. The new program may also help to facilitate production capacity of those households and lead to poverty alleviation over time. The advantage of the proposed program is to have a very limited cost on management and operational systems of the Türkiye's SA. Once in place, the planned "Family Support Program" is expected to enroll a high share of individuals that are not currently covered by the social assistance system. The Family Support Program (FSP), is designed as a means-tested income support for households, without categorical criteria (disability and old age, widow, etc.). The FSP transfer level will vary according to the per capita household income, providing higher benefits to households with lower per capita income.

A program of basic income for the poor (BIP), similar in scope to the one currently prepared by the government ("Family Support Program"), could be a more effective approach than the current one but would require a more intensive reform of the existing system. Such program would provide periodic cash transfers to poor households to contribute to cover their basic needs and promote their exit from poverty. The program would cover a larger share of the poor, and not just some demographic categories, and the transfer would be calibrated to contribute more meaningfully to basic needs. Practically all EU countries have a program of this sort.

Aligning program design with labor market incentives

One of the challenges that social assistance and cash transfer programs face is the risk, at least in theory or sometimes just in perception, of introducing disincentives to work. Assistance programs that negatively affect employment outcomes (or are perceived to do so) can weaken public support for funding, or even their continuation. This type of secondary, unintended consequences may in turn hamper the capacity of programs to accomplish their primary objective of protecting the poor and vulnerable.

Employment-related risks of targeted social assistance programs can be grouped in three types of decisions: (i) Decision to participate in the labor force for beneficiaries or their household members (ii) Decisions related to job search intensity and acceptance of job offers (iii) Decision to take a job in the informal vs. formal sector. Türkiye has taken steps in the right direction to mitigate the labor disincentives of some of the programs. For example, conditional education and health transfers channeled to social assistance beneficiaries are only stopped one year after one of the household members gets enrolled in the social security system.

In addition, public's perceptions, and policymakers' decisions to support social assistance may be influenced by the effectiveness of SA systems to incentivize employment. As reviewed in Section A, Türkiye has been building beneficiary linkages to the labor market into its social assistance system, making these links a core part of its approach to program design. With regard to the three types of decisions that social assistance may influence, Türkiye's efforts have been addressing decisions a) and b), and to some extent c). By introducing job search grants, linking beneficiaries to public job search services, and subsidizing on-the-job training, Türkiye has fostered incentives to decide to participate in the labor market, to actively search for a job, and have access to a formal job; while attenuating beliefs that social assistance creates a passive and dependent population.

Going forward, there are potential improvements to Türkiye's existing approach to exit rules or benefit update formula. It used to be that if an individual got a formal job, he or she had to exit social assistance, that is the benefit level would be updated to zero. Programs such as the CCT have now as the eligibility rule that a person cannot receive benefits one year after the person began contributing to social security . Another alternative to stopping the benefits after 1 year is to enact a gradual phase out, which may be more incentive-compatible with efficient labor market outcomes. In many cases, beneficiaries access formal jobs through the wage-subsidy program. This subsidy lasts one year, upon which employers may decide to replace the employee, given that substitution is not costly for low skill occupations. That is, after 1 year, a social assistance beneficiary may find himself without work and social benefits. An alternative, smoother benefit update formula could be: keep benefit at 100 percent for 18 months; if still employed then, reduce benefit to 60 percent for another 18 months, then re-assess household situation.

VI. Fiscal policies for development and climate action: Tax and expenditure climate change assessment |

The previous chapters have focused on the objectives of ensuring a stable and credible macro fiscal framework as the necessary platform of supporting growth. This chapter highlights the importance short and long term risks to macro-fiscal stability posed by climate change and how fiscal policy can address these risks.

Türkiye has a carbon intensive economy, sensitive to climate change, with implications for its economic stability and resilience. Mounting greenhouse gas emissions remain tied to the growing economy and ever-increasing energy demand. The energy sector is responsible for more than 70 percent of total emissions (the power sector alone contributes 25.1 percent²²⁴), with emissions in the agriculture and industrial sectors also increasing. Building on the findings of the previous chapters, the objective of this chapter is to inform fiscal policy adjustments to support sustainable growth priorities, focusing on climate change.

The chapter begins with reviewing the climate change risks to Türkiye's economic development and public finances. The long-term outlook is concerning, including more frequent extreme climate related shocks. The chapter explores the resulting direct and contingent asset and well-being losses, and what these mean for Türkiye's economy. The global low-carbon transition taking place is also changing trade dynamics and risking loss of markets and attendant value-added and jobs. These conditions translate to risks to public finances through new spending needs and potentially lower revenue sources.

Environmental fiscal reform can help manage these risks as well as unlock opportunities for the economy potentially resulting in increased, and higher quality growth. The chapter presents how public finances are at risk from climate change, and also how the fiscal framework can encourage emissions reductions and climate resilience. The chapter assesses reforms to grow new sectors of the economy, support fiscal sustainability and address climate change.

A. Climate change and risks to the economy and public finances

Climate change presents risks to Türkiye's economy and public finances

Türkiye is highly vulnerable to climate change. Climate change is a global challenge and, despite global action to reduce emissions, climate impacts will be experienced by all countries to varying degrees. Türkiye is no exception and is already experiencing an increase in average temperatures, a decrease in average precipitation and an increase in the frequency and severity of extreme events. These observed impacts, and the global response to mitigation of greenhouse gas emissions, present a number of risks to the Turkish economy highlighted in the Eleventh Development plan (2019-2023).²²⁵

Türkiye is exposed to both physical²²⁶ and transition climate-related risks. Physical risks refer to the direct effects from a changing climate. This includes slow onset hazards, such as increased temperature and changes in rainfall. It also includes more sudden hazards, such as those caused by extreme weather events. Transition risks are primarily driven by the global transition to a low carbon future, such as shifts in technology, fuel availability, and changes in trade dynamics (e.g. due to consumer preferences or tariffs on emissions-intensive goods).

²²⁴ Turkish Greenhouse Gas Inventory 1990 - 2019 (Government of Türkiye, 2021) sets out emissions from the power sector (category 1.A.1.a) were 139,116 kt CO₂-e in 2019, representing 27.5 percent of total emissions (506,100 kt CO₂-e).

²²⁵ Presidency of Strategy and Budget (2019) The Eleventh Development Plan (2019-2023)

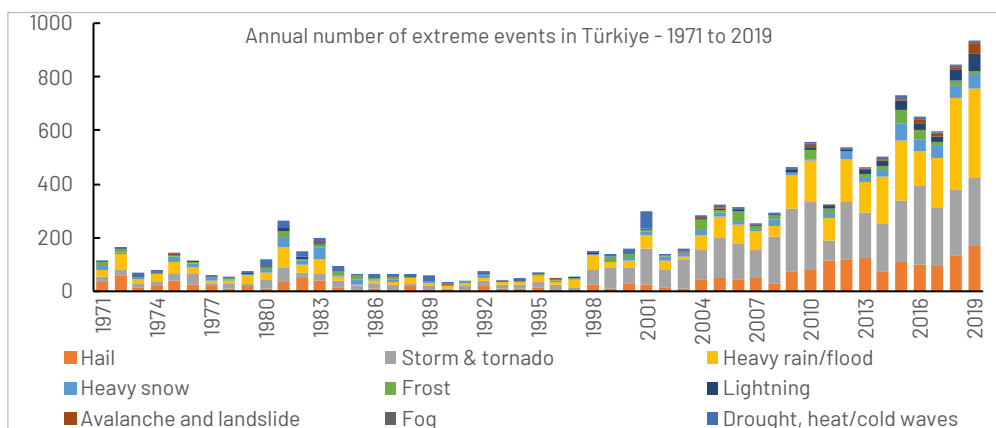
²²⁶ See Chapter 6 of the Seventh National Communication of Türkiye Under the UNFCCC 2019. https://www.tr.undp.org/content/Türkiye/en/home/library/environment_energy/NC7-2019.html

Both physical and transition risks have direct impacts on the economy and macro-fiscal sustainability. When realized, physical risks (such as climate-related disasters) reduce the productivity of capital (human, physical, natural and social), which in turn reduces economic growth, at least over the short term.²²⁷ This can occur, for example, as a result of diverting resources (e.g., to focus on rebuilding), reduced availability of infrastructure after a disaster (e.g., energy or telecommunications), or reduced labour productivity under increased temperatures.²²⁸ This in turn can reduce fiscal space due to, for example, lower tax revenue from reduced productivity and/or increased public spending to rebuild after a climate-related event. The specific impact of transition risks on economic growth is less clear.³ However, the potential impacts will increase the need for financing for mitigation and adaptation projects, increase the pressure on trade-exposed sectors, and result in an overall increase in the levels of uncertainty. Such changes can result in a deterioration of government balance sheets, a reduction in asset value, and structural changes to the economy.²²⁹

A.1. Physical and transition climate change risks will continue to get worse, exposing Türkiye's economy and vulnerable industries

Climate-related disasters and extreme events²³⁰ are increasing in Türkiye. Extreme events have become much more frequent, especially in the last two decades (Figure 202). 2018 saw the first hurricane in Türkiye's modern history²³¹ and 2019 saw a historical high of 935 extreme events, with the main extreme events being heavy rain/floods (36 percent), windstorms (27 percent) and hail (18 percent).²³²

Figure 202: Extreme events in Türkiye accelerated over the last two decades



Source: Turkish State Meteorological Service, State of the Climate in Türkiye in 2019 (2020) and OECD (2019)

²²⁷ Feyen, Erik; Utz, Robert; Zuccardi Huertas, Igor; Bogdan, Olena; Moon, Jisung (2020) Macro-Financial Aspects of Climate Change. Policy Research Working Paper No. 9109. World Bank, Washington, DC.

Hallegatte, Stephane; Vogt-Schilb, Adrien; Bangalore, Mook; Rozenberg, Julie. (2017) Unbreakable : Building the Resilience of the Poor in the Face of Natural Disasters. Climate Change and Development; Washington, DC: World Bank.

²²⁸ The International Labour Organization (ILO) projects that by 2030, increased temperatures will reduce total annual working hours by more than 2 per cent (International Labour Organization, 2019).

²²⁹ Feyen, Erik; Utz, Robert; Zuccardi Huertas, Igor; Bogdan, Olena; Moon, Jisung. 2020. Macro-Financial Aspects of Climate Change. Policy Research Working Paper No. 9109. World Bank, Washington, DC.

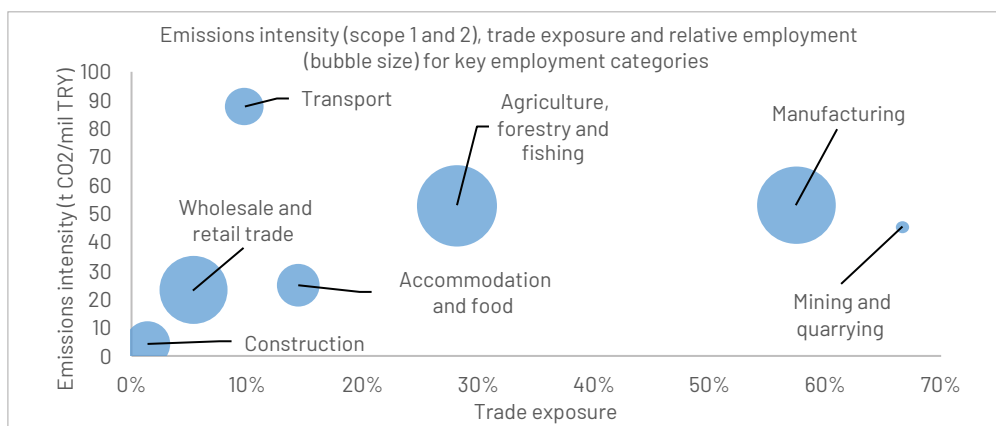
²³⁰ In line with IPCC (2012), extreme events are a weather or climate events that are above (or below) the range of naturally observed events. A disaster is a severe alteration in the normal functioning of a community, society or economy (e.g. requiring emergency responses) due to hazardous physical events, such as extreme weather or climate events. See https://www.ipcc.ch/site/assets/uploads/2018/03/SREX_Full_Report-1.pdf

²³¹ Hurriyet Daily News, Türkiye braces for Medicane, first hurricane in its modern history, September 28, 2018. <https://www.hurriyetdailynews.com/Türkiye-braces-for-medicane-first-hurricane-in-its-modern-history-137312>

²³² Turkish State Meteorological Service. 2020, State of the Climate in Türkiye in 2019, accessed on November 30, 2020, https://mgm.gov.tr/eng/Yearly-Climate/State_of_the_Climate_in_Türkiye_in_2019.pdf

Türkiye's exposure to transition risks is also increasing as the world, and particularly Europe, takes action to decarbonize their economies, which will reduce demand for fossil fuels and emissions intensive goods. This trend is further driven by countries' desire to reduce energy dependence and growing moves towards broader environmental sustainability throughout the supply chain (e.g. circular economy efforts). A tangible example of a transition risk is the European Commission's proposal to establish a Carbon Border Adjustment Mechanism (CBAM), which would put a carbon price on imports of certain emissions-intensive goods to the EU from 2026, reflective of their emissions intensity.²³³ The potential impact of this policy on Türkiye is important given the EU accounts for 41.3 percent of its total exports.²³⁴ Carbon border taxes applied by the EU or other countries are, however, not the only constraint to international trade or source of additional costs. For example, Türkiye has obligations to comply with EU technical regulations due to the Customs Union between the EU and Türkiye. These regulations and/or an increasing potential to isolate or reduce trade with low ambition countries may end up being as important as a CBAM. Türkiye's private sector is taking an interest in better understanding these issues (e.g. TUSIAD, CDP Türkiye). The greatest areas of risk are emerging in the manufacturing sectors, who are generally large employers, emissions-intensive and trade exposed (Figure 203).

Figure 203: Türkiye's manufacturing sectors generally are large employers, emissions-intensive and trade exposed



Note: Trade exposure % is worked out as value of imports plus exports, divided by value of imports plus production
Source: World Bank analysis using 2014 Global Trade Analysis Project (GTAP) data, projected to 2018

Realized transition risks can lower economic growth and reduce exports and employment. As an example, the introduction of a CBAM (or similar mechanism) will mean that jurisdictions exporting to the EU with more emission-intensive production will face relatively higher costs and risk losing market share to more carbon-efficient producers in other countries. Products proposed to be covered by the EU CBAM in the pilot phase represent some of Türkiye's major exports. This includes:

- mineral products (e.g., clinker, cement, lime and glass production) with export value was more than \$4 billion in 2019, representing around 2.5 percent of Türkiye's total export value;
- ferrous metals (e.g., iron and steel), with export value of almost \$14 billion in 2019, representing around 7.7 percent of Türkiye's total export value;
- non-ferrous metals (e.g., aluminum) with export value around \$3.3 billion in 2019, representing 1.8 percent of Türkiye's total export value;
- chemical products, which are not covered in the pilot phase of the CBAM, but may be covered in the next phase, with an export value around \$1.7 billion in 2019, representing almost 1 percent of Türkiye's total export value.²³⁵

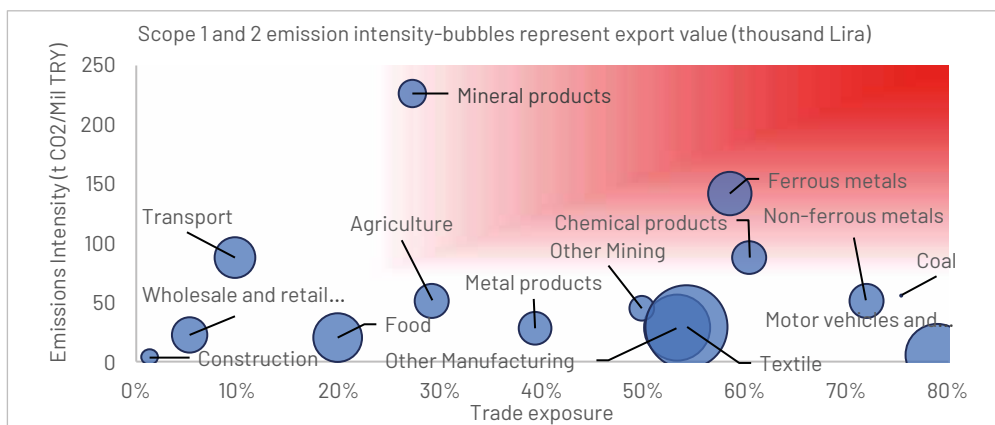
²³³ European Commission, 2021. Proposal for a regulation of the European Parliament and of the council establishing a carbon border adjustment mechanism, https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf

²³⁴ European Commission, 2020. Countries and regions-Türkiye. 20 May 2020, <https://ec.europa.eu/trade/policy/countries-and-regions/countries/Türkiye/>.

