

A new growth horizon

Improve fiscal policy,
open markets, and invest
in human capital



© 2024 The World Bank Group
1818 H Street NW, Washington, DC 20433
Telephone: 202-473-1000; Internet: www.worldbank.org

This work is a product of the staff of The World Bank Group with external contributions. “The World Bank Group” refers to the legally separate organizations of the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), the International Finance Corporation (IFC), and the Multilateral Investment Guarantee Agency (MIGA).

The World Bank Group does not guarantee the accuracy, reliability or completeness of the content included in this work, or the conclusions or judgments described herein, and accepts no responsibility or liability for any omissions or errors (including, without limitation, typographical errors and technical errors) in the content whatsoever or for reliance thereon. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of the World Bank Group concerning the legal status of any territory or the endorsement or acceptance of such boundaries. The findings, interpretations, and conclusions expressed in this volume do not necessarily reflect the views of the organizations of the World Bank Group, their respective Boards of Executive Directors, and the governments they represent.

The contents of this work are intended for general informational purposes only and are not intended to constitute legal, securities, or investment advice, an opinion regarding the appropriateness of any investment, or a solicitation of any type. Some of the organizations of the World Bank Group or their affiliates may have an investment in, provide other advice or services to, or otherwise have a financial interest in, certain of the companies and parties named herein. Nothing herein shall constitute or be construed or considered to be a limitation upon or waiver of the privileges and immunities of any of the organizations of The World Bank Group, all of which are specifically reserved.

Rights and Permissions

The material in this work is subject to copyright. Because The World Bank Group encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given and all further permissions that may be required for such use (as noted herein) are acquired. The World Bank Group does not warrant that the content contained in this work will not infringe on the rights of third parties, and accepts no responsibility or liability in this regard.

All queries on rights and licenses should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; e-mail: pubrights@worldbank.org.

COUNTRY ECONOMIC MEMORANDUM

A new growth horizon

Improve fiscal policy,
open markets, and invest
in human capital

November 2023



Contents

Acknowledgments	vii
Executive Summary	1
Abbreviations	11
1 An Overview of Argentina’s Economic Performance	14
1.1. Growth has stalled	14
1.2. Macroeconomic volatility, influenced by a procyclical fiscal policy, constrains growth	20
1.3. Public policy constrains private investment, hindering growth	26
1.4. Argentina has decoupled emissions from growth, but emissions intensity is a challenge	37
1.5. Policy recommendations	40
References	42
2 Enhancing Trade Integration for Competitiveness and Growth	44
2.1. Export performance is disappointing	44
2.2. Trade costs and frictions limit Argentina’s export potential	50
2.3. Towards a gradual process of trade integration	61
2.4. Policy recommendations	74
References	77
3 Upgrading and Using Human Capital for Inclusive Growth	83
3.1. The labor market is characterized by increasing levels of precariousness, low productivity, and modest skill levels	83
3.2. The future of work is changing the demand for skills	88
3.3. Argentina’s human capital needs to adapt to the changing world of work	93
3.4. Policy recommendations	105
References	110
4 Biotechnology and Automobiles	
4.1. Biotechnology: Driven by scientific excellence but constrained by an emerging skill mismatch	116
4.2. Automobiles: Long industrial tradition weakened by macroeconomic instability and distortive trade policy	129
References	135

List of Figures

Figure 1	Argentina's income is increasingly falling behind high-income economies	2
Figure 2	High fiscal procyclicality is fueling macroeconomic volatility	3
Figure 3	Argentina has one of the largest public sectors	4
Figure 4	The number of exporters has declined since its peak in 2006	5
Figure 5	Argentina has lost market shares in international markets in all sectors (2012-19)	6
Figure 6	Human capital is the most important component of Argentina's total national wealth	8
Figure 1.1	Argentina's GDP is diverging from the highest-income countries...	16
Figure 1.3	Argentina has seen the most years of recession in the world	16
Figure 1.2	... and its growth dynamics are weaker than most peers	16
Figure 1.4	Argentina is among the top countries for its human development	17
Figure 1.5	There is a high variation of income across provinces	18
Figure 1.6	Poorer regions' labor productivity is catching up with faltering richer regions	18
Figure 1.7	Argentina's workers are concentrated in low productivity sectors	19
Figure 1.8	Gains in GDP per capita came from employment growth, not labor productivity	19
Figure 1.9	Growth is explained by labor and capital accumulation	20
Figure 1.10	Total factor productivity has stagnated	20
Figure 1.11	Output volatility is high	21
Figure 1.12	Argentina has more natural capital per person than some of its peers, driven by abundant agricultural land	22
Figure 1.13	However, overall wealth is comparatively lower than some of its peers	22
Figure 1.14	Los shocks favorables en los términos de intercambio están asociados a una expansión de los sectores comercializables y no comercializables, distintos de las materias primas	24
Figure 1.15	Argentina's extreme macroeconomic volatility is linked to high fiscal procyclicality	25
Figure 1.16	Argentina is one of the few countries to have deepened its procyclicality	26
Figure 1.17	Domestic bank credit to Argentina's private sector is lower than regional peers	27
Figure 1.18	Credit to the public sector is larger in Argentina than in peer countries	28
Figure 1.19	Argentina sees multiple changes to export duties every year	29
Figure 1.20	Consumption growth trends exceed GDP growth trends prior to crises	29
Figure 1.21	Domestic absorption is elevated and has increased, driven by imports	32
Figure 1.22	Argentina's savings rate is lower than its peers	33
Figure 1.23	Gross domestic savings are entirely driven by the private sector	33
Figure 1.24	The current account deteriorates during expansions	34
Figure 1.25	The real exchange rate usually suffers a marked depreciation after a period of appreciation	34
Figure 1.26	Argentina's private sector has a positive net international investment position	35
Figure 1.27	The high net credit position contrasts with peer countries	35
Figure 1.28	Argentina's total investment rate is low	36
Figure 1.29	Foreign direct investment does not offset low investment, unlike in peers	36
Figure 1.30	R&D spending is low in the international context	37
Figure 1.31	Per capita capital stock has also shown slow growth	38
Figure 1.32	GHG emissions have declined in the last decade	39
Figure 1.33	Emissions decline has been driven by the forestry sector	39
Figure 1.34	Emissions intensity remains higher than most peers	40

Figure 2.1	Argentina's trade-to-GDP ratio is one of the lowest in its income group	45
Figure 2.2	Trade openness is well below potential	45
Figure 2.3	Argentina has lost market share in all its export categories	46
Figure 2.4	Trade's contribution to GDP has declined	46
Figure 2.5	Argentina has been losing global market share	46
Figure 2.6	Non-differentiated products represent most of Argentina's exports	49
Figure 2.8	Backward participation in GVCs has declined	49
Figure 2.7	High-tech exports make up a tiny and slow-growing share	49
Figure 2.9	The number of new exporters has constantly declined since 2002	50
Figure 2.10	High exit rates mean that the number of exporters has declined	50
Figure 2.11	Tariffs in Argentina are higher than most of its comparator countries	51
Figure 2.12	Non-tariff measures are significant	53
Figure 2.13	Reductions in tariff lines subject to quantity controls have been reversed	53
Figure 2.14	Argentina has fewer trade agreements than comparators	55
Figure 2.15	Trade within Mercosur is below other blocs	55
Figure 2.16	Argentina is behind in its adoption of the Authorized Economic Operator program	57
Figure 2.17	Argentina's logistic performance is below most of its peers...	59
Figure 2.18	...and has declined over time	59
Figure 2.19	Liberalization of trade could be gradual for certain areas	64
Figure 2.20	The EU-Mercosur FTA would improve output, real income and trade	64
Figure 2.21	The effects of the trade liberalization would vary across sectors	65
Figure 2.22	Food and agriculture would drive export expansion	66
Figure 2.23	The EU-Mercosur FTA would increase wages of both skilled and unskilled workers	67
Figure 2.24	The agreement is likely to be pro-poor...	67
Figure 2.25	... and have progressive distributional effects	68
Figure 2.26	Service exports growth has stalled, but KIS is increasing its share	69
Figure 2.27	KIS represents more than half of Argentina's service exports...	71
Figure 2.28	...mainly led by computer services	71
Figure 2.29	Domestic services make up a higher share of exports than peers...	72
Figure 2.30	... and the share has increased	72
Figure 2.31	Barriers to digital trade are high	73
Figure 3.1	Labor productivity in Argentina has remained stagnant	84
Figure 3.2	Sectoral productivity growth is trailing peers	84
Figure 3.3	Within-sector reallocation has contributed negatively to growth	85
Figure 3.4	Labor market improvements have stalled since 2010, reflected in unemployment rates...	86
Figure 3.5	...and underemployment rates	86
Figure 3.6	Informality has stopped declining...	87
Figure 3.8	Employment growth has been concentrated in the public sector...	87
Figure 3.7	...ranking Argentina mid-table among comparators	87
Figure 3.9	...which is among the highest of comparator countries	87
Figure 3.10	The education levels of Argentina's workforce have increased...	88
Figure 3.11	...but tertiary rates are declining among younger people	88
Figure 3.12	Argentina's workforce is less educated than its aspirational peers	89
Figure 3.13	Argentina is also behind most of its aspirational peers for workforce skills	89
Figure 3.14	Emerging jobs are in digital technologies while manual tasks are becoming redundant	90