²³⁵ 2018/2019 export data from WITS - UN Comtrade. 2021. Retrieved from World Integrated Trade Solution

These sectors feature amongst Türkiye’s significant exporting sectors that are also emissions-intensive (Figure 204) and contribute to commodity & production factor taxes (Figure 205). The exposure to transition risks is uneven. For example, the textile industry is one of the most important sectors in the economy - it constitutes around a quarter of the total manufacturing production value of the country, 20 percent of the country’s total employment and is trade exposed (exports worth around \$12 billion in 2019, representing around 6.5 percent of Türkiye’s export value) - however, has a relatively low emissions intensity. On the other hand, the mining and quarrying sectors, while trade exposed, employ far fewer people compared to manufacturing, agriculture, forestry, and fishing. Similarly, coal provides no significant export value, so is also not vulnerable to a lower global demand for fossil fuels.

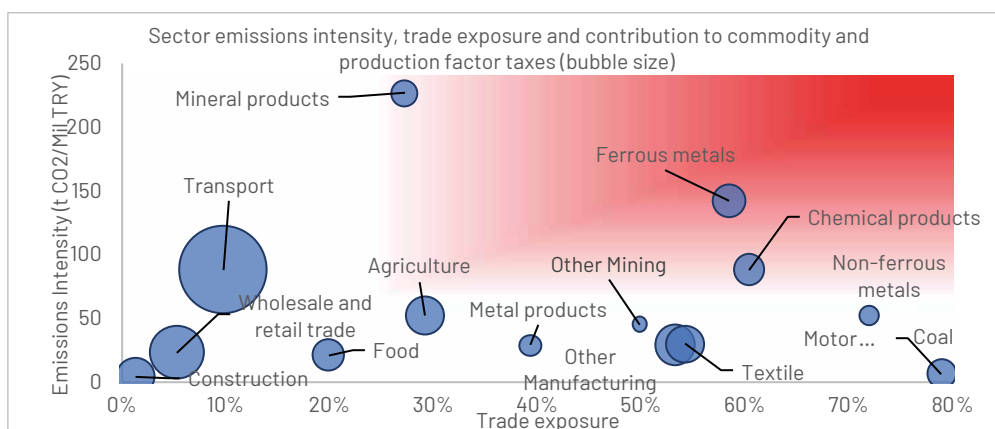
Figure 204: The greatest areas of risk reside in the manufacturing sectors



Source: World Bank analysis using 2014 Global Trade Analysis Project (GTAP) data, projected to 2018

Generally, Türkiye’s manufacturing industries are more emissions-intensive than those in the EU, but less emissions-intensive than some competitor countries such as the Ukraine and Russia (Figure 206) Given the high energy use in emissions-intensive industries, a key driver is the carbon intensity of the power sector. The emissions intensity of Türkiye’s power sector (~375 g CO₂e/kWh) is higher than all but a few EU countries.²³⁶ These economic impacts flow through to public finances (see section A.2).

Figure 205: The largest tax contributing sectors, wholesale and retail trade and transport have lower exposure to international transition risks

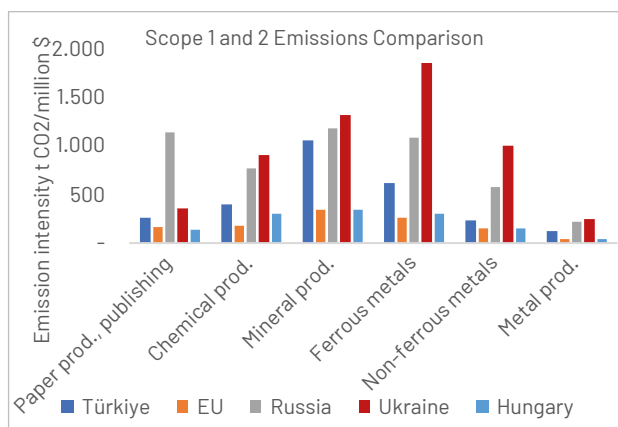


Source: World Bank analysis using 2014 Global Trade Analysis Project (GTAP) data, projected to 2018

²³⁶ According to Carbon Footprint’s Country Specific Electricity Grid Greenhouse Gas Emission Factors, updated 2022, Serbia, Poland, Estonia, Czech Republic, Greece and Malta have a higher grid emissions factor than Türkiye, https://www.carbonfootprint.com/docs/2022_03_emissions_factors_sources_for_2021_electricity_v11.pdf

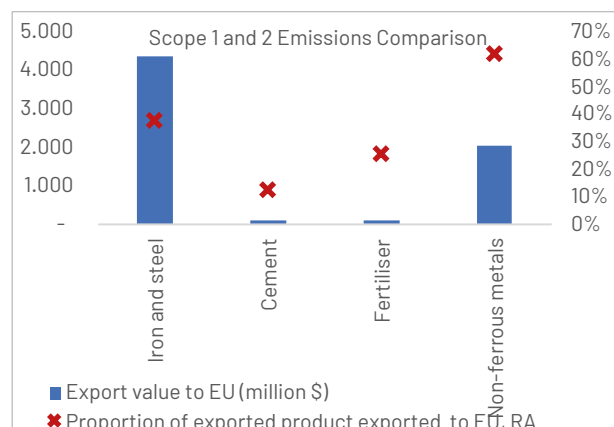
Transition risks are not limited to industries with large direct emissions. Changes to commodity prices will flow through the value chain, affecting input costs for industries using emissions-intensive products, particularly if those imports are trade exposed (e.g. car manufacturing facing higher steel and aluminum prices or construction facing higher cement costs²³⁷). The level of exposure to international markets plays a large role. In relation to the CBAM, the level of exposure to the EU market is a key determinant of its potential impacts (Figure 207).

Figure 206: Türkiye’s manufacturing industries are more emissions-intensive than those in the EU



Source: World Bank staff calculations using 2014 Global Trade Analysis Project (GTAP) data

Figure 207: Products proposed to be in EU CBAM represent some major export items of Türkiye



Source: UN Comtrade data from World Integrated Trade Solution data

Many sectors exposed to transition risks are also exposed to physical risks. The IFC and EBRD’s Pilot Climate Change Adaptation Market Study²³⁸ identified the industries in Türkiye with the highest vulnerability to physical climate risks, based on dependency on critical infrastructure and systems (Table 21).²³⁹ Some of these sectors are identified as priorities in Türkiye’s 11th National Development Plan and many of them, particularly in manufacturing, are also exposed to transition risks in addition to being large employers and significant exporters (see Error! Reference source not found.04 and Error! Reference source not found. 21).

²³⁷ For example, the cost of a carbon border tax on a Türkiye producer’s exports could be reflected across all its production, including its products sold on the domestic market. Likewise, European producers’ costs could also increase and be passed through in the cost of imports to Türkiye, for instance if the border carbon tax replaces other types of financial support to EU producers

²³⁸ Baglee, A., Connell, R., Haworth, A., Rabb, B., Acclimatise, W.B., Uluğ, G., Capalov, L., Hansen, D.S., Glenting, C., Jensen, C.H. and Laugesen, F.M., (2013) Pilot climate change adaptation market study: Türkiye (No. 113599, pp. 1-55). International Finance Corporation and European Bank for Reconstruction and Development.

²³⁹ Based on Building Resilience in Türkiye (World Bank, 2019), the criticality of infrastructure refers to the impact which an infrastructure’s loss of function would have on (i) essential services, (ii) the economy (sometimes including environmental effects) and (iii) general life. It includes include transport, water, energy and other large, fixed assets.

Table 21: Most vulnerable sectors, NDP priorities, emissions intensity, and trade exposure

Category	Sector/ Commodities	Vulnerable to physical risk	Emissions Intensive	Trade Exposed	Priority in the NDP
Utilities	Electricity (Electric power production, transmission and distribution)	√	√	√	√
	Water collection, treatment and supply	√			√
	Wastewater	√			√
Manufacturing	Textiles	√			
	Chemicals and chemical products	√			√
	Wood and wood/ cork products	√			
	Paper and paper products	√			
	Wearing apparel	√			
	Coke and refined petroleum products	√			

Category	Sector/ Commodities	Vulnerable to physical risk	Emissions Intensive	Trade Exposed	Priority in the NDP
Accommodation and food	Food products ²⁴⁰	√	√	√	
	Beverages and tobacco products	√			
	Tourism	√	√	√	√
Mining and extraction	Crude petroleum and natural gas	√			
	Coal and lignite	√			
	Metal ores and other mining and quarrying	√			
Trade	Trade (Wholesale of household goods' (e.g. sale of textiles, clothing and footwear, electrical household appliances))	√	√	√	
Construction	Civil engineering	√			√
Transport	Water transport				

Source: Adapted from IFC and EBRD (Baglee et al, 2013)²⁴¹

²⁴⁰ The IFC/EBRD study incorporated the agriculture sector into the manufacturing of food products, to emphasize the clear and important link in terms of supply chains and the provisions of raw materials

²⁴¹ Baglee, A., Connell, R., Haworth, A., Rabb, B., Acclimatise, W.B., Uluğ, G., Capalov, L., Hansen, D.S., Glenting, C., Jensen, C.H. and Laugesen, F.M., 2013. Pilot climate change adaptation market study: Türkiye (No. 113599, pp. 1-55). IFC and EBRD. <http://documents.worldbank.org/curated/en/412441490011101287/Pilot-climate-change-adaptation-market-study-Türkiye>

A.2. Climate change impacts the public budget through multiple channels

Climate change presents risks to public finances. When a physical risk is realized (e.g., a climate-related disaster occurs) it can reduce the accumulation of capital, which shrinks economic output. This can deteriorate macro-fiscal sustainability in two ways: revenue and expenditure. The potential impacts on Türkiye's public finance system from changes to the tax base, contingent liabilities and vulnerabilities of critical infrastructure are discussed in the following sections.

Türkiye's tax revenue is at risk

Climate disasters reduce the revenue base. As economic activity and output reduces²⁴², this can reduce the amount of tax collected (e.g. from income and commodity/production taxes). Physical risks also lead to economic re-structuring, with a move away from fossil fuels and less production of carbon-intensive goods. Transition risks also expose the government's fiscal position for revenue collection. For example, reduced demand for Türkiye's emissions-intensive products will impact output and therefore tax revenue. Modeled tax revenue suggests that even without a carbon price, materialized risks will cause marginal shifts in sector contributions to tax revenue, with an increased contribution from the services sector closely reflected in a reduced contribution from transport. Preempting this kind of restructuring can help manage the pressure on tax collection caused by a decline in activities that are currently large contributors to revenue.

And, increased public expenditure

Climate disasters also impact macro-fiscal sustainability by increasing public expenditure as the government responds to emergency and reconstruction needs. These outlays include relief payments to affected population and repairing damaged public assets. Disaster-related contingent liabilities may include not just the cost of restoring public assets, but also meeting expectations to restore uninsured private assets.

The government is exposed to explicit and implicit contingent liabilities

Türkiye will continue to face increasing, but uncertain, contingent liabilities from climate-related disasters. In the period 1980 to 2019, damages from climate-related disasters and extreme weather events (not earthquakes) in Türkiye were estimated at around 3.9 billion Euros.²⁴³ This figure is expected to increase as a result of climate change. Unlike other liabilities, such as public pensions and state guarantees on external debt (discussed in Chapter 1), climate-related contingent liabilities are highly uncertain. Potential expenses include relief payments, asset reconstruction and cash transfers to public health facilities. Related revenue losses (e.g. reduction in corporate or personal income and production disruption) are only realized if a contingent hazard (e.g., disaster) happens, and depends on its frequency and intensity.²⁴⁴

The size of the government's liability is dependent on both explicit and implicit liabilities. Explicit liabilities are those where the government has a financial commitment through contracts, laws or policies. Implicit are where government expenditures are not legally required but may be expected by the public (and/or political pressure) to help speed up recovery - they are more difficult to quantify and can vary over time due to exogenous factors, such as public sentiment.²⁴⁵ The explicit liability associated with public asset losses associated with climate events is in the order of \$140 million annually.²⁴⁶ This represents the amount, on average, that needs to be allocated in the annual budget (or equivalent market measure, such as insurance) to cover damages to public assets, noting this is a small proportion of the total budget.²⁴⁷ Contingent liabilities also extend to privately-owned assets, particularly critical infrastructure (discussed below) and residential housing (which often represents a large share of damaged private assets).

²⁴² This can occur, for example, as a result of diverting capital to rebuilding or downtime because of an inability to access critical infrastructure (e.g. power)

²⁴³ European Environment Agency, 2020. Economic losses from climate-related extremes in Europe. NatCatSERVICES dataset provided by Munich Re. <https://www.eea.europa.eu/data-and-maps/indicators/direct-losses-from-weather-disasters-4/assessment>

²⁴⁴ Gamper, C., Alton, L., Signer, B, Petrie, M., (2017) Managing disaster risk related contingent liabilities in public finance frameworks, OECD Working Papers on Public Governance, No 27, OECD Publishing, Paris.

²⁴⁵ OECD/The World Bank, 2019. Fiscal Resilience to Natural Disasters: Lessons from Country Experiences, OECD Publishing, Paris, <https://doi.org/10.1787/27a4198a-en>

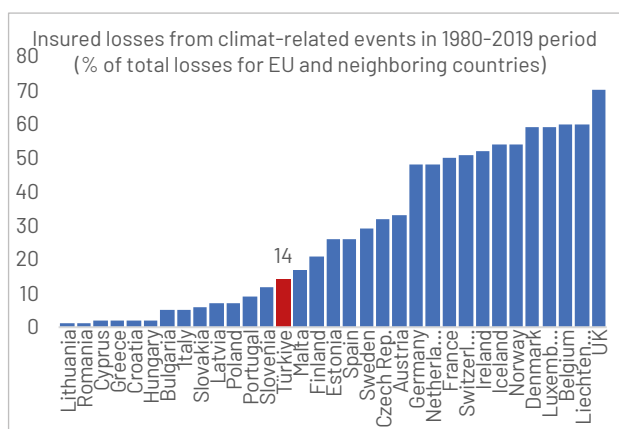
²⁴⁶ To provide an indication of the public asset losses, it is assumed average annual asset losses due to floods in Türkiye (\$843.4 million) are evenly distributed across assets. The share of public capital stock was estimated to be approximately 16 percent of the total capital stock in Türkiye, using a perpetual inventory method based on fixed capital investment flow data from the Presidency of Strategy and Budget.

²⁴⁷ This represents the cost on average (over a period of many years) to replace or repair public assets (damaged or destroyed by floods each year. The amount in any specific year may be more than or less than this amount.

The private sector's low uptake of insurance for climate-related disasters increases macro-fiscal risks. Only around 14 percent of total economic losses related to climate events in Türkiye during the period 1980 to 2019 were insured.²⁴⁸ This is lower than most European countries (Figure 208). The lack of insurance coverage highlights the potential exposures to public finances, especially if the government is expected to cover these losses through its budgetary processes, which is often the case where insurance coverage is limited.²¹⁸ Any measures to promote insurance uptake would need to balance disaster risk management against costs to households and businesses (i.e. ensure insurance products remain affordable). However, the government would continue to be exposed to a residual risk even where there is higher insurance uptake. Some of the domestic risk can be transferred internationally, as was the case with the mandatory Turkish Catastrophic Insurance Pool (TCIP), which was established following the 1999 Marmara earthquakes to transfer the national risk into worldwide risk-sharing markets.