Figure 3.15	Argentina has lower shares of jobs at risk from automation in the region	91
Figure 3.16	Argentina has fewer digital skills than comparators	91
Figure 3.17	Technology skills are strong in Argentina, but adoption of disruptive technology skills is behind	92
Figure 3.18	Argentina's 15-year-olds score below most comparators for all subjects	95
Figure 3.19	Argentina's 15-year-olds are rarely high-scoring	96
Figure 3.20	Proficiency levels of Grade 6 students in reading, % of total	97
Figure 3.21	...mostly affecting students of lowest socioeconomic status	97
Figure 3.22	Completion of tertiary education is lower than peers'	98
Figure 3.23	Argentina's tertiary education performs well for business-relevant skills	98
Figure 3.24	Argentina has lower TVET enrolment than some peers...	99
Figure 3.25	...and comes last for the share of STEM and ICT graduates	99
Figure 3.26	Human capital is also significantly underutilized	100
Figure 3.27	Female labor participation is lower than male	101
Figure 3.28	The female/male labor participation gap is larger than many comparators	101
Figure 3.29	Women with young children are less likely to participate in the labor market than those without	102
Figure 3.30	Women workers tend to be more educated...	102
Figure 3.31	...but they are underrepresented in high level jobs	102
Figure 3.32	Women dominate in domestic service, education and health jobs	103
Figure 3.33	Young people find it harder to access the labor market	104
Figure 3.34	Youth unemployment is higher than in most comparator countries	104
Figure 3.35	A large share of young people are not in employment, education or training	105
Figure 3.36	Young people are more likely to be in precarious jobs	105
Figure 4.1	Most biotech companies in Argentina are innovative and vertically integrated, with a good number of start-ups	117
Figure 4.2	Map of the Argentinean biotech ecosystem	121
Figure 4.3	The automotive industry has seen a 10-year contraction	132

List of tables

Table 1	What policies could help Argentina to reduce the income gap with developed economies in the medium term?	10
Table 1.1	Argentina has experienced frequent policy changes since 1990	30
Table 1.2	Policy recommendations	41
Table 2.1	Textiles and food products have the highest tariffs	52
Table 2.2	La adopción de la Ventanilla Única de Comercio Exterior ha sido lenta	56
Tabla 2.3	Policy recommendations	75
Table 3.1	Women in the ICT sector have more non-technology skills than men	103
Tabla 3.2	Policy recommendations	109
Table 4.1	Most biotech companies are pharmaceuticals and providers of R&D services	118
Table 4.2	Biotech projects are dominated by the health sector	119
Table 4.3	Small biotech companies make the greatest R&D effort	120
Table 4.4	Diagnostic kits for COVID-19 developed through public-private partnerships	127
Table 4.5	Terminals produce all types of vehicles, with recent specialization in pick-ups	130
Table 4.6	Automotives experienced an important investment cycle between 2017 and 2021	133

Acknowledgments

This Country Economic Memorandum was prepared by a multi-Global Practices team (Agriculture and Food; Climate Change; Education; Energy and Extractives; Environment, Natural Resources and Blue Economy; Finance, Competitiveness and Innovation; Poverty and Equity; Macroeconomics Trade and Investment; Transport; Urban Development, and Water) led by Sonia Araujo (Senior Economist) under the guidance of Robert Taliercio (Regional Director), Doerte Doemeland and Jorge Araujo (Practice Managers), Marianne Fay, and Jordan Schwartz (Country Directors). Jose Daniel Reyes (Senior Economist) led the completion of the report.

Peer reviewers of the Concept Note stage were Sebastian Eckardt, Shwetlena Sabarwal and Stephane Hallegatte. Peer reviewers at the Decision Review Stage were Abla Safir, David Oliver Treguer, Kevin Carey, Richard Record and Susana Moreira.

Close collaboration with the International Finance Corporation (IFC) underlies this report, including Ariel Jose Chirom, Luciana Harrington, and Valeria di Fiori.

The team is also grateful for insightful suggestions and comments provided by other World Bank colleagues, including Bill Maloney, Daniel Lederman, Alejandro Espinoza Wang, and Xavier Cicera.

Yanina Budkin provided outstanding guidance on external relations, while Adriane Landwehr and Geraldine Garcia provided stellar project support.

The team is grateful for close research collaboration with Ariel Coremberg (University of Buenos Aires), Guido Sandleris (Torcuato Di Tella University), Francisco Ballester, Frederico Filippini (Torcuato Di Tella University), Juan Carlos Hallak (CONICET and University of Buenos Aires), Danilo Turpkin (University of Buenos Aires), Victoria Luca (CONICET and University of Buenos Aires), Belén Bentivegna (CONICET and University of Buenos Aires). The team is also grateful to the Development Data Partnership and LinkedIn for support with data and analysis.

The team benefited from helpful conversations with Andrés Malamud, Daniel Artana, Daniel Heyman, Eduardo Levy Yeyati, Emanuel Alvarez Agis, Fernando Navajas, Guido Sandleris, Juan Carlos Hallak, Marcello Capello, and Marina dal Pogetto, as well as members of many civil and sector associations.

Very special thanks are due to Secretary of Economy Policy, Joaquin Cottani, who provided comments to the last version of the report. The team also thanks Fernando Morra, former Secretary of Economic Policy, for his intellectual leadership in the design of the report. The team is also grateful for valuable input provided in several meetings discussing progress and brainstorming analysis with the team at the Ministry of the Economy and the Ministry of Foreign Affairs, especially Enrique Agustín Hurtado.

The report was edited by Fiona Hinchcliffe. Florencia Micheltorena designed the report.

List of contributors

The table below lists core chapter authors including World Bank Group staff and consultants:

Chapter	Core team
1	Sonia Araujo, Julian Folgar and Belen Olaiz with inputs from Charl Jooste, Pui Shen Yoong, Ariel Coremberg, Danilo Trupkin and Juan Carlos Hallak
2	Jose Signoret, Daniel Saslavsky, Israel Osorio-Rodarte, Sonia Araujo, Andre Barber, Jose Barbero, Juan Carlos Hallak and Shunko Rojas
3	Harry Moroz, Helena Rovner and Maria Jose Vargas Mancera
4	Lilia Stubrin (biotech) and Sebastián Brusa and Dante Sica (automotives)

Executive Summary

Argentina's production capabilities, characterized by its abundant natural capital assets and well-educated workforce, have the potential to drive sustained and inclusive economic growth. Argentina is home to diverse natural resources, including the world's second-largest deposits of lithium, and the second-largest gas shale and fourth-largest shale oil reserves. Its fertile land makes it a major agricultural producer, ranking third in soybean production worldwide. Human capital is rooted in its historically high-quality education and health services, as well as notable achievements in knowledge-intensive sectors such as research and innovation.