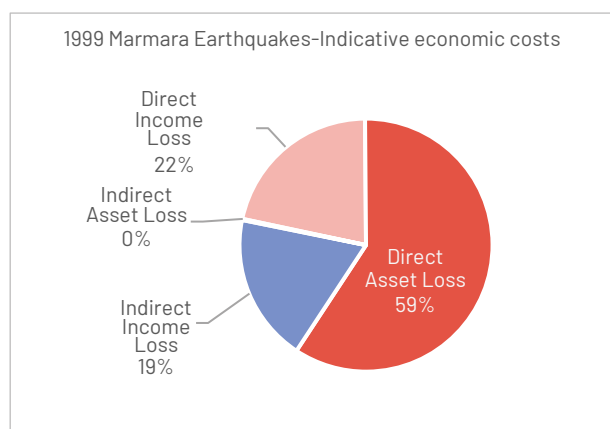
However, economic costs are broader than direct asset losses. For example, production interruption from a climate-related disaster (e.g. electricity transmission outage) and/or lost wages due to an inability to return to work following a disaster can reduce consumption and well-being levels. These indirect losses can form a significant component of the total economic loss. While there is little information about the economic costs of flooding in Türkiye, the Akgiray et al. (2003)²⁴⁹ study of the costs following the 1999 Marmara earthquakes, provides a useful indication of how costs are spread over different economic categories, suggesting that the indirect costs are in the order of 20 percent of total economic costs (Figure 209). These secondary effects can also impact on public finances through, for example, lower tax revenue as a result of reduced productivity.

Figure 208: Only around 14 percent of total economic losses in Türkiye were insured



Source: European Environment Agency (2020)

Figure 209: Indicative example of economic costs of disasters: Example of loss categories following the Marmara earthquake



Source: Akgiray et al (2003)

Türkiye's expected annual well-being losses from floods alone is estimated to be around \$2.2 billion. Well-being losses reflect that in addition to a loss in income from a loss in productive assets, households also face consumption losses from rebuilding (i.e. avoided consumption to recover lost assets).²⁵⁰ When losses in assets, income and consumption losses are combined, the total estimated annual well-being losses from floods are almost three times larger than the estimated annual losses to assets. Estimating well-being losses (i.e., consumption losses weighted based on pre-disaster consumption) provides a useful estimation of secondary effects and the relative impact across income groups. Importantly, post-disaster impacts are not evenly distributed. For example, a \$1 asset loss has a larger relative impact on low-income households, and climate-related disasters will impact on specific regions, communities and sectors differently depending on vulnerability and exposure.

²⁴⁸ OECD/The World Bank. (2019) Fiscal Resilience to Natural Disasters: Lessons from Country Experiences, OECD Publishing, Paris, <https://doi.org/10.1787/27a4198a-en>

²⁴⁹ Akgiray, V., Barbarosoglu, G., and Erdik, M., 2003. The 1999 Marmara Earthquakes in Türkiye, Annex 4 in Lessons Learned in Dealing with Large-Sale Disasters, OECD, contribution to the report by Bogazici University, Istanbul Türkiye.

²⁵⁰ World Bank. 2020. Overlooked: Examining the impact of disasters and climate shocks on poverty in the Europe and Central Asia Region. Washington, DC: World Bank

The flexibility of public finance is critical to managing climate risks, and the government's response to climate-related hazards (including realized contingent liabilities). Historically, Türkiye has had good access to international finance. However, funding predictability (both the amount and timing) for post-disaster recovery and reconstruction is challenging and there is a need to consider options to access timely finance. Additionally, improvements can be made to increase the flexibility in internal transfers and distribution systems to ensure funds can be distributed quickly to those individuals and businesses most affected by the disaster.

Disruptions to critical infrastructure can have cascading consequences on essential services, the economy and how society functions

Economic impacts from disruptions to critical infrastructure²⁵¹ can be wide-spread and disproportionately large relative to the intensity of the disruption-causing hazard. Critical infrastructure typically includes assets, networks and systems relating to energy supply, information and communication technology, transport/logistics, and water supply and wastewater management.²⁵² The large impact of disruptions to critical infrastructure is because it can prevent businesses from operating and people from working, even when those businesses or workers are not directly affected by the original hazard. Energy supply provides a useful example. In 2019, the cost to business from reduced utilization rate caused by disruptions of any cause to the power supply was about \$230 million and power sector revenue losses were almost \$3 billion. Further, the additional business operating costs of electricity generators as a result of power outages was approximately \$12.5 billion.²⁵³ Similarly, the cost of lower utilization rates of transport infrastructure as a result of disruption was over \$2 billion in 2019.²⁵⁴ These highlight the large impact of disruptions to critical infrastructure, particularly noting that even relatively short disruptions can have long-term adverse consequences on essential services including health care or education, which can be particularly detrimental for vulnerable groups.²⁵⁵

B. There are opportunities for the economy and public finances from environmental fiscal reform

As highlighted in the previous section, climate change presents risks to Türkiye's economy and public finances that the fiscal framework can help to address. The problems associated with physical climate risks, which are usually idiosyncratic shocks, lead to loss of revenue, sharp rise in emergency expenditures and the realization of contingent liabilities. The adjustments to the macro-fiscal frameworks set out in Chapter 1 are an important part of improving Türkiye's capacity to deal with climate-related risks. Resilience can be further strengthened through using risk financing instruments (e.g., dedicated reserve funds, contingent credit facilities, and insurance and catastrophe bonds); improving fiscal space and diversifying revenue streams; and building financial buffers (e.g., establishing reserve funds). The work of the financial framework bolstering climate resilience must go in tandem with other government policies, such as planning and investment to improve the resilience of infrastructure and communities²⁵⁶, building and system design standards and early warning weather systems. Importantly, investments in projects that improve resilience can carry high returns, with benefit-cost ratios ranging from 2:1 to 10:1, and in some cases even higher.²⁵⁷ Benefits take the form of reduced future losses from climate disasters, as well as economic, such as lowering the financial risks of assets and enabling investments that were otherwise judged too vulnerable to climate risk.

²⁵¹ Türkiye's Disaster and Emergency Management Presidency (AFAD) critical infrastructure definition is: "Combination of networks, assets, systems and structures which can have serious impacts on health, security, and economy of citizens due to adverse impacts on environment, society order and public services that occur as a result of partial or complete loss of functionality of such networks, assets, systems and structures."

²⁵² World Bank. (2019) Building Resilience in Türkiye: Quantifying Climate and Disaster Risks to Critical Infrastructure, Lifelines and Agriculture. World Bank, Washington DC.

²⁵³ Based on the methodology set out in Hallegatte, Stephane; Rentschler, Jun; Rozenberg, Julie. 2019. Lifelines : The Resilient Infrastructure Opportunity. Sustainable Infrastructure;. Washington, DC. World Bank. For example, the cost to business includes unused production capacity, reduced sales, and delays to the supply and delivery of goods. Firms also incur costs for coping with unreliable infrastructure, such as for backup power generation. The indirect impacts include effects on the long-term investment and strategic decisions of firms and on the composition, competition, and innovation of industries.

²⁵⁴ Based on the methodology set out in Hallegatte, Stephane; Rentschler, Jun; Rozenberg, Julie. 2019. Lifelines : The Resilient Infrastructure Opportunity. Sustainable Infrastructure;. Washington, DC. World Bank.

²⁵⁵ Hallegatte, Stephane; Vogt-Schilb, Adrien. 2016. Are Losses from Natural Disasters More Than Just Asset Losses? : The Role of Capital Aggregation, Sector Interactions, and Investment Behaviors. Policy Research Working Paper;No. 7885. World Bank, Washington, DC.

²⁵⁶ The New Economy Program (2021-2023) highlights the need for greater planning to identify and reduce disaster risks.

²⁵⁷ (Global Commission on Adaptation, 2019).

Addressing the risks to the economy from the global low-carbon transition requires reducing the exposure of vulnerable sectors while building the industries that will thrive in a low carbon world. Reducing sectors' exposure to transition risks entails lowering their emissions intensity - the amount of greenhouse gases it takes to make products - particularly those facing international competition. Well-designed environmental fiscal reforms, discussed in this section, can do both - decarbonize the existing economy and support growing new industries, many of which are relatively labor intensive and therefore support employment growth.

Türkiye is making progress addressing climate change risks such as via its investment incentives program²⁵⁸, which together with Türkiye's high renewable energy potential, is helping to improve energy security. In 2020, the share of renewables in electricity generation capacity was 51.7 percent resulting in the lowest carbon intensity of the energy system having in 20 years. There is potential to further increase the renewable energy share, given Türkiye's considerable wind, solar and geothermal resources. Renewables are reducing Türkiye's import dependence, diversifying the electricity mix, and meeting rising energy demand. The Türkiye Energy Outlook 2020²⁵⁹ report found that solar PV will become the most cost-competitive power generation technology by the late 2020s, with 2019 levelized cost of electricity in the range of \$50-55 per MWh. This is similar to the cost of hard coal and gas generation, already cheaper than \$70-75 per MWh for lignite generation, and not yet as competitive as onshore wind at \$45-50 per MWh. In terms of energy trade, the electricity Türkiye sells to its neighbors is already less emissions intensive than the electricity produced in Bulgaria, Greece and Iran, although more intensive than that of Georgia (EIB, 2020).

Building on these foundations, environmental fiscal reform can create other economic opportunities while improving macro-fiscal outcomes. Such reform can position Türkiye for enduring growth (including a sustainable post-COVID recovery) and help build resilience of public finances to future shocks. By supporting Türkiye's transition to a low carbon economy, this reform can also deliver important environmental and social benefits, such as lower air pollution from reduced fossil fuel combustion. A review of the existing fiscal framework - and how it influences greenhouse gas emissions - demonstrates some important opportunities for growth-enhancing fiscal policy reform.

B.1. A review of revenue measures shows Türkiye "under taxes" carbon emissions

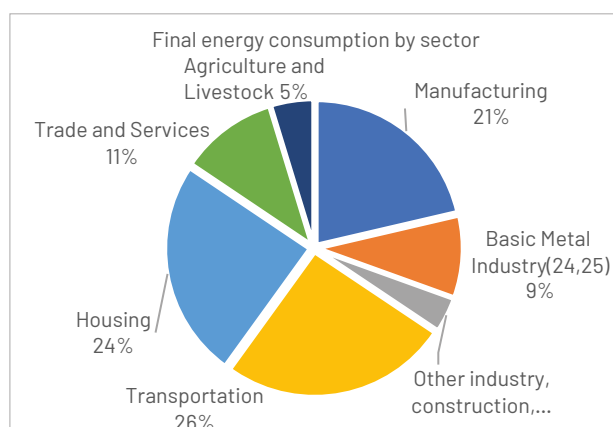
Taxes on road transport fuels are the exception

While there are a number of meaningful taxes on transport fuels (Figure 211), more than 50 percent of total energy use is not taxed. The road transport sector makes up most of the revenue generated by energy taxation, however over 70 percent of energy is used outside this sector (Figure 210). The list of relevant excise taxes in (Table 22), as applied through the Special Consumption Tax (SCT) framework, shows there are meaningful taxes on road and marine transport fuels, but no tax on kerosene or other aviation fuels, as well as no tax on coal. On its own, coal contributes 28 percent to energy use and more than 30 percent to carbon emissions (Government of Türkiye, 2020). Natural gas is included in the framework, with a much higher tax rate if used as a transport fuel (Figure 212). While there is an excise tax on electricity (the Electricity Consumption Tax), it does not relate to the carbon-intensity or the underlying electricity production.

²⁵⁸ The investments incentives program is set out on this website: www.invest.gov.tr/en/investmentguide/pages/incentives-guide.aspx

²⁵⁹ The Türkiye Energy Outlook is published by the Sabanci University and can be accessed here: <https://iiccc.sabanciuniv.edu/teo>

Figure 210: Around a quarter of energy consumption belongs to road transport



Ministry of Energy and Natural Resources, 2020, <https://enerji.gov.tr/enerji-isleri-genel-mudurlugu-denge-tablolari>.
Note: These sectoral percentages exclude energy used as a feedstock in the petrochemical industries.

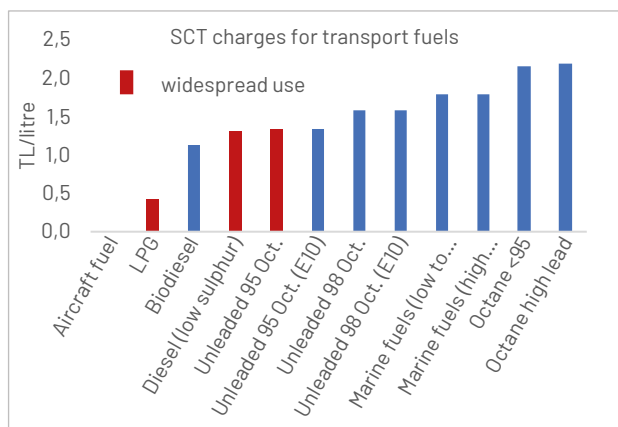
Table 22: List of Special Consumption Tax (SCT) charges on fuels

Transport sector fuel	SCT (TL/L)	Industrial sector (not electricity)	SCT (TL/kg)
Kerosene and other aircraft fuel	0	Light oils	0
LPG	1.78	Petroleum coke, bitumen, oils, etc.	0
Biodiesel (<70% petroleum oil)	1.12	Fuel oil (high sulphur)	0.224
Marine fuels (low-med sulphur)	1.72	Fuel oil (med sulphur)	0.237
Marine fuels (high sulphur)	1.79	Fuel oil (low sulphur)	0.476
Diesel (low sulphur)	2.06	Butane/propane (liquified or gas)	1.778
Unleaded <95 Octane	2.15	LPG (not used in cars)	1.778
Octane high lead	2.18	Coal	n/a*
Unleaded 95 Octane	2.04	Natural gas	TL/m ³
Unleaded 95 Octane (E10)	2.04	Transport fuel	0.8599
Unleaded 98 Octane	2.04	Heating fuel	0.023
Unleaded 98 Octane (E10)	2.04	Electricity fuel	0

* Coal is not included in the SCT taxation framework. There is no other excise duty on coal, however imported thermal coal has a tariff set at the difference between the international market price and \$70/ton. Source: Law on Special Consumption Tax, 2021

Energy taxes are also falling as a share of GDP. Overall revenue from energy related taxes increased 150 percent between 2009 and 2019, but in the same time period decreased as a proportion of GDP from 2.6 percent to 1.5 percent, with the decrease beginning in 2013 (Figure 213). This trend is repeated when looking at environmental taxation as a whole (e.g., pooled energy, transport, resource and pollution taxes), with the share of GDP decreasing from 3.4 percent in 2017 to 2.2 percent in 2019 (Figure 214). There has also been a drop in the share of GDP of transport taxes (Figure 215), with a flat trend for the other more minor tax components, such as resource taxes (Figure 216).