Yet Argentina has struggled to achieve sustained growth. The country was the seventh wealthiest nation in the world in 1918. Economic success was driven by an open economy and progressive immigration policies. Weakening economic performance in the last century caused its income to fall below high-income country levels (Figure 1), resulting in Argentina being demoted to middle-income status in the 1960s. Persistent economic instability and inefficient policies have hindered development, with the country's annual gross domestic product (GDP) growth rate averaging only 1.8 percent over the past half century, well below the Latin American average of 3.2 percent. If Argentina had grown at the same rate as the rest of Latin America, its GDP per capita would have been 60 percent higher today, approaching the level of Poland.



Although growth accelerated in the first decade of the 21st century following the debt default in 2001 and propelled by the commodities super-cycle, it was short-lived. Favorable global liquidity conditions supported growth, leading to expanded real incomes and reduced poverty and income inequality. However, like some other Latin American countries, Argentina failed to use these favorable tailwinds to improve fiscal policy or enact structural reforms to increase productivity, diversify exports, or foster overall external competitiveness. Such policies could have sustained growth after the commodity super-cycle ended. Instead, the second decade of the 21st century was characterized by low growth, with five years of GDP contraction and an average annual growth rate of 1.4 percent (excluding 2020). Today, Argentina's GDP per capita is close to its 2007 level.

fiscal procyclicality have contributed to a cycle of booms and crashes. Volatility is also driven by an increasing overreliance on primary commodities. Stubborn and high inflation in addition to abrupt changes in exchange rates reduce planning horizons for long-term investment and impede the development of capital markets. Second, restrictive trade policies, in place partly because of macroeconomic imbalances, prevent Argentina from leveraging its vast comparative advantages to reap the benefits of international trade. Third, while human capital is among Argentina's greatest assets, its quality is gradually declining. Without corrective policies, the skills of the country's workforce could fall rapidly behind those demanded by a dynamic, technology-driven, knowledge-intensive global economy.

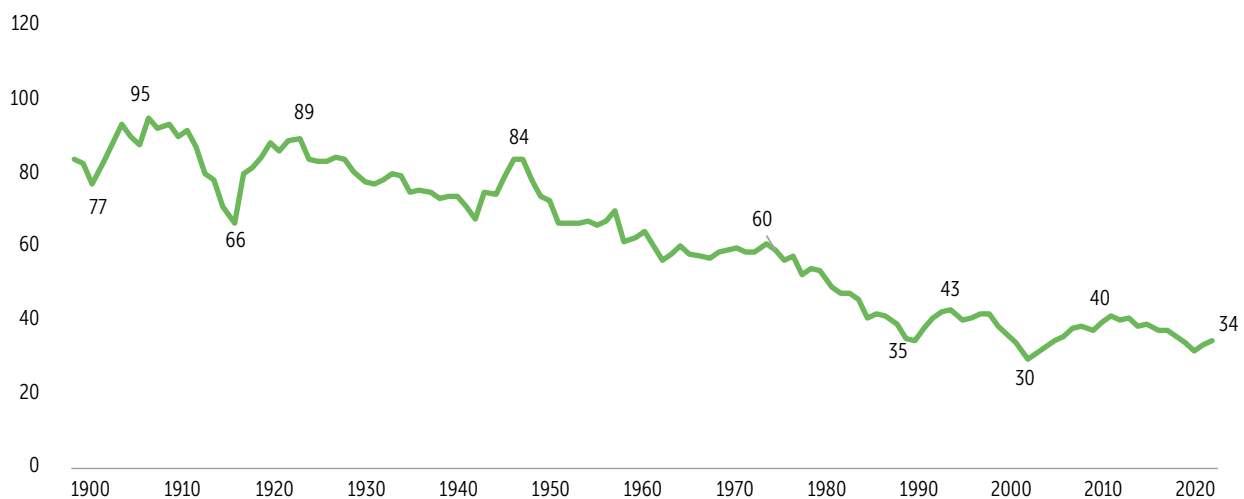
This report identifies three key constraints to sustaining growth in Argentina. First and foremost, macroeconomic volatility is largely responsible for poor growth outcomes: high policy uncertainty and

The report presents three suggestions to help Argentina tackle these development challenges and close the income gap with high-income economies over the medium term:

Figure 1

Argentina's income is increasingly falling behind high-income economies

Argentina's per capita GDP as a % of the high-income country average (1900-2022)



Source: Data from Maddison Project Database (2020) and The Conference Board (August 2023). **Note:** High-income economies are the UK, US, Norway, Switzerland, Australia, Denmark, Sweden, Germany, Canada, and the Netherlands. The 2019-2021 data was estimated using changes in GDP per capita from the Conference Board database.

1. Reducing fiscal procyclicality would ease macroeconomic volatility and encourage investment, a key driver of long-term growth

High macroeconomic volatility is hindering growth and eroding human development. Since 1950 Argentina has spent 15 years in recession, making it the country with the most economic recessions globally, followed by Congo, Chad, Ukraine, and Venezuela. On average, each recession lasted 1.6 years and saw GDP decline by 4 percent annually. Crisis periods coincided with the presence and build-up of macroeconomic imbalances. Repeated macroeconomic crises have led to a cumulative deterioration of the well-being of the population, particularly the most vulnerable. Since 2015, Argentina has dropped four positions on the World Bank's Human Capital Index rankings. Income levels, living standards, and the quality of public services have declined. Employment is heavily concentrated in low-productivity sectors, and within-sector

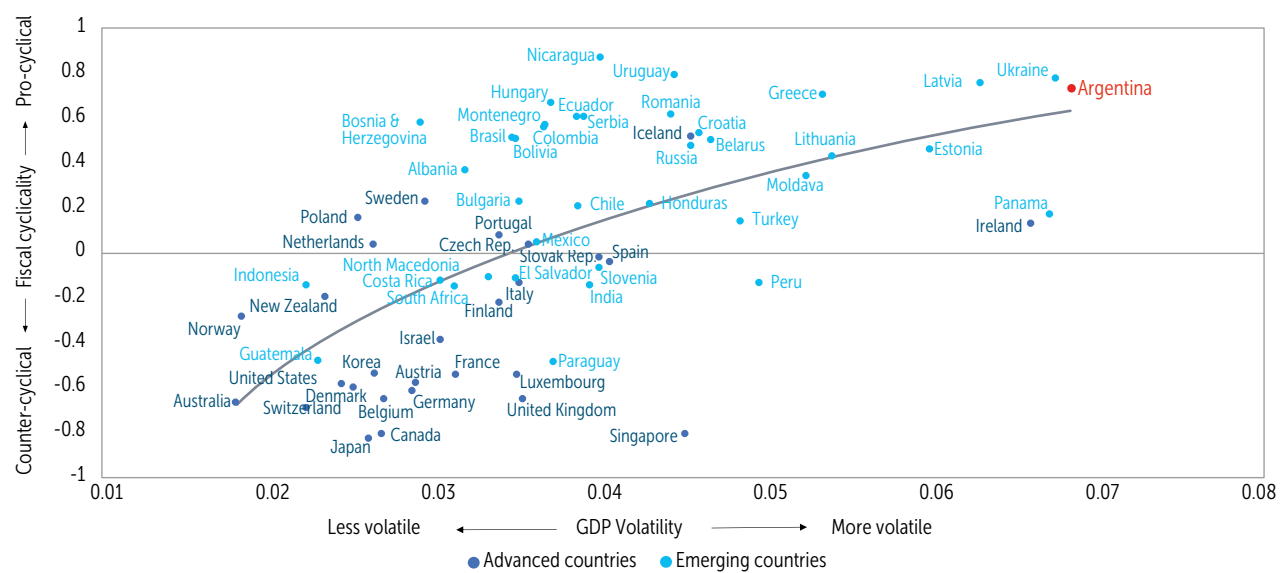
productivity growth is, on average, negative. Formal job creation is slow, and the stagnant private sector offers limited opportunities for the country's large and diverse labor force. Women and young people are especially vulnerable to unemployment, underemployment, and informality.

Fiscal procyclicality, combined with policy uncertainty, leads to frequent economic booms and busts. Public expenditure in Argentina is one of the most procyclical in the world (Figure 2). During commodity price booms, public spending increases steeply. Once the commodity price cycle ends and the economy starts contracting, public spending becomes unsustainable, forcing sudden policy reversals that amplify the economic downturn and ignite political crises. Additionally, unsustainable fiscal policy puts pressure on the monetary policy, leading to increased inflation and contributing to a more volatile economic environment. Policy uncertainty further exacerbates macroeconomic volatility. Multiple overhauls of the exchange-

Figure 2

High fiscal procyclicality is fueling macroeconomic volatility

Fiscal cyclicality and GDP volatility, 2000-2021



Source: OECD Stats, IMF, World Bank. **Note:** Fiscal cyclicality is measured as the correlation between the cyclical component of real spending and real GDP. GDP volatility is measured as the standard deviation of the annual growth rate for each country.

rate regime, constant shifts in trade policy, the privatization and renationalization of public utility companies, and continual changes to the tax code and regulatory policies have all undermined market expectations and hindered investment. Finally, a complex business environment hampers the development of manufacturing and services, inhibit export diversification, and undermines the economy's resilience to shocks.

Procyclicality discourages long-term investment – a key driver of economic growth. During expansions, the public sector captures most of the credit from the financial sector, crowding out private investment. During these episodes, national consumption and investment increase rapidly, outpacing income growth. A sharp increase in imports causes the current-account balance to deteriorate, prompting currency depreciation and a balance of payments adjustment. The high and rapid pass-through effect of exchange-rate depreciation boosts inflation, causing real wages to decline and leading to a deep recession. Trade barriers prevent exports from reacting to the depreciating exchange rate, aggravating the crisis. The resulting cycle of sudden expansions and deep crashes severely discourages long-term investment that is vital to boost productivity. In fact, despite its abundant natural resources, Argentina has the seventh lowest investment rate in Latin America (20 percent of GDP in 2021) and one of the lowest rates of Foreign Direct Investment (1.4 percent in 2021).

Low levels of investment contribute to low and stagnant labor productivity. Labor productivity measures the amount of output produced per unit of labor and, therefore, is an indication of the efficiency with which workers contribute to the economy. Higher labor productivity goes hand in hand with higher profits, wages, and economic growth. In a macroeconomic context marked by persistent cyclical volatility, Argentina's labor market has performed poorly, and employment remains heavily concentrated in low productivity sectors, although there are some differences across sectors. The productivity of workers in professional services is more than double that in non-tradable services, but the latter employ twice as many workers.

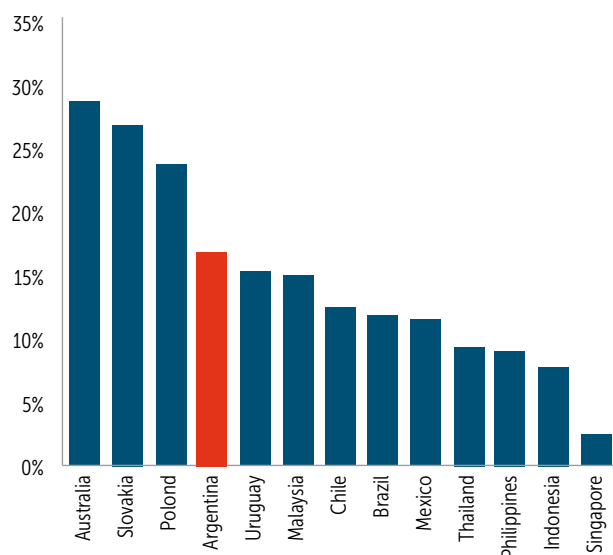
Employment in the public sector has swollen from 3 million people in 2006 to nearly 5 million in 2021, positioning the country as one with the largest share of public sector employment, yet the sector has the lowest productivity (Figure 3). Productivity has stalled in agriculture, and is on a downward trend in industry and services. Meanwhile formal private sector job creation has stagnated, reducing opportunities for labor reallocation.

Increased investment would have a large impact on potential GDP. At 20 percent of GDP, Argentina's investment levels are lower than aspirational peers such as Poland, Malaysia, and the Republic of Korea. Macroeconomic stability would reduce the country's risk premium and bolster investor confidence, thereby increasing private investment. In addition, reducing price distortions and rigidities would improve the allocation of resources within sectors, generating significant productivity gains. Currently, within-sector productivity growth is very low in most sectors, suggesting a substantial misallocation of resources, driven by large distortion that prevent their efficient reallocation.

Figure 3

Argentina has one of the largest public sectors

Public sector employment, as percentage of total employment



Source: ILO STAT. Note: Singapore figure is for 2021.

2. Deepening trade integration could bring more jobs and increase the variety and affordability of intermediate and consumption products

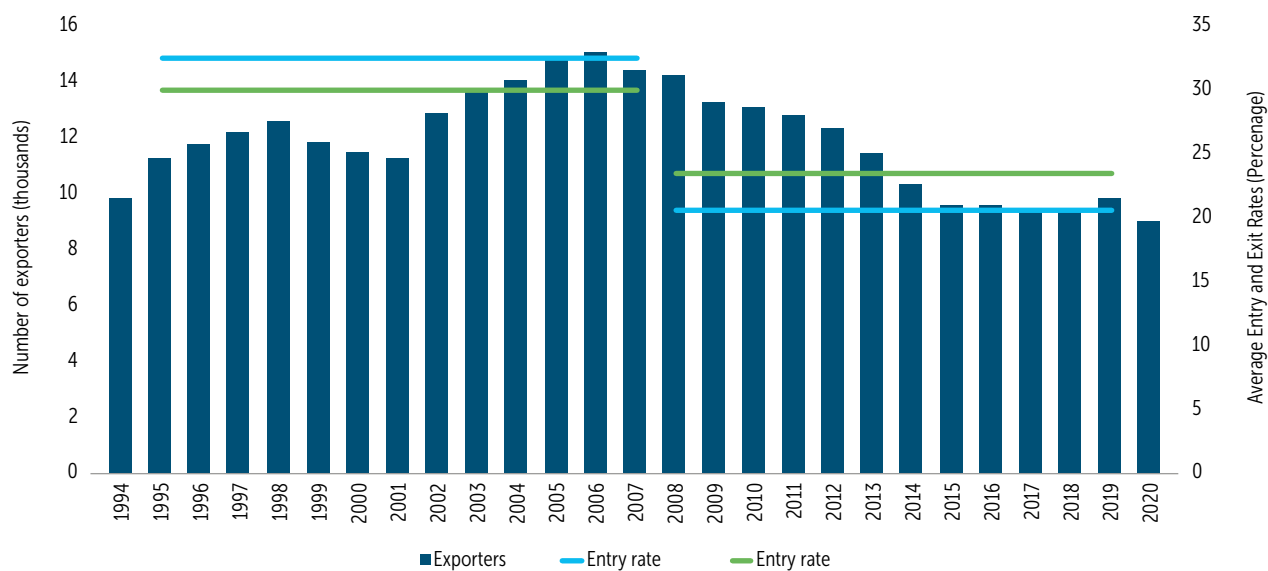
Argentina's competitiveness in global markets has declined over time. The country is close to international markets, compared to countries at the same level of development. Additionally, international trade decreased from 42 percent of GDP in 2002 to 34 percent in 2022. The number of exporters decreased by around 30 percent during this period (Figure 4). Argentina lost ground in global markets across all economic sectors (Figure 5). The export basket is increasingly concentrated in commodities and the country has few linkages with global or regional value chains. Persistent economic volatility, recurring macroeconomic imbalances (high inflation, multiple exchange rates, and insufficient reserves accumulation), and frequent shifts in policy direction hinder the establishment of the stable business environment required for long-term private investment in exporting sectors.