Figure 211: There are a number of meaningful taxes on transport fuels



Source: Special Consumption Tax Law, 2021

Figure 212: The rate is much higher if used as a transport fuel

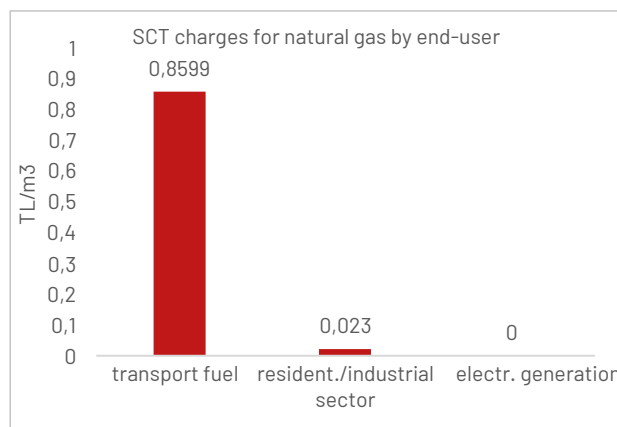
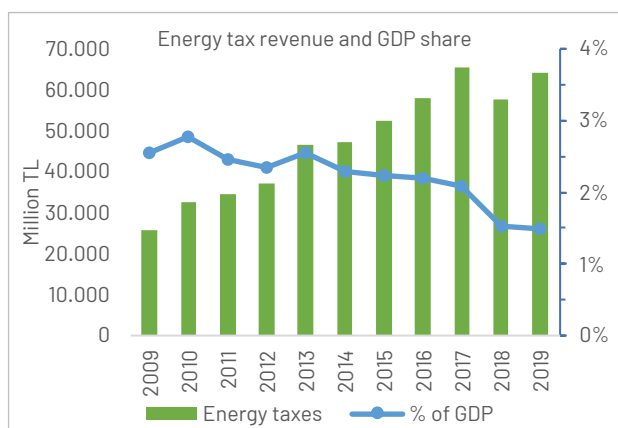
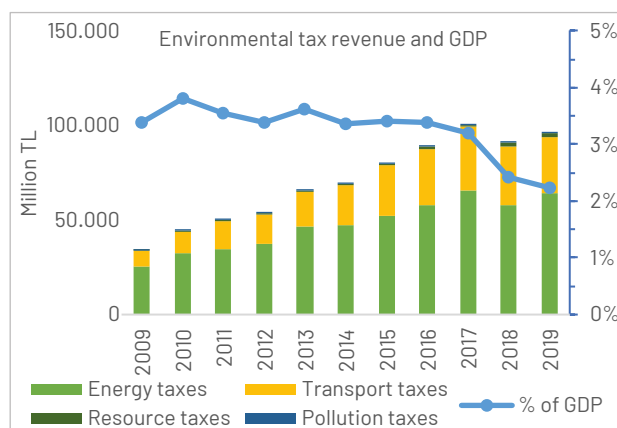


Figure 213: The share of energy tax revenue in GDP fell



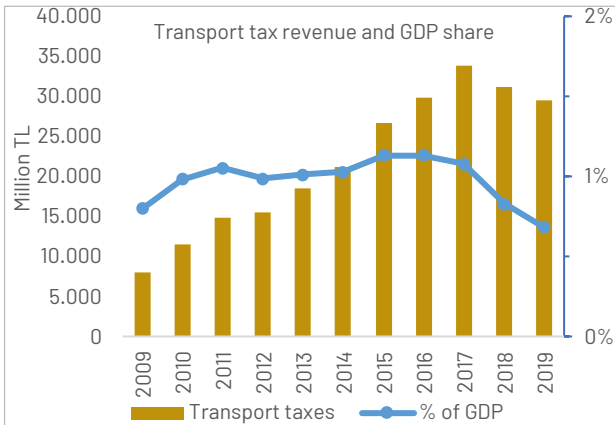
Source: Environmental taxes, 2008-19 (Türkiye Statistical Institute, 2020)

Figure 214: Same trend is observed in environmental tax revenue



In May 2021 Türkiye better aligned diesel and gasoline tax rates which may help reduce the use of the more emission-intensive fuel (Figure 217). In 2019, the tax component of a liter of diesel was 43 percent compared to 50 percent for a liter of gasoline (Figure 217) and the rate for gasoline was 0.47 TL higher than diesel. Now gasoline is 0.04 TL higher. The different tax rates for road transport fuels have contributed to high diesel use, with the proportion of diesel cars in the fleet increasing every year since 1990 to reach 51 percent of the fleet in 2019 (Figure 218). The road transport sector makes up 21 percent of Türkiye's greenhouse gas emissions and diesel vehicles contribute the majority of these emissions (Figure 219) plus more air pollution than gasoline cars. Based on European Union data, the average GHG emissions intensity of a diesel passenger car is 157 g CO₂/km, followed by gasoline at 150 g CO₂/km and then by liquefied petroleum gases (LPG) cars at 142 g CO₂/km (Figure 220).

Figure 215: Transport tax revenue as a share of GDP declined in recent years



Source: Environmental taxes, 2008-19 (Türkiye Statistical Institute, 2020)

Figure 216: Resource tax revenue followed a stable trend

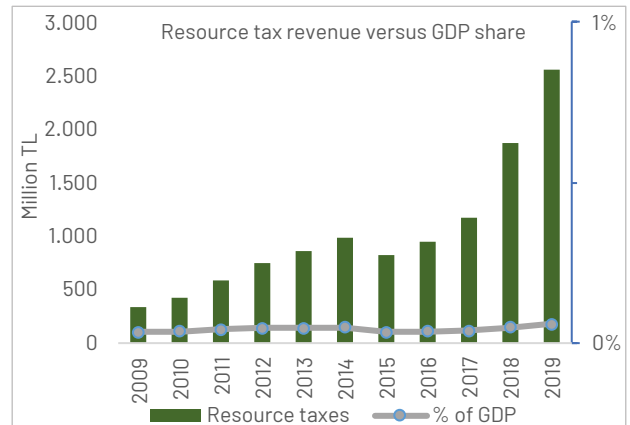
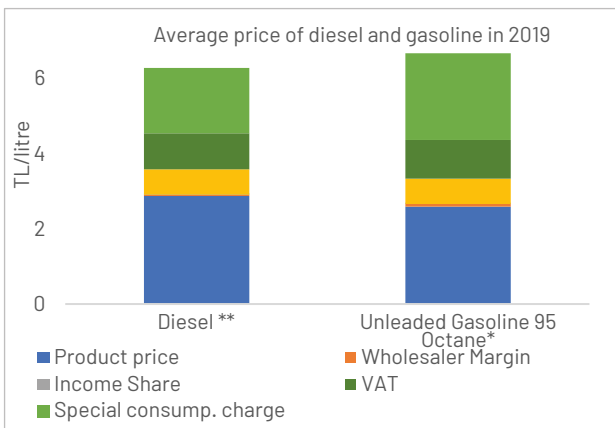
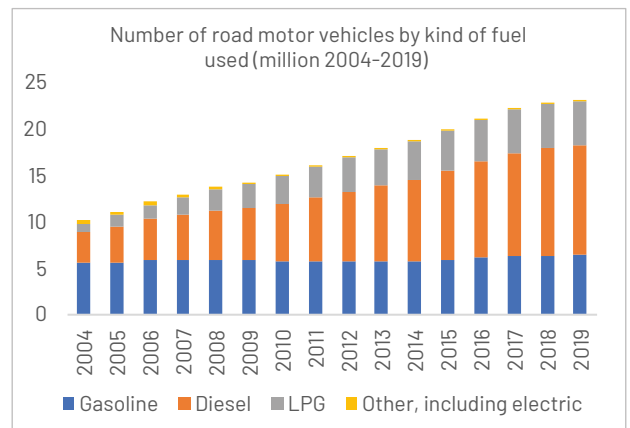


Figure 217: The different tax rates for road transport fuels have contributed to high diesel use



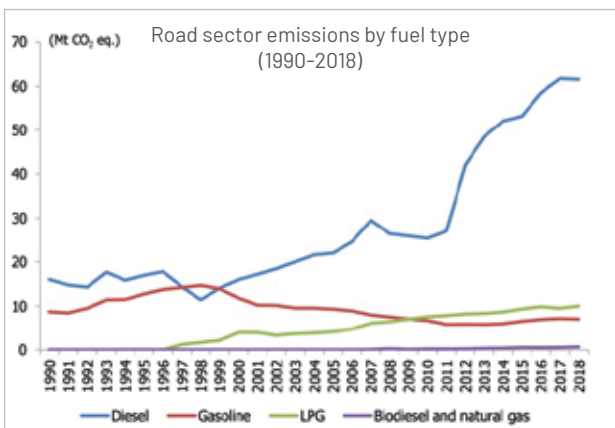
Source: 2019 Petroleum Market Sector Report (Energy Market Regulatory Authority, 2019)

Figure 218: And number of diesel vehicles has increased



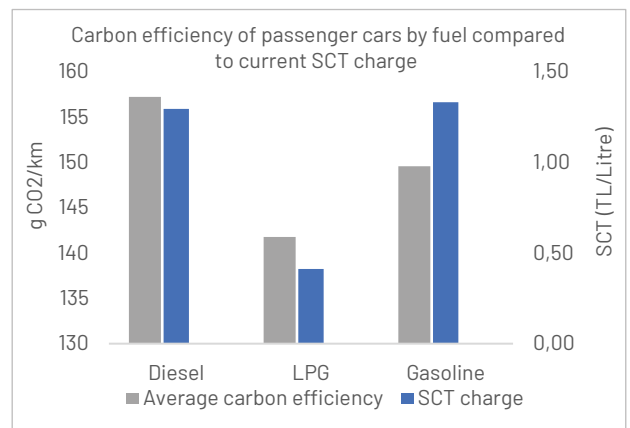
Source: Road Motor Vehicle Statistics (Turkish Statistical Institute, 2020)

Figure 219: Diesel vehicles contribute the majority of these emissions



Source: Turkish GHG Inventory Report 1990-2018 (Government of Türkiye, 2020)

Figure 220: A diesel passenger car on average has relatively higher GHG emissions intensity



Source: CO2 of passenger cars (European Environment Agency, 2020), (1) Numbered list (A) Schedule (Government of Türkiye, 2021)

Greenhouse gas emissions from the non-energy sectors are also not taxed

Non-energy sector emissions account for almost 30 percent of greenhouse gas emissions and these emissions are not taxed (Figure 221, Figure 222). Nor is there a strong climate mitigation policy in these sectors. These emissions are associated with industrial processes, land use (including forests, grasslands, and agricultural land) and fugitive emissions (including methane emissions released from coal mines or leaked from natural gas pipelines and storage facilities). Many of these sectors face potential transition risks with flow-on effects for production, trade, employment, and public finances. The cement sector on its own contributes 7.2 percent to total emissions, with the steel sector the next biggest contributor (2.3 percent). Fugitive emissions represent 3 percent of total emissions (Government of Türkiye, 2020).

Figure 221: Energy sector emissions account for 70 percent of emissions

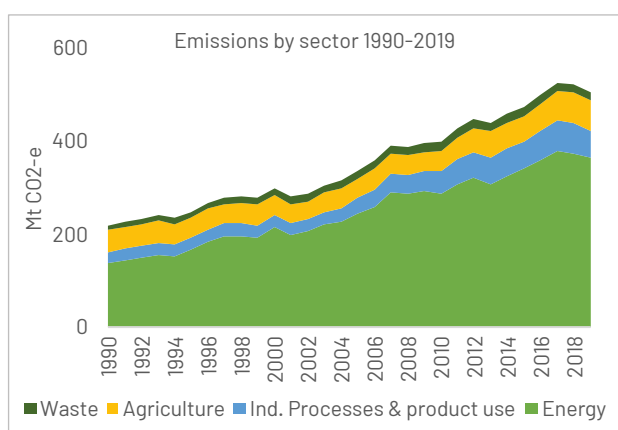
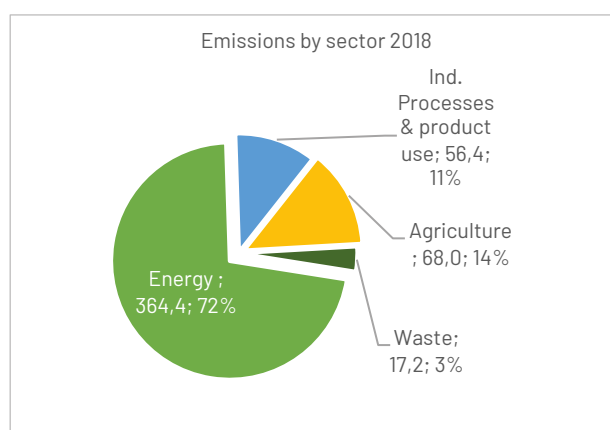


Figure 222: This is followed by industry and agriculture sectors



Source: Greenhouse gas emissions by sectors (CO2 equivalent), 1990 - 2018 (Türkiye Statistical Institute, 2020)

Comprehensively taxing pollution makes economic sense

One of the fundamental challenges to reducing pollution, including greenhouse gases, is the failure of markets to factor the cost of pollution, the negative externality, into the cost of the products that cause it. As prices are not properly reflective of the costs, resources are misallocated across the economy, undermining efficiency, and wellbeing. If firms do not face the costs of pollution, the private sector faces insufficient incentives to shift towards low-pollution investments. An unnecessarily large share of the total cost for reducing pollution ends up being borne by the public purse.

This market failure can be addressed by placing a price on pollution through the tax system. By doing so, firms have an economic incentive to reduce environmental damage. Such 'corrective pricing'²⁶⁰, should aim to factor in environmental damages, such as climate change, while removing subsidies that artificially reduce the price of polluting products, such as fossil fuel subsidies.

In Türkiye, such pricing could be extended to greenhouse gas emissions from sources not taxed. This would include pricing carbon from fuel use that is currently untaxed (e.g. coal and natural gas used for electricity generation) as well as industrial, fugitive and wastewater emissions, supported by Türkiye's existing emissions monitoring, reporting and verification (MRV) system.²⁶¹ This would cover up to 70 percent²⁶² of Türkiye's greenhouse gas emissions. Pricing carbon is not recommended at this stage for agriculture emissions because emissions occur at many small, family-owned farms, and mandating greenhouse gas reporting at these farms may be impractical and impose disproportionately high costs. Emissions from landfills are also not suggested to be covered by a carbon price given the complexities in passing costs through the supply chain²⁶³ and because good mitigation progress has been made with landfill gas capture (Government of Türkiye, 2020).

²⁶⁰The idea of using a tax for pollution control was put forward by Arthur C. Pigou in his 1920 seminal work, "The Economics of Welfare", arguing that a tax should be applied to a market activity that generates harm to others to correct the market outcome. For more information see this World Bank Blog: blogs.worldbank.org/endpovertyinsouthasia/carbon-taxes-effective

²⁶¹Described here: pmturkiye.csb.gov.tr/wp-content/uploads/2017/04/Turkiye_GHGE-Regulation.pdf

²⁶² Estimate is based on the data presented in Turkish GHG Inventory Report 1990-2018 (Government of Türkiye, 2020), summing the emissions from the energy (excluding road transportation), wastewater and industrial process and product use sectors, and dividing by total emissions.

²⁶³ Landfill methane emissions occurring today are a result of the decomposition of waste that has been deposited over the last few decades. This makes it difficult for landfill operators to appropriately charge landfill users at the time the waste is deposited to recoup the costs associated with a price on GHG emissions. As a result, it can be simpler and just as effective (given the high level of knowledge about the emissions reduction options and technologies) to simply regulate emission control technologies at waste sites, such as mandatory methane capture.

Pollution pricing is typically implemented through the tax system (including using existing taxes such as excise duties) or through an emissions trading system (ETS). A tax on emissions would set the value per ton of emissions and allow the quantity to vary. Emissions trading systems set the quantity of emissions and allow the value (price) to vary. Examples of ETS include the EU ETS for greenhouse gases and the US ETS for sulfur dioxide emissions to address acid rain. The use of pollution pricing is growing globally. For greenhouse gases, there are currently 64 explicit pricing initiatives implemented or scheduled for implementation, covering 22 percent of the world's greenhouse gases. These include 31 ETS and 33 carbon taxes. The number of initiatives has tripled over the last ten years, while the share of global greenhouse gases covered has increased fourfold (World Bank, 2020).

Taxing on a basis that reflects environmental externalities like greenhouse gases is an efficient way of raising revenue and improve the fiscal position. Environmental taxes have a lower marginal cost of public funds than traditional taxes on labor and capital as they have a less distortionary effect on the economy (Barrios, Pycroft, & Saveyn, 2013). Thus, the impact on GDP of raising revenue can be reduced by using environmental taxes such as carbon pricing. Similar to a carbon tax, an ETS also generates revenue by auctioning emissions allowances, which can then be used to offset distortionary taxes on labor and capital.

Much pricing of greenhouse gases can be done upstream, at the few chokepoints of fuel into the economy, thereby minimizing tax evasion, which is another policy focus of Türkiye's New Economy Program. Applying the carbon price upstream also simplifies collection, reporting and enforcement compared to downstream alternatives.