Amidst an ongoing decline in competitiveness, this situation can be attributed to five key drivers:

- i) **High trade costs pose an undue burden on Argentinian firms and stymie foreign investment.** Average tariffs are high, standing at more than double those of other economies in the region. As part of MERCOSUR, Argentina adheres to a common external tariff which is high by international standards. The average tariff Argentina imposes on countries outside MERCOSUR is 13.4 percent. In comparison, tariffs in the Pacific Alliance countries are on average 5.3 percent. Non-tariff measures (NTMs) also add to trade costs. Most products are subject to many NTMs, which include technical measures – such as sanitary and phytosanitary and technical barriers to trade – and non-technical measures aimed at control the quantity or the prices of exports and imports, such as licenses or bans. While some of these regulations may have legitimate reasons, such as regulating trade to protect the safety and health of humans, animals, plants and the environment, others may

Figure 4

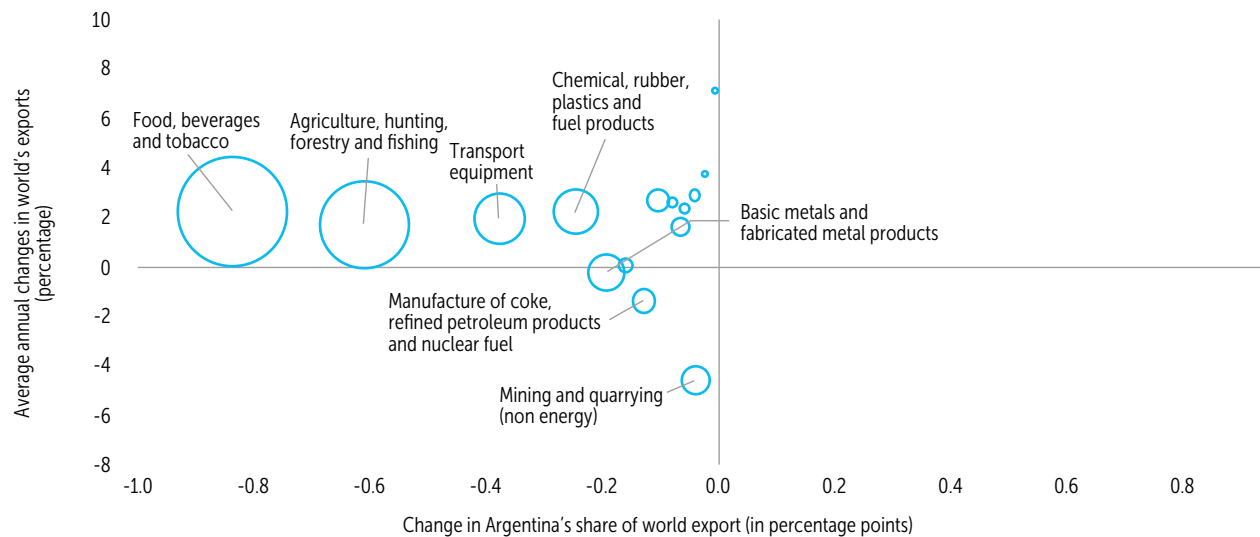
The number of exporters has declined since its peak in 2006



Source: World Bank based on Dirección General de Aduanas. **Note:** The entry rate is defined as the number of new exporters as a share of all exporters. Similarly, the exit rate is the ratio between the number of firms exiting the export market and total exporters.

Figure 5

Argentina has lost market shares in international markets in all sectors (2012-19)



Source: World Bank. **Note:** The figure compares world demand growth across industries (Y-axis) with Argentina's market share growth in these industries (X-axis) between 2012 and 2019. The size of the bubbles represents the share of respective industries in Argentina's exports.

be put in place for protectionist reasons. The current array of NTMs in Argentina is equivalent to an additional tariff rate of 22 percent. The most widespread non-technical NTMs are non-automatic licenses, affecting all products and enacted to control the quantity of imports given the fragile foreign exchange situation. Finally, temporary export bans, imposed to control domestic prices, and export taxes, imposed due to fiscal considerations, further undermine export competitiveness.

- ii) **Numerous capital and import controls complicate trade.** Established to stabilize macroeconomic variables, these measures restrict access to imports of cheaper and better intermediate inputs, increasing the costs of business, and reducing the competitiveness of Argentinian firms. They ultimately reduce investment in exporting sectors, export growth and diversification away from commodities.
- iii) **Few and shallow preferential trade agreements limit regional integration.** Contrary to the global trend, Argentina has not increased its

participation in trade agreement in recent decades. Intra-regional trade in MERCOSUR is one of the lowest in the world, reflecting the protectionist nature of some NTMs, which are not covered by the agreement. The eight trade agreements in force are relatively simple, covering only tariff liberalizations and the elimination of certain non-tariff barriers. Deep agreements go beyond these traditional areas, and include provisions related to, inter alia, investments, services, intellectual property rights, and the environment. The agreement between MERCOSUR's and the European Union, which is yet to be ratified, would be the first deep trade agreement. Simulations presented in this report suggest that the agreement would boost food and agriculture exports, while manufacturing exports would decline. While the contraction in manufacturing activity is modest, policies could be put in place to facilitate shifts in the labor market. Overall, the agreement positive impact on trade and output would increase wages both for skilled and unskilled labor. The distributional effects of the agreement would also likely be pro-poor, with especially positive implications for poor

urban households. Finally, the approval of the agreement could open the door to modernizing MERCOSUR's regulatory framework and the negotiation of similar agreements.

iv) Trade compliance procedures at the border are cumbersome, increasing time and cost for traders.

The lack of simplified procedures and streamlined processes at ports prevents the seamless flow of cargo in and out of Argentina. One of the key weaknesses is the lack of a functioning "Foreign Trade Single Window". Single windows are used worldwide to speed up export and import procedures by allowing firms to submit all necessary documentation through a single platform. By providing certainty and transparency to firms, particularly exporters, over the various procedures they will need to follow for trading, they encourage them to venture into exporting. While most countries in Latin America have made substantial progress in implementing single windows, Argentina is one of the latest adopters. Currently, only 30 percent of border agencies participate in Argentina's single window, compared to 100 percent in Colombia, Costa Rica, and El Salvador. Additionally, it is still not possible to submit all the required documentation through this mechanism.

v) Deteriorating port infrastructure and logistical connectivity lead to inefficiencies.

Argentina's logistic performance index ranking declined from 45 in 2007 to 73 in 2023, out of 139 countries. Investments are needed to improve waterway infrastructure and operating conditions. Railways are another transport priority area as freight rail is vital to ship bulk commodities with low marginal value by weight, such as soybeans. A comprehensive overhaul of Argentina's railroads would require significant financial resources and may not be feasible in the near term. Expanding digital networks along corridor and rural areas would enlarge export opportunities and support competitiveness.

The process to deepen Argentina's integration to the global economy should be gradual, well-

coordinated with macroeconomic reforms, and include mitigation measures to offset transition costs.

Addressing lingering macroeconomic imbalances is a necessary condition for the internationalization of the economy. More trade integration would entail changes in relative prices, which could trigger a reallocation of production factors that entail efficiency gains but also adjustment costs. While overall productivity is expected to increase, thereby contributing to economic growth, some workers may be affected. Protecting workers through active labor-market policies (such as job search assistance and training) and passive policies (including income support and social insurance programs) can prove effective to minimize adjustment costs.

3. Nurturing human capital is critical in an evolving world of work

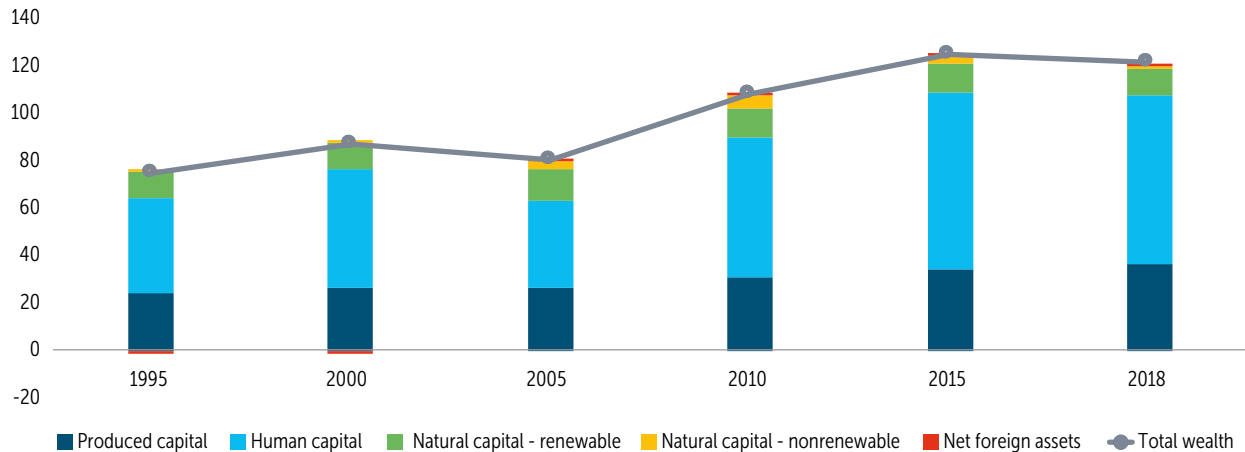
Argentina's human capital is the most important component of its national wealth, but its Human Capital Indicators (HDI) have been worsening over time.