Expanding the tax base through such environmental taxation also shifts the tax burden to better include the informal sector. The Government has a target in the New Economic Program 2021-23 to boost the efficiency of tax collection and combat the informal economy. Reducing informality can be a reason for carbon pricing, even before considering the effects on the environment and other co-benefits. Avoidance of taxes is a well-understood motivation for informality and the presence of the informal sector increases the costs of generating revenue through direct taxes (Carbon Pricing Leadership Coalition, 2019). Carbon pricing creates the opportunity for rebalancing the burden from the formal to the informal sector by broadening the tax base while boosting the functioning and the neutrality of the tax system. These effects stimulate the growth of the formal sector, and therefore of the economy (Pigato, 2019)(Liu, 2013). The theoretical understanding of the effect is comprehensive, yet empirical evidence to-date remains limited.

A carbon price would also reduce the imposition of the EU CBAM and allow the Government to receive the revenue that would otherwise go to the EU. The current CBAM proposal indicates that the CBAM imposed would be reduced by the extent of any carbon pricing in exporter countries. A carbon price would also allow Türkiye to retain revenue that would otherwise being going to the EU in payments for the CBAM.

A focus on environmental spending, or "green" investment, must complement carbon pricing

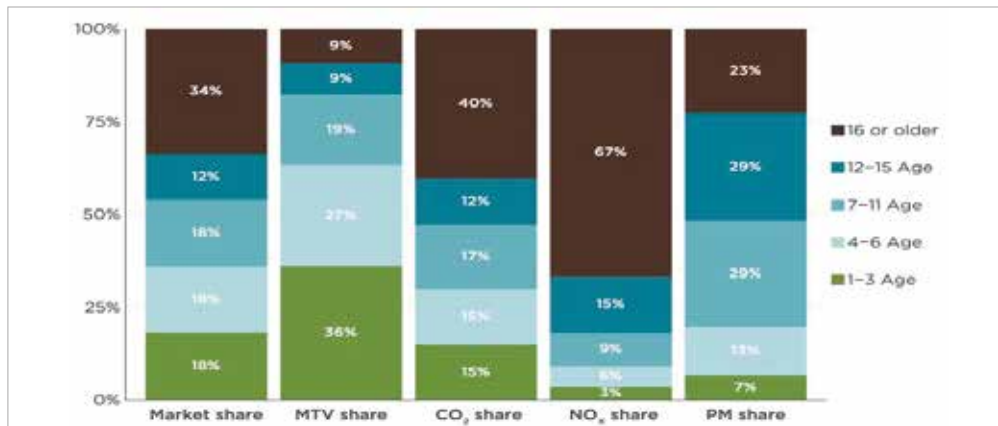
Carbon pricing and fossil fuel subsidy reforms will strengthen price incentives for private sector sustainable investment. Public investment will also be needed to help overcome market failures holding back green innovation and infrastructure. An analysis of the public and private investment needs for the low carbon transition is being undertaken as part of the Work Bank Türkiye Green Growth Analytical and Advisory Program. As such, it is beyond the scope of this PFR.

Vehicle taxation rates may be encouraging purchase of more polluting vehicles

There are a number of important taxes on vehicles, but they do not reflect the environmental costs associated with their use. Türkiye's framework of vehicle taxation is believed to strongly influence consumers' choice (Mock & Şenzeybek, 2019). The upfront Special Consumption Tax (SCT) on new cars is based on price and engine size and encourages purchase of cheaper vehicles with smaller engines²⁶⁵. Amongst these, diesel and LPG cars are the most popular reflecting the fact that until recently diesel was taxed less than gasoline. The annual Motor Vehicle Tax (MVT) is also based on purchase price and engine size, with age additionally considered so that the tax rate declines steeply with time. This means there is an incentive to hold on to cars longer or to buy an older second-hand rather than a new car. The largest group of vehicles on the road in Türkiye are those age 16 years and older at 34 percent (Figure 223). These vehicles are estimated to cause 40 percent of vehicular CO₂ emissions, 67 percent of nitrous oxides (NO_x), and 23 percent of particulate matter (PM) emissions, while only contributing 9 percent of MTV revenue.

²⁶⁵Since 1 January 2004, the taxation principle is based on the engine cylinder volume, consistent with other European Union member countries. This is an objective criterion for taxation, which means a higher tax is collected from vehicles with high engine cylinder volume.

Figure 223: Passenger cars in Türkiye, grouped by vehicle age, market share, contribution to annual tax revenue and emissions



Source: Passenger car emissions in Türkiye (Mock & Şenzeybek, 2019).

The road freight sector cannot be ignored

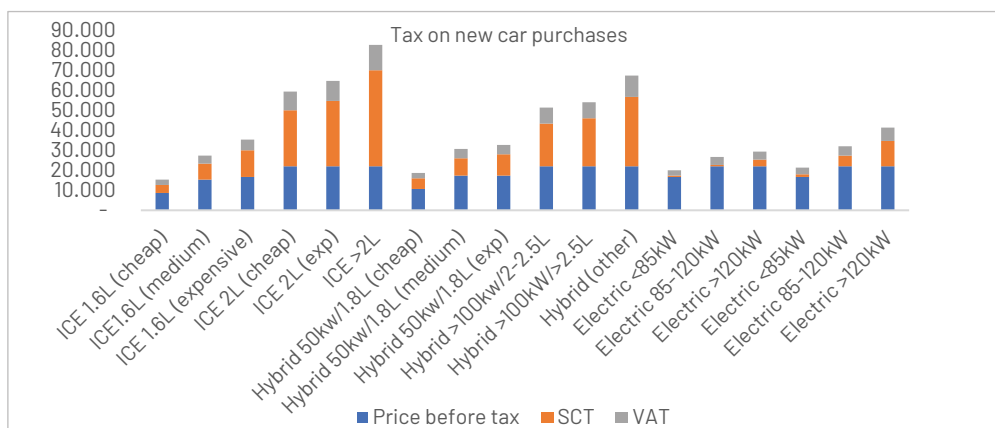
Three quarters of Türkiye's freight haulage is by trucks, causing significant highway congestion, road infrastructure wear and tear, and emissions of greenhouse gases and pollutants. In 2018, Türkiye's trucks were estimated to have emitted 42 Mt CO₂-e, around half of the entire transport sector, a proportion twice that of the European average of 25 percent (European Environment Agency, 2020). There is no differentiation in the tax rate on upfront purchase of trucks (a flat 4 percent is charged upfront for all trucks) (Government of Türkiye, 2021), and the annual tax varies depending on age and weight. For a heavy duty truck the annual tax payable is TRY 5,242 in the first 6 years dropping to TRY 2,436 when the truck is 16 years or over (Government of Türkiye, 2021). This is not as dramatic a drop compared to passenger cars so there is unlikely the same tax-based incentive to purchase and keep old trucks. Nevertheless, the average age of trucks is 16 years (Türkiye Statistical Institute, 2020), higher than the 13 years average for the EU (European Automobile Manufacturers Association, 2021).

An effective way to encourage renewal to cleaner cars and trucks would be to more closely link taxes to vehicle efficiency. Basing tax rates on engine size and setting lower rates for electric vehicles (EVs)²⁶⁶ means the existing upfront SCT taxation is likely to be taxing high-emitting cars more (Figure 224). The decrease of annual tax paid as a vehicle ages does not match a decrease in emissions as in fact emissions will increase as efficiency is gradually lost (European Federation for Transport and Environment AISBL, 2018). For passenger vehicles, action U.1 of Türkiye's National Energy Efficiency Action Plan²⁶⁷ proposes adjusting tax rates so they match the vehicle efficiency labelling scheme, which would ensure high-emitting vehicles are taxed the most. This action would also promote the labelling scheme and make efficiency a front-of-mind purchase consideration in Türkiye. By taxing older cars more, fleet renewal should accelerate. In the trucking sector, tax reform to incentivize low-emission trucks could send a signal to the market, noting low-emissions, long-range road freight haulage technologies are still at the emerging phase.

²⁶⁶ Amendments to taxation regulation on 21 March 2018 (Law No. 7103 and 197) mean that electric cars are only subject to 25 percent of the tax of non-electric equivalents, a policy that encourages uptake in electric vehicles.

²⁶⁷ Available here: enerjiapi.etkb.gov.tr//Media/Dizin/EIGM/Mevzuat/253490-national-renewable-energy-action-for-Türkiye.pdf

Figure 224: Existing upfront SCT taxation is likely to be taxing high-emitting cars more



Note: The assumed price before tax is based on achieving a similar purchase price across the taxation categories.

Source: Special Consumption Tax Law (Government of Türkiye, 2021)

B.2. Expenditure measures encourage use of fossil fuels

A range of existing fiscal policies subsidize fossil fuel use, creating ongoing costs and risks to the budget and the economy in addition to overuse of fossil fuels. These policies include direct subsidies to coal production and to household use of coal for heating; tax exemptions; and public support for fossil fuel investments.

Coal subsidies can have a negative impact on investment and consumption

Subsidizing coal production reduces its cost, which can have unintended adverse outcomes and present fiscal risks. Subsidies to Turkish Hard Coal Enterprises (TTK), a state-owned enterprise, cover its deficit between production and selling price. In 2018, TTK produced hard coal at an average cost of production of TL 1,365/t and sold it for an average price of TL 394/t, so subsidized support amounted to TL 899 million (OECD, 2019). A modelling study in 2016 found that eliminating the coal subsidy in Türkiye could reduce aggregate greenhouse gas emissions by as much as 5 percent without a significant loss to GDP (Sevil & Yeldan, 2016)²⁶⁸.

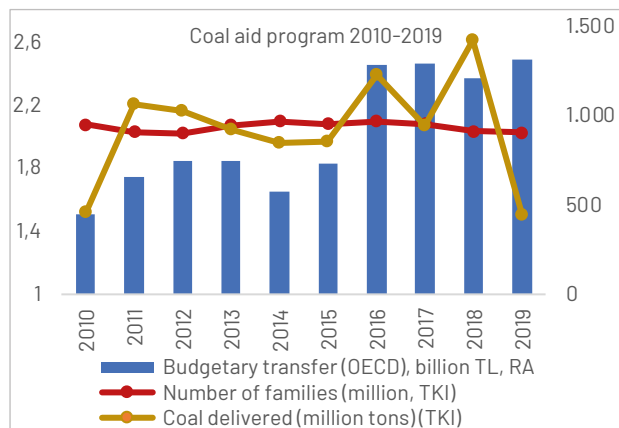
Subsidizing the use of coal by poor families is an even more significant direct budgetary expenditure. In 2019, over 2 million families received a total of 1,500,000 tons of coal with an estimated budgetary transfer of TRY 1,315 million (Figure 225). Since 2003, this policy supports vulnerable households and the continued use of coal as a heating fuel. Burning of coal by households for heating is a major contributor to health problems from air pollution. Overall, the number of households using coal for heating has dropped with the expansion of the natural gas network (Figure 226). However, the number of recipients of coal aid has remained steady and the hardship caused by the COVID-19 pandemic may result in an increase in the needs of vulnerable families. Reducing coal subsidies is an area of reform, with likely need for complementary support for the poor households relying on coal aid. In 2022, the Government introduced a Natural Gas Consumption Support payment for vulnerable citizens to operate in tandem with coal aid.²⁶⁹ This new support measure may be an alternative to coal handouts for low-income families in areas with natural gas infrastructure.

By skewing price signals, fossil fuel subsidies disadvantage clean energy and the transition to lower-polluting processes. By preventing a comparable pricing of actions to reduce pollution across sectors, subsidies can increase the economy-wide cost of reducing emissions (Carbon Pricing Leadership Coalition, 2019).

²⁶⁸ Acar, S. and Yeldan, E. 2016. Environmental Impacts of Coal Subsidies in Türkiye: A General Equilibrium Analysis, Energy Policy, Volume 90, Pages 1-15. doi:10.1016/j.enpol.2015.12.003

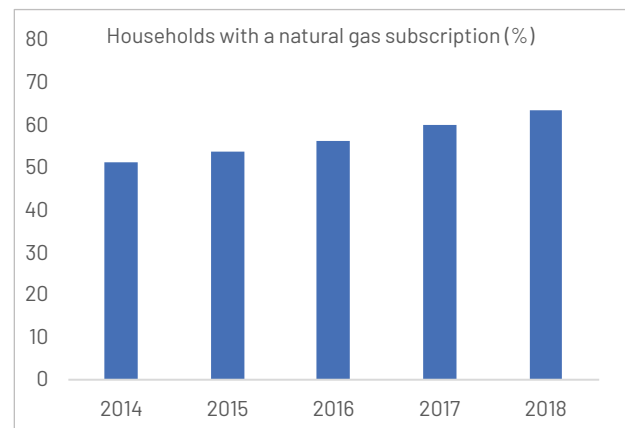
²⁶⁹ The support measure is described on the Ministry of Family and Social Services' website (Turkish), and in this article <https://www.dailysabah.com/business/economy/erdogan-unveils-new-measures-to-bring-down-energy-bills>

Figure 225: Around 2 million families receives coal support



Source: Coal Sector Report 2019 (TKI, 2020) and Fossil fuel subsidies - TUR(OECD, 2020)

Figure 226: The number of households using coal for heating has dropped with the expansion of the natural gas network



Source: United Nations Sustainable Development Indicators (Turkish Statistical Institute, 2020)

Tax exemptions also incentivize fossil fuel investments

A broad range of tax exemptions further incentivize fossil fuel use, reduce government revenue and complicate the tax system. In 2020, aside from temporary COVID-19 relief, excise duty on fuels was exempted for: exports, military procurement, national and subnational government procurement during natural disasters or extraordinary situations, purchases by people with disabilities, public transportation related purchases, petroleum and gas drilling and other energy activities (Government of Türkiye, 2021). Public information on the revenue impact of fuel tax exemptions is difficult to find.

Energy projects are encouraged with a comprehensive investment incentives program²⁷⁰ that includes tax deduction (Presidency of the Republic of Türkiye Investment Office, 2020). For example, 'priority' projects, as identified on a list that includes energy efficiency projects, generating electricity from coal, generating electricity through waste heat recovery in a facility, manufacturing high-technology products such as solar panels, manufacturing turbines and generators for renewable energy and wind turbine wings for wind power qualify for a corporate tax reduction of 40-55 percent of investment expenditure. Specific incentives for participating in tenders to build and operate coal power plants with associated mining leases include tax incentives as well as a guaranteed exemption from paying any future price on carbon emissions. Although investment incentives are an effective policy for energy development, aspects of the existing investment framework, including special incentives for coal power, do not provide consistent signals to invest in cleaner assets.

As well as renewable energy investments

10 years of feed-in-tariffs for renewable energy provided an investment signal that has delivered results, with renewables reaching a 43 percent share of total electricity generation in 2020 (Energy Market Regulatory Authority, 2020). Türkiye's use of competitive auctions as an investment incentive for renewable electricity is a positive development as it reduces costs by allowing market participants to compete on a price basis, rather than the government setting the price. The current World Bank Energy Transition Technical Assistance Program for Türkiye will analyze, inform, and help address several energy sector issues including energy security, financial sustainability, and decarbonizing the energy mix.²⁷¹ This Public Finance Review does not cover this detail and focuses just on potential reforms to the fiscal framework.