While Argentina's human capital indicators are comparable to those of Chile, one of Latin America's most dynamic economies, they are declining. Although access to education has increased in recent decades, educational outcomes are deteriorating and started doing so prior to the pandemic. High dropout rates mean that on average, students in Argentina complete fewer years of schooling than their counterparts in peer countries. In contrast to peers and global trends, the share of tertiary graduates among young people is lower than among older cohorts. More than two-thirds of 15-year-olds lack basic proficiency in standardized international tests, and more than half lack basic proficiency in science and reading, a much higher share than peer countries. The COVID-19 pandemic has deepened these challenges. Indicators of basic cognitive skills have worsened significantly, especially among the poorest households. Closing the gap between enrollment and completion rates both at secondary and tertiary levels would accelerate human capital formation and reduce the intergenerational difference in tertiary education.

Figure 6.

Human capital is the most important component of Argentina's total national wealth

Wealth per capita, constant, Argentina, 2018 (US\$)



Source: World Bank (2021). The Changing Wealth of Nations.

Human capital is underutilized in Argentina.

The utilization-adjusted Human Capital Index (UHCI), which assesses how inefficiencies disrupt the deployment of human capital in labor markets, is nearly 40 percent lower than the non-adjusted Human Capital Index (HCI), a measure of the human capital that a child born today could expect to acquire at age 18 based on their health and education). The gap between these two measures in Argentina is the highest among comparator countries, suggesting that human capital is not deployed productively in the country. Additionally, women face more significant barriers than men in deploying their human capital: the female UHCI is lower than the male UHCI despite the female HCI being higher than the male HCI in Argentina.

There are three key reasons behind the underperformance in human capital and its utilization:

i) **The labor market is stagnant.** Argentina has been unable to foster a healthy and competitive labor market where workers can optimize the use of their skills. The unemployment rate is high and volatile, and long-term job creation has been slow by the standards of regional and

global comparators. The informality rate is close to 50 percent, far higher than the levels of most comparable countries. Women's participation in the labor force is relatively low at about 45 percent, indicating that women's human capital is particularly underutilized. The public sector's large and growing share in total employment likely compounds the inefficient distribution of the workforce, which is heavily skewed toward low-productivity sectors. Moreover, workers have steadily shifted from more to less-productive sectors, suggesting that the misallocation of human capital is worsening over time. This results in declining labor income and increasing poverty.

ii) **The nature of work is changing.** At the sectoral level, private sector employment has shifted away from industry and towards services. Employment in industry declined from around one-third of all jobs in 1991 to around one-fifth in 2019. At the same time, jobs in services rose from two-thirds of total employment in 1991 to nearly four-fifths in 2019. Occupations are also evolving significantly, particularly in the direction of digitally intensive jobs. Occupations involving digital technologies are growing quickly, along with the digital skills

that are required in these positions. Qualitative evidence collected from senior executives by the World Economic Forum shows that a combination of technical (e.g. digital) skills and socioemotional skills (e.g. teamwork) is increasingly important for organizations in Argentina. However, evidence from the same survey also shows that Argentina is lagging comparators on even basic digital skills. Analysis for this report shows that Argentina underperforms on the disruptive technology skills closely associated with the future of work, such as artificial intelligence.

iii) Inability to adapt quickly is leading to a skills mismatch. Firms in Argentina are struggling to find workers with the right skills. Approximately 40 percent of firms surveyed in the World Bank's 2017 Enterprise Survey reported an inadequately educated workforce as a major constraint. This compares to a LAC average of 29 percent. Argentina has the third-highest rate of "qualification mismatch" among G-20 countries. While skills shortages are modest compared to other G-20 members, Argentina is still experiencing these shortages for many high-level cognitive and social skills, such as reasoning abilities and complex problem solving, and for digital economy skills such as computers and electronics.

Macro stability, a competitiveness-friendly business environment that supports global integration, and the availability of the right human skills are critical to support knowledge-intensive sectors that could contribute to sustained long-term growth. An exploration of the situation of biotechnology and automobiles, two sectors in which Argentina has a comparative advantage, reveals how constraints in these areas negatively affect competitiveness:

Argentina is a regional leader in biotechnology, and ranks 12th in the world for the number of biotech companies; however, a skills mismatch is endangering its competitiveness. The sector has an estimated turnover of US\$2.1 billion (0.5 percent of GDP) and employs around 50,000 workers. R&D activities in biotech are well above the average for the

Argentinean manufacturing sector, representing 3.2 percent of biotech sales in 2019, compared to 1.35 percent for the average Argentinean manufacturing firm. Most biotech companies are innovative and vertically integrated, with a good number of start-ups. Addressing emerging shortages of human capital, such as in bioinformatics, will be important to keep up with global trends. Macroeconomic stability, along with the elimination of import restrictions, would ease the difficulties of doing business in Argentina, particularly for those ventures that are inherently risky and that depend on key strategic import inputs (reagents, for example).

The automobile industry has a long industrial tradition but has experienced a contraction over the last decade driven by macro instability and distortive trade policy measures. There are 10 terminals, located in three provinces (Buenos Aires, Córdoba, and Santa Fe), which produce all types of vehicles: cars, utility vehicles, pick-ups, trucks, and buses. Jointly they have an installed capacity of approximately one million units and generate around 28,000 direct jobs. In addition, around 400 supplier companies account for another 37,000 jobs. The country has specialized in recent years in the manufacturing of medium size pick-ups (load capacity of up to 1 ton). Pick-up exports represent 63 percent of foreign vehicle sales, positioning the country as the fifth-largest producer of medium pick-ups in the world. However, due to macroeconomic instability and distortive trade policies, the industry has been experiencing a contraction over the last decade. The sector is highly challenged by the eruption of a global process of technological change. This process confronts the country with the need to revamp its systems in an unfavorable context for investment. Industrial projects need macro stability, long-term policies, and predictable and stable regulatory frameworks.

A comprehensive policy package could help Argentina to reduce the income gap with the developed world over the medium term. This approach depends on successful tackling the pressing macroeconomic imbalances in the short-term. A predictable, stable, and credible exchange rate policy along with low inflation and a return

to fiscal sustainability is a necessary condition for any structural reform aimed at boosting long-term growth. The policy recommendations presented in

the report (summarized in table 1) need therefore be coordinated with urgent reforms to address existing macroeconomic imbalances.

Table 1

What policies could help Argentina to reduce the income gap with developed economies in the medium term?