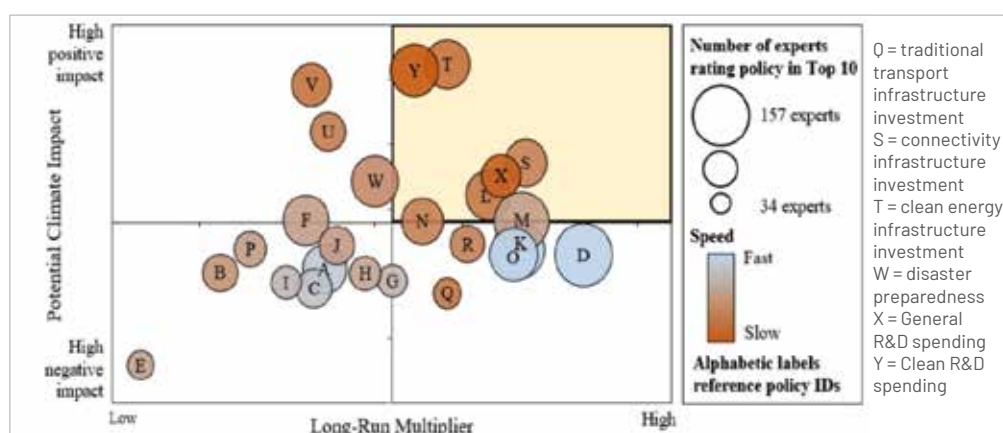
²⁷⁰ The investments incentives program is available here: www.invest.gov.tr/en/investmentguide/pages/incentives-guide

²⁷¹ Overview is available here: www.worldbank.org/en/news/press-release/2020/02/28/Turkiye-benefits-from-more-world-bank-support-to-renewable-energy

B.3. Additional benefits of environmental fiscal policy

As Türkiye seeks to recover from the economic downturn from COVID-19, recovery efforts require investments that have high short- and long-term jobs multipliers and support industries that have sustainable long-term growth prospects. A recent opinion survey of senior policy makers from G20 countries conducted by the Oxford Smith School found that out of 25 major fiscal recovery archetypes it was sustainable infrastructure measures, clean physical infrastructure, building efficiency retrofits, natural capital investment, and clean R&D that were amongst the most effective in terms of speed, long-run multiplier, climate impact and overall desirability (Figure 227). Investment of these kinds would also support increased productivity, jobs creation, and the transition towards a more knowledge intensive economy, as highlighted in the Eleventh National Development Plan. In terms of job creation potential and the associated positive income tax base, global estimates are that US\$1 million spending in fossil fuels would create 2.7 full-time equivalent jobs (FTE), while that same spending would create 7.5 FTE jobs in renewable energy and 7.7 FTE jobs in energy efficiency (Garrett-Peltier, 2017).

Figure 227: Policy relief measures relevant to COVID19 identified in a survey of policy experts



Source: 'Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?' (Hepburn, O'Callaghan, Stern, Stiglitz, & Zenghelis, 2020)

Provides health benefits

Pricing greenhouse gas emissions can also help to reduce air pollution in Türkiye. While Türkiye continues to improve air quality, in 2019 air pollution still caused an estimated 31,476 premature deaths (Right to Clean Air Platform - Türkiye, 2020). Burning of coal for domestic heating and cooking and coal-fired power generation, as well as road vehicles are the main contributors to air pollution (Akbar and Arıkan 2019). The Health and Environment Alliance's report for Türkiye found that in 2019 the emissions from coal fired power plants caused 4,818 deaths, 26,500 cases of bronchitis in children, 1,480,000 lost working days and 8,850 lost IQ points from mercury exposure. The annual economic costs of these health impacts is estimated to be between 47 and 99 billion TL (Health and Environment Alliance, 2021). Smoke inside homes is also a concern and responsible for half of global deaths from air pollution (WHO, 2018). Pricing greenhouse gas emissions and retargeting tax exemptions and subsidies for fossil fuels can reduce the use of fuels that cause air pollution and improve air quality outcomes. A study of the impacts of air pollution regulation in China found in 2017, as a result of substantial improvements in air quality, there were 47,240 fewer deaths and 710,020 fewer years-of-live lost than in 2013.

Helps enhance energy security

Türkiye's natural resource endowments and the investments incentives program are shoring up energy security, but there is further potential. Türkiye's dependence on energy imports contributes to economic stress and Türkiye's reforms as set out in the Eleventh Development Plan prioritize achieving energy security. Increasing energy security delivers economic benefits like lower reliance on global market prices and ability to capture greater economic rents from domestic production. Given the

domestic potential for producing solar, wind and geothermal energy, increasing renewable capacity would reduce reliance on imported energy and improve energy security. The fiscal reforms outlined in this chapter would be a key pillar for supporting the continued growth in renewables. Additional policies and measures will be needed to manage the integration of increasing shares of renewable energy in electricity generation. The World Bank Energy Transition Technical Assistance Program will provide relevant analysis on issues like battery storage and generation planning.

Energy efficiency improvements are assisting energy security and reducing reliance on international supply chains, geopolitical risks, and capital outflow. Türkiye's policies supporting energy efficiency are strong, with programs and financing mechanisms for the industrial sector which consumes 30 percent of total energy (World Bank, 2015). However, considerable potential remains for rationalizing energy use, with estimates of 25 percent in the industrial sector and 30 percent in the building sector (World Bank, 2015). Gaps remain in governance of the incentive schemes, delivery and business models and suitable and scalable financing schemes across all sectors (World Bank, 2015). The World Bank Energy Efficiency in Public Buildings Project as well as the Seismic Resilience and Energy Efficiency in Public Buildings Project aim to promote a strategic national approach to increasing energy efficiency and seismic performance in public buildings that can be scaled towards addressing challenges in the rest of the building stock in Türkiye.²⁷²

Fuel and vehicle taxes have helped manage the dependence on oil imports. Türkiye raised fuel taxes to levels that are the highest in the OECD to increase tax revenues and cut its dependence on oil imports during its fiscal crisis of 1999-2001. Fuel taxes are hard to evade, have a low administrative burden and remain an important source of public funds (1.5 percent of GDP in 2019, see Error! Reference source not found.). Extending the taxation to cover energy more comprehensively would further support energy independence and raise critical revenue.

B.4. Implementation considerations

Concerns about impacts on international competitiveness can be addressed

While carbon pricing can help businesses to decarbonize and gain access to international markets, it can also create concern among those that compete with jurisdictions that do not have as strict carbon regulation. With the introduction of a carbon price, there is a risk that domestic producers could lose market share to firms in countries with lower environmental standards. Such "emissions leakage" risks a lose-lose outcome: a loss of competitiveness or economic activity without an environmental gain.

There is little evidence that environmental regulation has resulted in the relocation of the production of goods and services or investment in these products to other countries (Carbon Pricing Leadership Coalition, 2019). There may be several reasons for this, including that many existing programs include protection for at-risk sectors, and importantly that other factors (such as labor availability, exchange rates and infrastructure) are more significant to investment decisions regarding location of production than environmental regulations. In addition, Türkiye's main export partner is the EU (€68.2bn of imports and €69.8bn of exports in 2019 (European Commission, 2020)), who puts a carbon price on most of their industrial sector via the EU emissions trading scheme. In fact, incentivizing industries to decarbonize through carbon pricing helps ensure exporting industries can continue to compete in EU markets, as outlined in section A. However, if support is necessary, there are a range of options to help ensure domestic firms remain competitive in an international marketplace, including:

- Use some of the revenues raised to provide grants or concessional finance to businesses for low-pollution technologies.
- Under a carbon tax, provide a rebate based on an emissions intensity benchmark for each industry. This would retain the incentive to reduce emissions while lowering the cost impact.
- Under an emissions trading system, provide free allocations of allowances based on emissions intensity of production. This would retain the incentive to reduce emissions while lowering the cost impact.

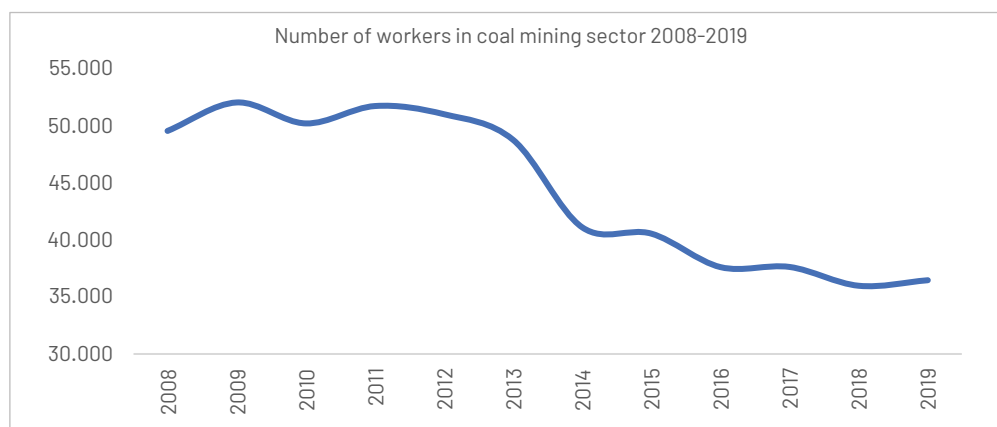
Such measures need to be targeted to the most emissions intensive and trade exposed industries, and implemented under strict conditions to avoid fiscal bleed and lower economic efficiency.

²⁷² Overview is available here: [Concept-Project-Information-Documents-PID-Seismic-Resilience-and-Energy-Efficiency-in-Public-Buildings-Project-P175894.pdf](#)

Workers and communities deserve a just transition

Some industries may not be able to adjust quickly enough to the transition and may suffer a drop in production and employment. Where these effects are acute - generally where they are concentrated geographically - support for transitioning workers may be needed. This is likely most relevant for the coal sector given the expected decline in coal use as the power sector decarbonizes and the concentrated employment around a few coal mines. However, only 0.1 percent of total workers were employed in the coal mining sector in 2019 (TKI, 2020) and the number of workers has been steadily decreasing since 2011 (Figure 228).

Figure 228: The number of workers has been steadily decreasing since 2011



Source: Coal Sector Report 2019 (TKI, 2020)

Impacts on households can be alleviated

The impact of any fuel price increases resulting from environmental fiscal reform on poorer households need to be - and can be - managed. Support can take the form of cash payments and complementary policies. This is discussed further in Section D.

Impacts of poor indoor air quality are uneven and it may be necessary to support the switch to cleaner sources of home heating. Introducing a tax on coal would shrink the price difference to cleaner energy sources and investments but switching from coal to gas or electric heating could increase heating costs- Poor thermal efficiency of homes exacerbates heating costs and discomfort, so ongoing support for residential energy efficiency improvements will help.

Further policies will be needed to reduce emissions across the economy, including in the transport sector...

Vehicle taxation changes could be supported by other reforms to promote cleaner vehicles. This includes mandating standards for electric vehicle charging network (placement and type), investing in the electric vehicle charging network and mandating vehicle efficiency standards. These measures align with the objectives of the Eleventh Development Plan and the National Energy Efficiency Action Plan, and complement strategies to address congestion in cities, such as establishing low-emissions zones and take up of electric bus public transport.

...and to support the transition in the industrial sector

Feed-in tariffs helped accelerate the deployment of renewable energy technologies in Türkiye and assistance may also be needed for the industrial sector's low-carbon transition. In most cases the technologies that can help businesses reduce emissions are mature, such as energy efficiency, electrification, fuel switch and digitalization. Other reductions will require developing new production pathways, integrating into the circular economy, and waiting for emerging technologies to reach commercial readiness. Supporting industry's successful uptake of low carbon technologies and processes may require infrastructure investments into new energy networks, like hydrogen and CO₂. The regulatory framework can also help, such as by planning for, and meeting the extra demand for energy with renewable resources. Financial instruments, like tax incentives and subsidies, can target low carbon investments and equally help create markets for industry's low carbon products.

C. Impact assessment: environmental fiscal reform supports fiscal sustainability and the economy while reducing GHG and air pollution

This section presents an assessment of the impacts of the environmental fiscal reforms discussed in this chapter. A Computable General Equilibrium (CGE) model (see Annex A²⁷³) was used to assess the direct and indirect impacts on the Turkish economy. The scenarios are summarized in Table 23.

The environmental fiscal reforms modelled are:

- A comprehensive carbon price covering industry, energy, wastewater and air transport sectors (~70 percent of emissions).
 - Road transport is not covered because of the existing excise rates, noting the case presented in paragraph 181 to better align fuels with their carbon intensities. This is an example of how carbon tax could be integrated with pre-existing energy taxes.
 - Agriculture and landfill emissions are sectors not covered for the reasons set out in paragraph 185.
- Reduction in fossil fuel subsidies of 80 percent.
- Elimination of the electricity consumption tax and SCT on natural gas. While the electricity consumption tax incentivises energy efficiency, replacing it with carbon pricing would do the same plus also incentivise more emissions efficient generation. The tax on natural gas is removed so that the underlying fuels have the same tax treatment, avoiding distortions.
- A range of different uses for the revenues raised, including:
 - offsetting the impact on prices for the poorest 20 percent of households
 - reducing other taxes
 - applying revenues to government saving or investment.

The modelling exercise assumes a start date of 2024, however the near-term impacts on GDP, jobs and welfare will have implications for the MTF. This impact depends on timing of the reforms, for example implications will be less if the timing is aligned with the crest of the fiscal recovery to COVID-19.

Table 23: Summary of the main scenarios modelled

Scenarios	Carbon price rate	Revenue recycling	Exemptions/ subsidies	Carbon price coverage
Main scenario	10 euro in 2024 increasing to 20 euro from 2030	Neutralise welfare impacts of the poorest 20% of households. Remaining revenue directed to government savings	Reduce fossil fuel subsidies. Stop electricity consumption tax and SCT on natural gas	Industry, wastewater, air transport, stationary energy
Revenue recycled to reduce factor taxes	As per main scenario	CHANGED: 100% of revenue directed to reducing factor taxes	As per main scenario	As per main scenario
Higher carbon price	CHANGED: 16 euro in 2024, increasing to 100 euro from 2030.	As per main scenario	As per main scenario	As per main scenario

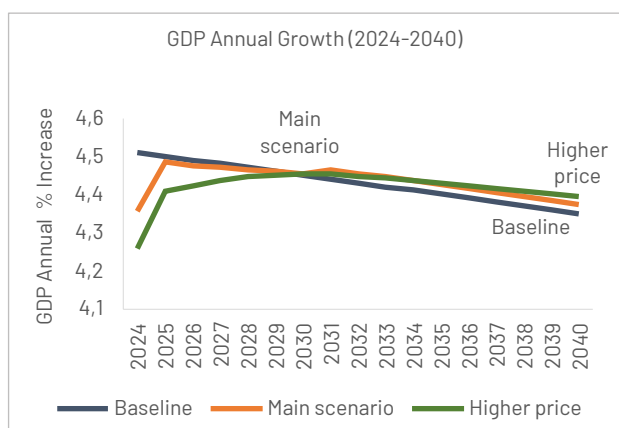
²⁷³ The scenarios are described in Annex A.

The economy continues to grow strongly, with environmental fiscal reform contributing to higher GDP growth over the longer-term

After a slight slow-down in the growth rate of GDP in the year of introducing reforms, economic growth rebounds and even increases over time (Figure 229). Economic growth stays strong across the scenarios with a higher carbon price leading to higher growth due to the increased government savings from carbon pricing revenues. Higher government savings increases the funds available for investment as the government either uses those savings for investments or borrows less from the private sector. The increased savings and the resulting increase in investment eventually increases the amount of productive capital. As capital stock grows, sectors can use the additional capital for production and thus the economy also grows. Initially, the carbon tax causes a reduction on output due to higher energy costs, however as sectors adapt to higher energy prices by substituting the more abundant capital with energy, sectors are less affected by the carbon tax and the negative impact fades out.

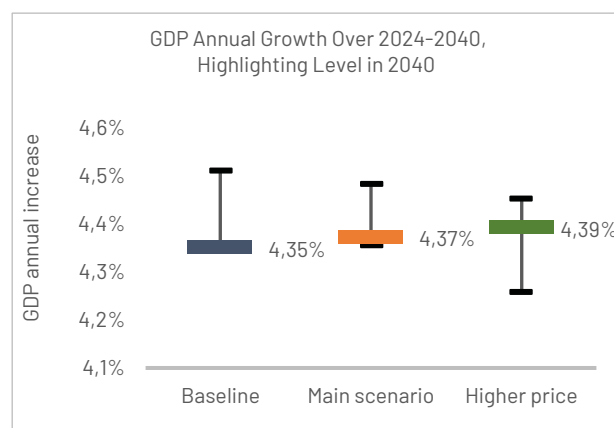
The modelled GDP impact of the carbon price scenarios is net positive, but this is only indicative. There will be variations between localities, regions, sectors and occupations. These impacts will be further explored in the low carbon development engagement under the Work Bank Türkiye Green Growth Analytical and Advisory Program.

Figure 229: GDP growth slows down slightly in the medium term with introduction of reforms



Source: WB staff calculations

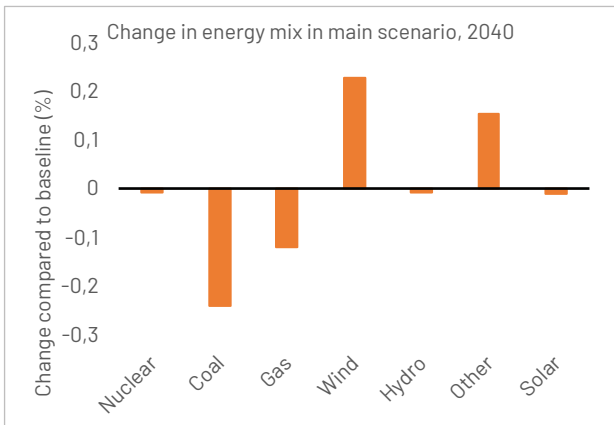
Figure 230: But increases in the long term



Lower PM2.5 levels would likely make the GDP outcomes even more positive

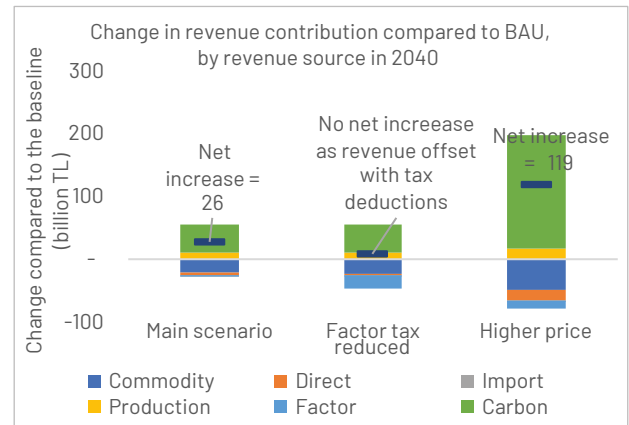
As environmental fiscal reform reduces the combustion of fossil fuels, there will be improvements to air quality with proportionate drops in morbidity and mortality levels. The CGE model does not factor these health co-benefits into the GDP assessment, although the positive impact could be significant. An OECD study of European data found a 1 mg/m³ reduction in PM2.5 levels results in a 0.8 percent increase to GDP (Dechezleprêtre, Rivers, & Stadler, 2020).

Figure 231: This improvement in air quality is associated with the drop in coal combustion



Source: WB staff calculations

Figure 232: Net increase in tax revenue is higher under higher price scenario

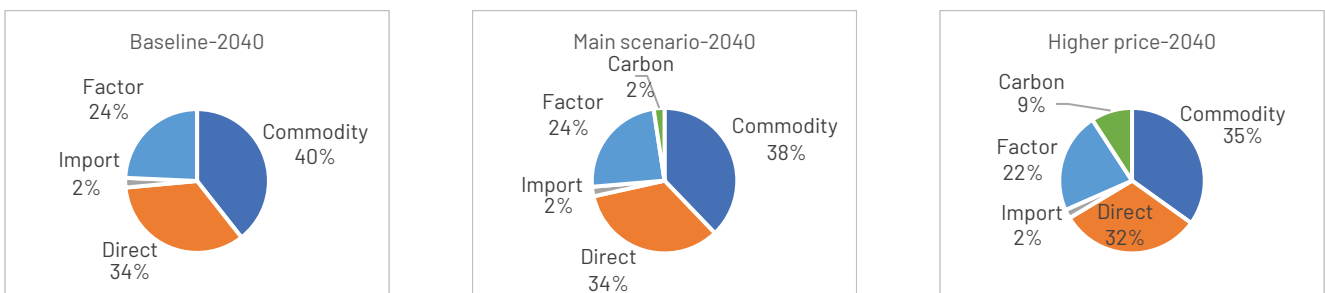


Under the main scenario, by 2030 the level of PM2.5, which causes the greatest risk to human health, is reduced by 7 percent compared to the baseline. Other pollutants are also reduced, PM10 by 10 percent and nitrogen oxides by 22 percent. This improvement in air quality is associated with the drop in coal combustion (Figure 231).

Environmental fiscal reform contributes to diversifying revenue sources and bolstering government finances

Reforms raise government revenue, making up 9 percent of the government budget by 2040 under the high carbon price scenario. Under the main scenario, government revenue increases by 26 billion TL a year by 2040 and by 119 billion in the high carbon price scenario, after fully compensating the poorest 20 percent of households for price increases (Figure 233).

Figure 233: Carbon price contributes 9 percent to revenue in the higher price scenario



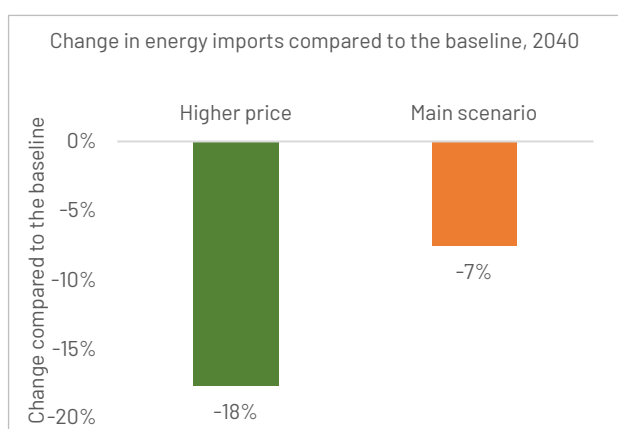
Source: WB staff calculations

Environmental fiscal reform reduces energy demand and dependence on imports

The reforms achieve a significant drop in energy imports (Figure 234). Energy imports drop 18 percent compared to the baseline in the high carbon price scenario and 7 percent in the main scenario. Further, these reductions should be considered conservative - the baseline assumes renewables and nuclear will provide an impressive 58 percent of Türkiye's power in 2040. This installed power capacity forecast is taken from the Sabanci University's 'Reference Scenario', set out in the Turkish Energy Outlook 2020.²⁷⁴

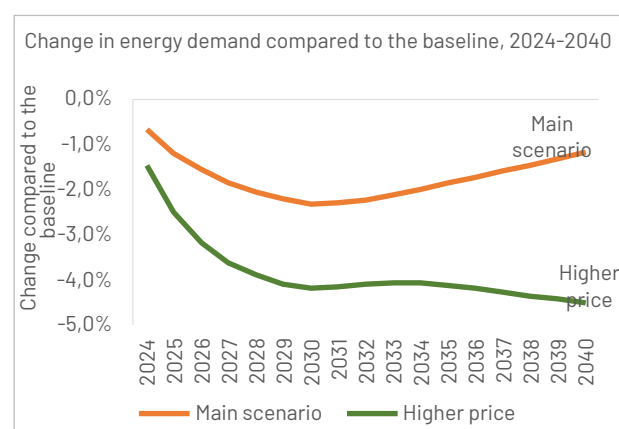
Reforms also spur energy efficiency and lower energy demand, freeing up capital from energy investments and reducing demands on the grid. The high carbon price scenario achieves almost a 5 percent drop in demand by 2040, compared to the baseline, with the main scenario achieving a 1 percent drop (Figure 235).

Figure 234: Energy imports drop 18 percent in the high carbon price scenario



Source: WB staff calculations

Figure 235: Also, lower energy demand

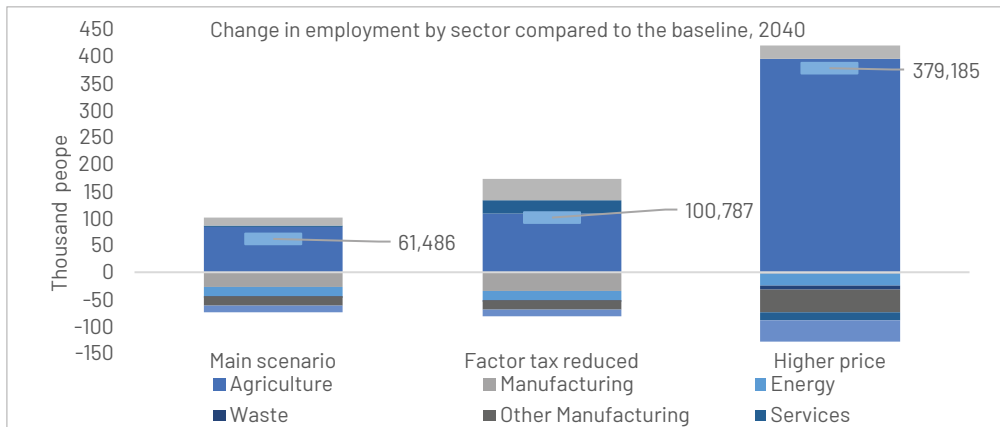


Employment increases, particularly in agriculture

Employment in the agriculture sector increases under environmental fiscal reform. This is because the agriculture sector is labor intensive, and, as it is exempt from the carbon tax, it becomes relatively more competitive in the labor market (Figure 236). The largest increase in net employment occurs in the higher carbon price scenario, with 379,000 more employed compared to the baseline, or a 0.77 percent increase compared to the baseline (Figure 237). The next biggest increase is in the reduced factor taxes scenario (101,000 extra employed), with benefits for more jobs in the services sectors. A reduction in factor taxes lowers the cost of hiring staff, boosting employment.

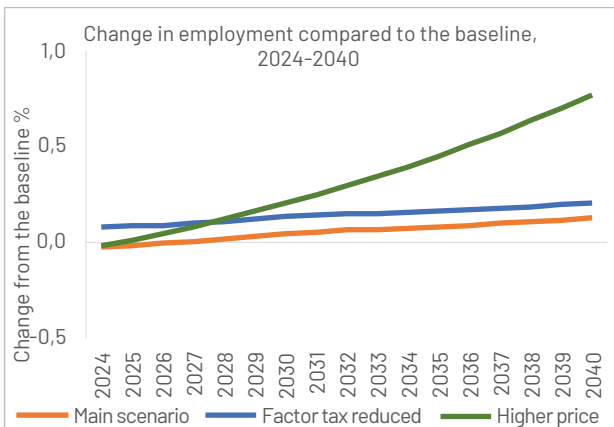
²⁷⁴ Available here: <https://iicec.sabanciuniv.edu/sites/iicec.sabanciuniv.edu/files/inline-files/TEO.pdf>. The reference scenario assumes a set of policy initiatives that can be reliably expected in future years, including the introduction of nuclear power, technological progress, and renewable energy being the cheapest form of electricity (in terms of levelized cost of energy).

Figure 236: Agriculture employment increases under environmental fiscal reform



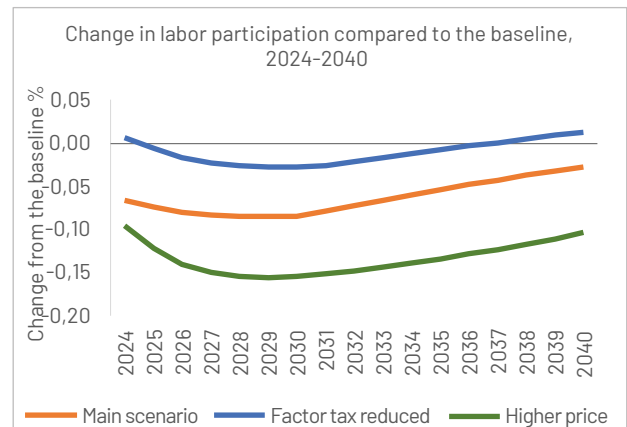
Source: WB staff calculations

Figure 237: A reduction in factor taxes boosts employment



Source: WB staff calculations

Figure 238: With a slight decline in labor force participation



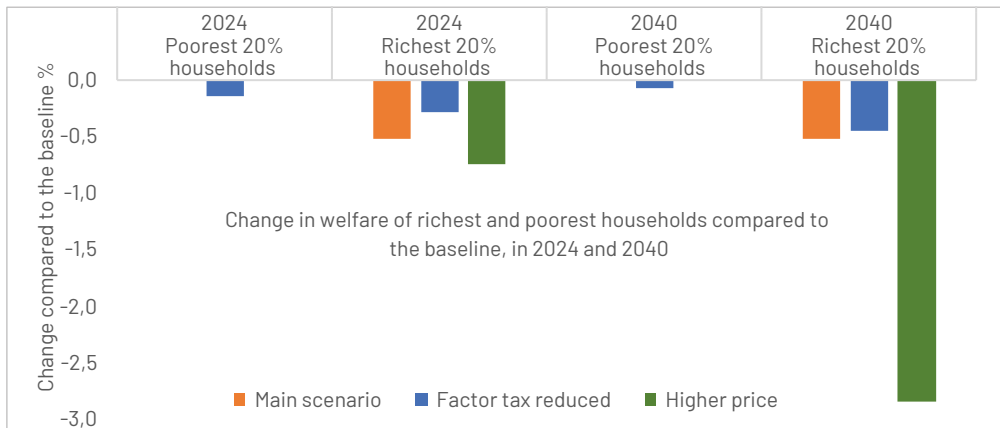
The increase in overall employment numbers is matched with a small decrease in labor participation (Figure 238). However, over the longer-term, recycling revenue to reducing factor taxes increases labor participation, because of the lower labor costs. The decrease in employment, particularly in the near-term is mostly due to the slow-down the carbon price causes in some industries, coupled with a small decline in real wages. The results show a need to provide support to impacted workers in the manufacturing, energy and transport sectors, particularly if a high carbon price is applied.

Only a small proportion of revenue is needed to protect the welfare of the poorest households

Only a small proportion of revenue is needed to protect the welfare of the poorest households

Only 4.7 percent of the revenue raised by the reforms is needed to fully offset the price impacts on the poorest 20 percent of households in 2024, dropping to only 0.6 percent in 2040. If revenue is instead directed towards reducing factor taxes, then there remains a small impact of 0.08 percent decrease in welfare for the poorest 20 percent of households in 2040 (Figure 239). The impact on rich households for either revenue recycling options is similar, around 0.5 percent decrease for the richest 20 percent of households. However, a higher carbon price causes a higher impact on the richest households, reaching almost minus 3 percent in 2040.

Figure 239: A higher carbon price causes a higher impact on the richest households

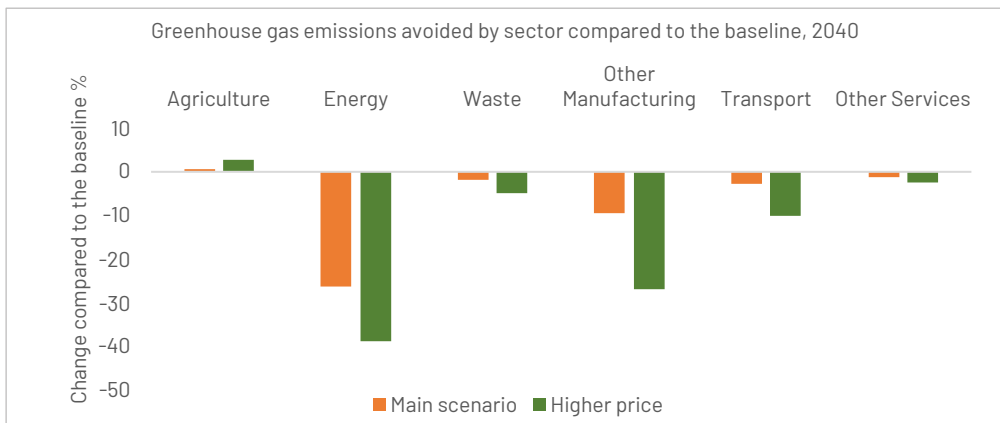


Source: WB staff calculations

Reforms make a big contribution to reducing emissions, although further policy is needed to completely decouple emissions from economic growth.

As a result of the reforms, energy users are encouraged to use fossil fuels more efficiently and to switch to cleaner alternatives. Industries will search out ways to abate industrial emissions to bring down the carbon cost. Compared to the baseline, wind and geothermal power capacity is expected to grow, both coal and gas sources to decline and nuclear capacity does not change significantly. The increased uptake in renewable energy results in the energy sector contributing to the bulk of emissions reductions (Figure 240). Other manufacturing and transport sectors also contribute to emissions reductions given the potential for cost-effective abatement options, such as efficiency improvements. A small increase in emissions from the agriculture sector is expected, reflecting this sector expands compared to the baseline and is not covered by the carbon price.