Policy recommendation	Timeline
Objective 1. Reduce fiscal procyclicality to ease macroeconomic volatility	
1.1 Tackle the procyclicality of social benefits	
Reform the pensions indexation formula to better protect the real value of benefits from unexpected shifts in inflation	ST
Avoid relying on ad-hoc pensions moratoriums by better aligning contribution to benefits	ST
1.2 Strengthen the fiscal framework	
Implement effective fiscal rules for sustainability, with specific guidelines for prudent public staffing policies	MT
Strengthen traditional automatic fiscal stabilizers such as unemployment insurance and the personal income tax	MT
Objective 2. Gradually increase integration with the rest of the world	
2.1 Enhance the provision of public goods to help local firms become more competitive	
Facilitate access to credit	ST
Strengthen the national productive development plan	ST
Strengthen the trade and investment promotion agency	ST
2.2. Reduce trade costs	
Implement the revision of the MERCOSUR Common External Tariff	ST
Limit to the minimum tariff lines subject to non-automatic licenses	MT
Reduce export taxes	MT
Ratify the Free Trade Agreement with the EU	MT
2.3 Improve trade facilitation	
Increase the number of accredited authorized economic operators	ST
Accelerate the implementation of the "Ventanilla unica de Comercio exterior"	ST
Revamp the "Exporta Simple" program to reduce transportation costs and support SMEs	ST
Prioritize the implementation of the open access mechanism for railways	MT
Objective 3. Nurture Human Capital for changing needs	
3.1 Foster Human Capital Development	
Enhance teacher training by focusing on the knowledge, pedagogical skills, and socio-emotional competencies that teachers need to be effective	ST
Making assessment tools available to teachers so they can diagnose students in real time and implement corrective measures when necessary	ST
Intensifying the use of assessment and information systems by school staff to identify early deficits and design programs and interventions for corrective actions	MT
3.2 Modernize labor market programs	
Complement the pensions reform with a more robust unemployment insurance system	ST
Redirecting active labor market programs towards employability and skills development by enhancing coordination, monitoring, and evaluation, and relying more on beneficiary profiling to determine needs	ST

Note: The table lists the priority policy options identified by the report. A comprehensive list of policy option by theme is presented at the end of each chapter. ST= short-term (<2 years); MT=medium-term (3-5 years).

Abbreviations

AAICI	National Investment and Export Promotion Agency (<i>Agencia Argentina de Inversiones y Comercio International</i>)
ADEFA	Automobile Manufacturing Association (<i>Asociación de Fabricantes de Automóviles</i>)
AEO	Authorized Economics Operators
AfCFTA	African Continental Free Trade Agreement
AFIP	Federal Tax Administration (<i>Administración Federal de Ingresos Públicos</i>)
ALMPs	Active labor market programs
ANMAT	National Administration of Medicines, Food and Medical Technology (<i>Administración Nacional de Medicamentos, Alimentos y Tecnología Médica</i>)
AR\$	Argentine peso
Bn	Billion
CAB	Argentina Biotech Chamber (<i>Cámara Argentina de Biotecnología</i>)
CAPEX	Capital expenditure
CCDR	Country Climate and Development Report
CEM	Country Economic Memorandum
CET	Common external tariff
CNG	Compressed natural gas
COFEMA	Federal Environmental Council (<i>Consejo Federal de Medio Ambiente</i>)
CONICET	National Scientific and Technical Research Council (<i>Consejo Nacional de Investigaciones Científicas y Tecnológicas</i>)
DBF	Dedicated biotechnology firms
DJAI	Anticipated imports sworn statements (<i>Declaraciones juradas anticipadas de importación</i>)
ECLAC	Economic Commission for Latin America and the Caribbean
EFTA	European Free Trade Agreement
EGW	Electricity, gas and water
EMPRETECNO	Program to Promote Technology-Based Companies
EPH	Encuesta Permanente de Hogares (<i>Permanent Household Survey</i>)
EPL	Employment protection legislation
ESID	Survey on R&D of Argentine Business Sector (<i>Encuesta sobre I+D del Sector Empresario Argentino</i>)
EU	European Union
EVs	Electric vehicles
FDI	Foreign direct investment
FODER	Fund for Renewable Energies Development (<i>Fondo para el Desarrollo de Energías Renovables</i>)
FONARSEC	Argentine Sectoral Fund (<i>Fondo Argentino Sectorial</i>)
FONCYT	Scientific and Technological Research Fund (<i>Fondo para la Investigación Científica y Tecnológica</i>)

FONDCE	National Fund for Entrepreneurial Capital (<i>Fondo Fiduciario para el Desarrollo del Capital Emprendedor</i>)
FONTAR	Argentine Technological Fund (<i>Fondo Tecnológico Argentino</i>)
FTA	Free trade agreement
GDP	Gross domestic product
GHG	Greenhouse gases
GIC	Global Investment Competitiveness Report
GPV	Gross production value
GRPs	Good regulatory practices
GTAP	Global Trade Analysis Project
GVC	Global Value Chains
HCI	Human Capital Index
HDI	Human Development Index
HHI	Herfindahl-Hirschman Index
HS	Harmonized System
ICT	Information and Communication Technology
IDB	Inter-American Development Bank
ILO	International Labor Organization
INDEC	National Institute of Statistics and Census (<i>Instituto Nacional de Estadística y Censos</i>)
INGEBI	Research Institute in Genetic Engineering and Molecular Biology (<i>Instituto de Investigaciones en Ingeniería Genética y Biología Molecular</i>)
INTA	National Institute of Agricultural Research (<i>Instituto Nacional de Investigaciones Agropecuarias</i>)
IPR	Intellectual property rights
IT	Information technology
ITC	International Trade Center
LAC	Latin America and the Caribbean
LNG	Liquefied natural gas
LPI	Logistic Performance Index
Maas	Mobility as a service
MERCOSUR	Mercado Común del Sur
MFN	Most favored nation
MINCyT	National Ministry of Science, Technology and Innovation (<i>Ministerio Nacional de Ciencia, Tecnología e Innovación</i>)
MT	Million ton
MTEySS	Ministry of Labour, Employment and Social Security (<i>Ministerio de Trabajo, Empleo y Seguridad Social</i>)
MUS\$	Million US dollars
NAFTA	North America Free Trade Agreement
NEET	Not in education, employment or training
NTM	Non-tariff measures
NTFC	National Trade Facilitation Committee
OECD	Organisation for Economic Co-operation and Development

OEDE	Employment and Business Dynamics Observatory (<i>Observatorio de Empleo y Dinámica Empresarial</i>)
O&G	Oil and gas
PISA	Program for International Students Assessment
PPPs	Public-private partnerships
RIAs	Regulatory impact assessments
R&D	Research and development
R&D&I	Research, development and innovation
SACU	Southern African Customs Union
SENASA	National Service of Agrifood Health and Quality (<i>Servicio Nacional de Sanidad y Calidad Agroalimentaria</i>)
SMEs	Small and medium enterprises
STI	Science, technology and innovation
SSCs	Social security contributions
SIMI	Imports Monitoring System (<i>Sistema Integral de Monitoreo de Importaciones</i>)
SIRA	Argentine Republic Imports System (<i>Sistema de Importaciones de la República Argentina</i>)
SMATA	Automobile transport mechanics and related workers union (<i>Sindicato de mecánicos y afines del transporte automotor</i>)
SOE	State-owned enterprise
SPS	Sanitary and phytosanitary
STEM	Science, technology, engineering, and mathematics
TBT	Technical barriers to trade
TCF	Trillion cubic feet
TFP	Total factor productivity
TiVA	Trade in value added
TVET	Technical and vocational education and training
UHCI	Utilization Adjusted Human Capital Index
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
US\$	US dollars
VUCE	Foreign Trade Single Window (<i>Ventanilla Única de Comercio Exterior</i>)
WDI	World Development Indicators
WEF	World Economic Forum
WTO	World Trade Organization

CHAPTER

1

An Overview of Argentina's Economic Performance

1.1. Growth has stalled

Argentina's historical growth performance is disappointing. Rather than catching up with countries with higher living standards, Argentina has been left behind. At the beginning of the 20th century its per capita gross domestic product (GDP) was in line with the richest economies' average (95 percent in 1908), yet in 2022 it represented barely a third (Figure 1.1) In fact, during the first three decades of the 20th century, Argentina outgrew Canada and Australia in terms of population, total income, and per capita income. In 1913, it was the world's 10th wealthiest country in per capita terms. Today, with a per capita gross national income (GNI) of US\$11,620 (in 2022, Atlas method), the country is classified as an upper-middle income country by the World Bank.¹ Argentina's fall from high-income to middle-income status makes it unique among the set of middle-income economies, the rest of which have risen to middle-income from lower-income status.