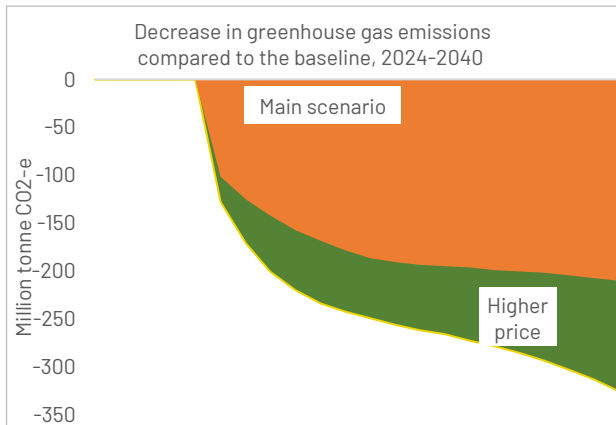
Figure 240: Energy and manufacturing sectors are likely to contribute most to reduction in emissions



Source: WB staff calculations

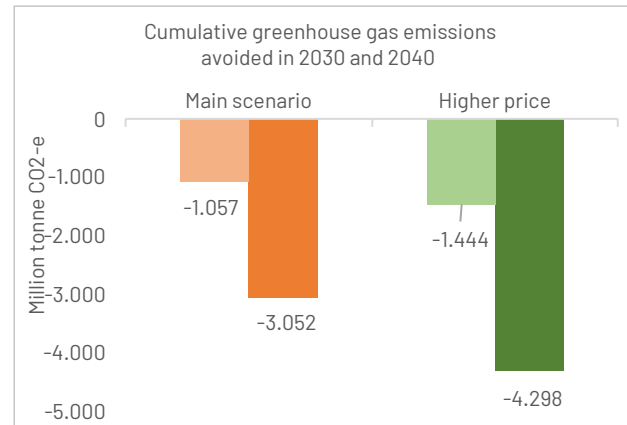
By 2040, compared to the baseline, reforms (main scenario) are expected to achieve a net emissions reduction of around 3,000 Mt CO₂-e, with 4,300 Mt CO₂-e reduction under the higher price scenario (Figure 241, Figure 242). The percent reduction from baseline emissions for the main scenario is expected to be 27 percent in 2030 and 23 percent in 2040. The higher carbon price scenario is expected to achieve emission reductions of 36 percent in 2030 and 35 percent in 2040.

Figure 241: The reduction from baseline emissions for the main scenario reforms is expected to be 23 percent in 2040.



Source: WB staff calculations

Figure 242: The reduction in higher price scenario is around 1.5 fold of main scenario



D. Conclusion: Sustainable public finance requires addressing climate risk

Türkiye faces growing physical impacts from climate change, posing risks to the economy and public finances. Türkiye has seen, for example, an almost 10-fold increase in climate-related disasters since 2000. Türkiye's public finances have so far been resilient, with international finance supporting disaster recovery efforts. However, costs are expected to increase. The implications for public finances come not just from the cost of rebuilding assets and supporting affected populations, but also the potentially significant lost revenue from productivity impacts. Diversifying sources of recovery funding, improving disbursement systems, promoting insurance and investing in adaptation efforts are important actions the Government could pursue. In addition, consideration could be given to factoring climate risks into policy planning and budget processes.

Tukey's exposure to transition risks is also increasing as the world, and particularly Europe, takes action to decarbonize their economies, which will reduce demand for fossil fuels and emissions intensive goods. If not managed these risks can adversely affect the economy and public finances. Efforts to decarbonize production processes and supply chains will build resilience to these risks and improve industrial competitiveness in an increasingly low carbon world. Just as important, is action to support the industries that will thrive in a low carbon economy, such as critical minerals, electric vehicles and renewable energy. Fiscal policy reforms can play a major role in addressing these risks and in taking advantage of the opportunities, while improving fiscal sustainability. If as part of pricing carbon, business support is necessary there are a range of options to help ensure domestic firms remain competitive in an international marketplace.

More comprehensively taxing pollution, including greenhouse gases, will raise revenue and improve fiscal outcomes. This involves putting a carbon price on emissions from industry and energy, particularly coal and natural gas, but also addressing fossil fuel subsidies and tax exemptions that promote the use of fossil fuels. Doing so would not only improve environmental and social outcomes – reduced emissions, enhanced air quality, reduced road deaths, for example – but would also support broader Government objectives, including to address informality, increase energy security, and support industrial competitiveness. In the transport sector, revamping the motor vehicle taxes to link them to vehicle efficiency could stimulate faster turnover to cleaner vehicles – with flow on benefits for local car makers, pollution, GHG emissions and revenue from new car sales. A wider strategy, beyond the tax system, is needed to fully support electric vehicle take up.

Importantly, the impacts of any fuel price increase on poorer households and businesses need to be – and can be – managed. Implementing tax reform through a staged approach (starting with a lower price and rising over time) would provide time for the economy to adjust while signaling the direction it needs to take. A proportion of the revenue raised could be used to compensate poorer households and to support businesses to adopt less-polluting practices and technologies. For example, modelling suggest that only 5 percent of the additional revenue collected from the fiscal reforms would be needed to fully offset the impact on the poorest 20 percent of households.

Annex A: Computable general equilibrium (CGE) modelling

Scenario details

The modelling exercise first established a baseline (referred to as Business-as-usual or BAU), which reflects Türkiye's existing taxes and subsidies. Baseline macroeconomic outcomes up to 2040 are then compared against the modelled outcomes for three different scenarios. The features of these three scenarios are described below.

- **Carbon price:** Two pricing levels were analyzed:
 1. A carbon price of €10 per metric ton of CO₂ in 2024 increasing to €20 in 2030, in real terms.
 2. A higher carbon price of €16 per metric ton of CO₂ in 2024 increasing evenly to €100 in 2040, in real terms.
- **Treatment of revenue:** Two options for how to recycle the carbon price revenue were analyzed:
 1. Using revenue to ensure the welfare impacts on the poorest 20% of households is offset, with remaining revenue directed towards government savings.
 2. Reducing factor taxes, to assess the macroeconomic benefits of using the carbon revenue to reduce the cost of labour. See Table A.1 for the CGE model's definitions of revenue sources.
- **Start date** in 2024 as this aligns with Türkiye's next 12th National Development Plan and allows at least 2 years notice.
- **Exemptions and subsidies:** Excise taxes on electricity and natural gas are removed. While the electricity consumption tax incentivises energy efficiency, replacing it with carbon pricing would do the same plus also incentivise more emissions efficient generation. The tax on natural gas is removed so that the underlying fuels have the same tax treatment, avoiding distortions. Similarly, fossil fuel subsidies are reduced by 80%, recognizing it could be difficult to stop this support entirely.
- **Sectors covered** are stationary energy, industry, air transport and wastewater. Road transport is notably absent because of the existing excise rates.

Table A.1. Definition of categories of revenue sources used in CGE model

Revenue category	Carbon price rate
Commodity	Taxes on goods and services like the SCT, VAT and MVT.
Direct	Income and employment tax payments.
Import	Import tariffs.
Factor	Taxes imposed on businesses for employing, such as payroll tax and social security levies, as well as land taxes and taxes on property. If factor taxes are high, then businesses prefer investing in capital over labor.
Production	Taxes or subsidies for production activities, such as agricultural and coal subsidies, or taxes on production outputs. For Türkiye, production subsidies exceed production tax revenue, so that the net contribution to revenue is negative.
Carbon	Tax on greenhouse gas emissions, usually on carbon dioxide equivalent basis. Can be levied up or downstream from where the emissions to the atmosphere occur.

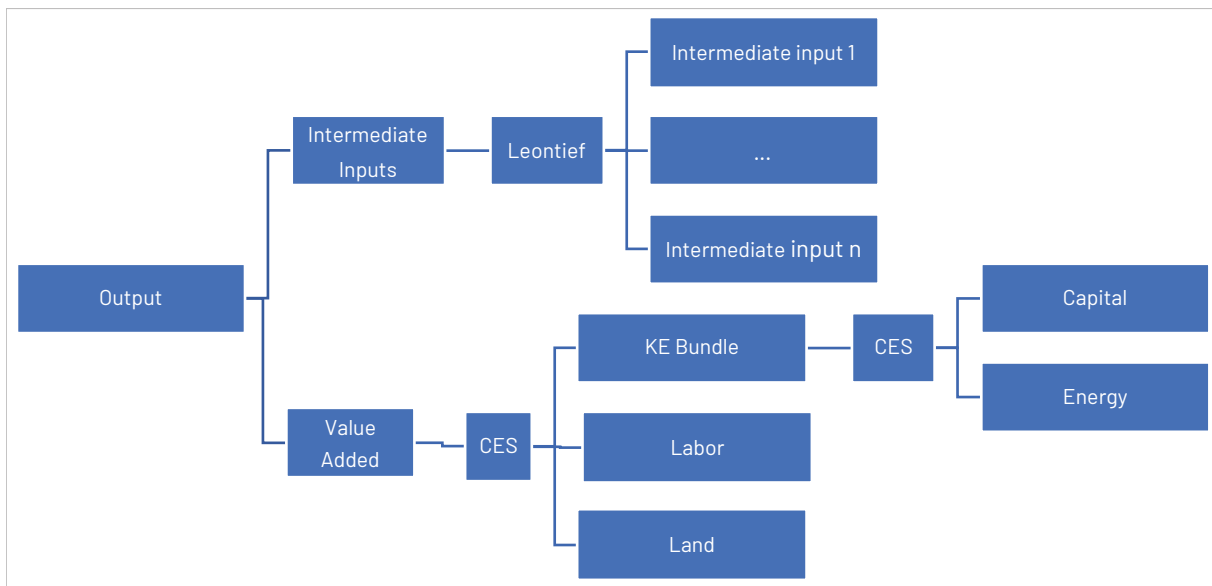
Overview of model

The CGE model used in this study is based on the MANAGE model which is developed in house at the World Bank. MANAGE is a single country CGE model that relies on neoclassical structural modeling approach. Most of the model assumptions follows the standard CGE literature. An extended documentation and user guide for the model can be found in van der Mensbrugghe (2019). In what follows we will briefly explain the main features of the MANAGE model.

Production activities in MANAGE model are profit maximizers under constant returns to scale technologies. They use labor, capital, land and intermediate inputs to produce commodities and services (which we will refer as commodities from here on) for domestic and international markets. The production function is a nested one with constant elasticity of substitution production function in value added nests and a Leontief technology at intermediate input nest (Figure A.1). The CES production function allows for substitution of factors in a specific nest while Leontief technology assumes a fixed ration between them. Thus, using a nested production structure allows using different substitution elasticities among factors.

In the top nest, value-added and an aggregate non-energy intermediate inputs are combined, following a Leontief production technology. This creates a link between sectors as output of a sector is an input for others. At the second level, the composite intermediate input is obtained by combining all non-energy intermediate inputs with a Leontief technology. The value-added composite aggregates capital composite factor and other factors of production (labor and land). The last nest combines energy and capital with a CES production function, making them substitutable. Demand for factors and intermediate inputs as well as the output level is determined according to the production nest.

Figure A.1. Nested structure of production



Source: World Bank illustration from model structure

One of the novelties of the MANAGE model is ability of production activities to determine the energy intensity of production endogenously based on the energy prices. This distinction is important when analyzing carbon pricing policies. Introducing carbon pricing is likely to raise the cost of energy which in this framework would incentivizing substituting capital with energy. The intuition behind this mechanism is that firms are likely to invest in energy efficient technologies to use less energy and hence substitute capital with energy. MANAGE model also has a vintage capital structure where old and new capital are treated differently in terms of substitutability with energy. New capital is substitutable with energy while old capital is near complement. That is the vintage capital structure captures the semi-putty/putty relations across inputs with more elastic long-run behavior as compared to the short-run.

Energy production in this version of the MANAGE model distinguishes 5 types of electricity generation activities: Coal, Gas, Oil, Hydro and Renewables. The electricity generation mix is endogenously determined based on the relative cost of each generation activity. Alternatively, the model allows targeting a specific energy generation mix through adjusting the investment in each type of generation (e.g. increasing investment in renewables to follow a renewable energy target).

All markets in the model are perfectly competitive implying that prices are equal to marginal costs in the equilibrium. Thus, firms compete with each production activity compete with others in the factor markets to hire labor and capital. There are three types of labor (skilled, semiskilled and unskilled), one capital and on land in the model. Labor and land supply are determined by a supply function that is sensitive to average wage and land price respectively. Capital supply is determined as a result of capital accumulation process where shrinking activities release capital which is added to "new" capital stock. New capital is fully mobile across sectors. This allows to mimic some rigidities in the capital market as movement of capital from a declining sector to an expanding sector is limited. Rate of return on capital is same in expanding sectors while declining sectors have a lower rate of return.

The model consists of a five representative household types according to income quintiles. Households are the owners of factors of production. They supply labor depending on the real wages: higher wages induce more labor supply. That means we ignore the wealth effect on labor supply which would require reducing the labor supply for very high levels of real wage rate. Income sources other than factor income for households are income and transfers from government and rest of the world. Households spend their income on consumption, savings and direct taxes. The distribution of consumption across commodities is determined by two level utility function. At the first level, a Constant Difference in Elasticities (CDE) utility function determines the consumption of aggregated commodities. The use of CDE allows better representation of income effects on household demand by allowing consumption shares to change as income and prices unlike other functional forms like Linear Expenditure System (LES) or Constant Elasticity of Substitution (CES) demand functions which assumes that expenditure shares are independent from the household income and are constant. The aggregate groups are food, manufacturing, energy, services and transport. So, the first level utility function distributes household consumption spending across those broader categories. Then a second level CES nest distributes the spending on each aggregate consumption among commodities in that group. For example, energy group consists of coal, refined petroleum, coke, electricity and natural gas.

Government does not have a behavioral assumption and is completely neutral. It collects taxes, receives transfers from rest of the world and domestic agents and then spends them on saving, government consumption and investment, transfers to rest of the world. Government can borrow from domestic institutions or from rest of the world but must pay interest on debt in following periods. All tax rates are fixed at base year levels. The volumes of government current and investment spending are also fixed. This implies that government savings (primary balance) is endogenous and adjust to clear the government balance. The gap between government investment demand and public saving is satisfied through foreign and domestic borrowing. Alternative government closures can be considered for the simulations of fiscal reforms. For example, there can be a target for the government budget balance and a 'swing' fiscal instrument, such as personal income taxes, adjusts to achieve the target.

Rest of the world (ROW) exports from and imports to Türkiye according to Constant Elasticity of Transformation and Armington specification respectively.²⁷⁵ Both specifications assume that domestic commodities are not perfect substitutes with traded commodities. Thus, imports and exports are determined based on the difference between domestic prices and world prices which are assumed to be fixed in line the small open economy assumption. ROW also makes transfers to domestic agents and receives transfers from them. These transfers are assumed to be constant share of GDP. Last, ROW account invests in Türkiye, which corresponds to F/X flows for investment purposes (e.g. FDI, short term capital movements etc.)

The model follows a savings-driven closure where aggregate investment is flexible and equals to the available volume of saving. Foreign saving is exogenous and fixed as a share of GDP, while government saving and household savings are endogenous. In effect, rate of return on capital adjusts to equalize investment to the saving. Hence, the model has the crowding out effect where government investment displaces private investment.

The model dynamics follows the neo-classical growth framework (Solow-Swan growth model) implying that the long-run growth rate of the economy is determined by three main factors: capital accumulation, labor supply growth, and increases in productivity. The stock of capital is endogenous, while the latter two are exogenously determined. The capital stock in each period is the sum of depreciated capital from the previous period and new investments. For each type of labor, the maximum stock of labor available in each period grows exogenously based on population projections by age cohort and cohort-specific participation rates. The technical progress specific to sector and production factors are calibrated to replicate the GDP growth in the baseline and equals to that calibrated level in simulations.

²⁷⁵ This model does consider however only one trade partner, the Rest of the World. However, the model code is flexible enough so that additional trading partners can be added in a two level nested structure. See model documentation for more details.



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