¹ In calculating gross national income (GNI) per capita in U.S. dollars for operational and analytical purposes, the World Bank uses the Atlas conversion factor instead of market exchange rates. The purpose is to reduce the impact of exchange rate fluctuations in cross-country comparisons of national incomes. The Atlas conversion factor for a given year is the average of a country's exchange rate for that year and the two preceding years, adjusted for the difference between the rate of inflation in the country and international inflation. More information on this methodology can be found at <https://datatopics.worldbank.org/world-development-indicators/sources-and-methods.html>



➤ BOX 1.1. ARGENTINA'S BENCHMARK COUNTRIES

Benchmarking country performance with relevant peers helps to elucidate important characteristics, trends, and constraints to growth. In this Country Economic Memorandum, Argentina is benchmarked against three comparator groups:

- i) **Regional peers:** The largest Latin American economies (Brazil, Mexico, Chile, Colombia, Peru and Uruguay) whose growth models and comparative advantages differ.
- ii) **Structural peers:** Countries whose geographies and structural characteristics are similar to Argentina but have managed to upgrade to high-income status: Australia, Malaysia, Poland and South Korea. Australia is a resource-rich economy with similar land and population conditions to Argentina. Malaysia and Poland sustained higher growth rates than Argentina, enabling them to overcome the “middle income trap”. South Korea represents a successful story of structural transformation.
- iii) **Aspirational peers:** the group of mainly highly developed OECD countries. At the beginning of the 20th century Argentina shared high levels of prosperity with the most developed countries in this group (Figure 1.1).

Benchmarking is contemporaneous, meaning that Argentina is benchmarked to peers in the same year. Owing to methodological breaks in many official data series, country benchmarking typically starts in 2004, or 2006, depending on data availability. Consistent with stagnant growth following the recovery from the global financial crisis, a structural break in GDP data series is observed in 2011. For this reason, Argentina is often benchmarked for the period starting in 2012.

The country's economic performance is also meager when contemplating the last two decades.

The country has shown poorer growth dynamics than most of its peers (Box 1.1), which is surprising given the low base of GDP at the beginning of the 2000s because of the 1999-2002 convertibility crisis.² During 2003-2021, its structural peers converged with US and OECD upper middle-income country levels. South Korea and Poland saw the greatest convergence rates. Compared to its regional peers, Argentina out-performed Mexico and Brazil, but was

out-performed by other Latin American countries such as Colombia, Chile, Peru, and Uruguay (Figure 1.2).

Years of recession have undermined growth.

For a third of the last 70 years, the Argentinean economy suffered annual contractions of close to 4 percent. It is the country with the highest number of years in recession in the world, followed by Congo, Chad, Ukraine, and Venezuela (Figure 1.3). Its number of years in recession far exceeds that of other countries in Latin America.

² Following a three-year economic recession, by end 2001 and beginning of 2002 the Convertibility regime -adopted a decade earlier- was abandoned and the peso devaluated. Besides, the country entered into a default on its foreign debt. In this context, in 2002 the economy contracted 10.9 percent and inflation increased to 41 percent and the poverty rate climbed to 57.5 percent in October of that year (national poverty line).

Figure 1.1

Argentina's GDP is diverging from the highest-income countries...

GDP per capita as a percentage of the rich economy average (1900-2021)

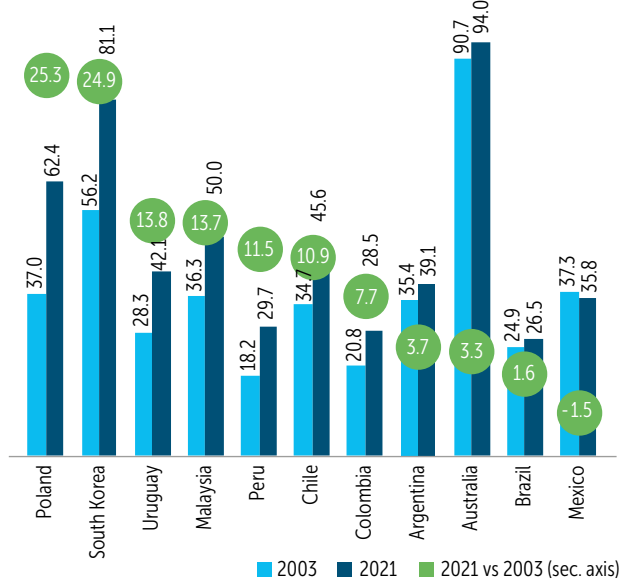


Source: World Bank based on data from Maddison Project Database (2020) and The Conference Board (April 2022). **Note:** Rich economies are Australia, Canada, Denmark, Germany, Netherlands, Norway, Sweden, Switzerland, the UK and the US. The 2019-2021 data was estimated using changes in GDP per capita from the Conference Board database.

Figure 1.2

... and its growth dynamics are weaker than most peers

Argentina and comparators GDP per capita versus upper-middle OECD average. In percent and change in percentage points (2003-2021)

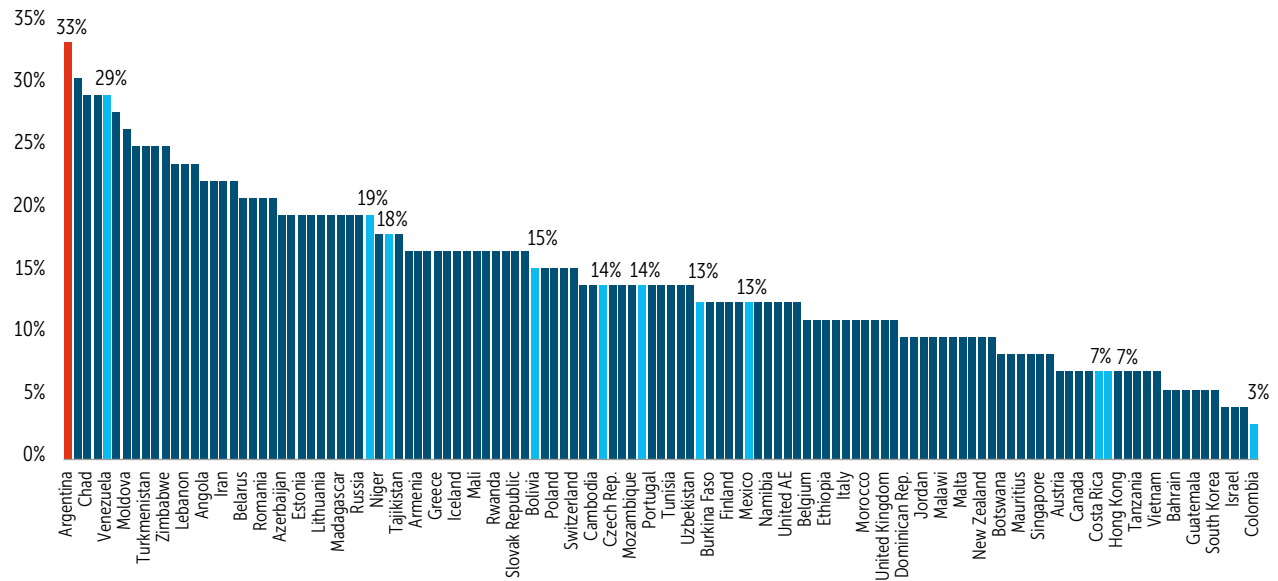


Source: The Conference Board Total Economy Database: Output, Labor and Labor Productivity, 1950-2022. **Note:** 2021 vs 2003 represents the difference in the ratios between each country's per capita GDP and the upper-middle OECD economies' average.

Figure 1.3

Argentina has seen the most years of recession in the world

Years in recession, as a percentage of total years (1950-2022)



Source: Conference Board Total Economy Database: Output, Labor and Labor Productivity, 1950-2022.

Argentina outperforms its regional peers on human development indicators. Argentina is among the highest scoring countries on the Human Development Index (HDI), which summarizes countries' achievements in terms of a long and healthy life, knowledge, and having a decent standard of living (Figure 1.4). This reflects Argentina's investment in welfare and distributive policies since the beginning of the 20th century, financed by revenues from its vast natural resource wealth. Its decades of prosperity at the turn of the 20th century gave Argentina a pioneering role in Latin America for universal public service provision in education and health. Argentina still enjoys the dividends of this past prosperity, reaping the benefits in certain areas of social and human development. Along with Chile, Argentina outranks its other regional peers, but is behind its structural and aspirational countries (except Malaysia). However, HDI have been decreasing lately (see Chapter 3).

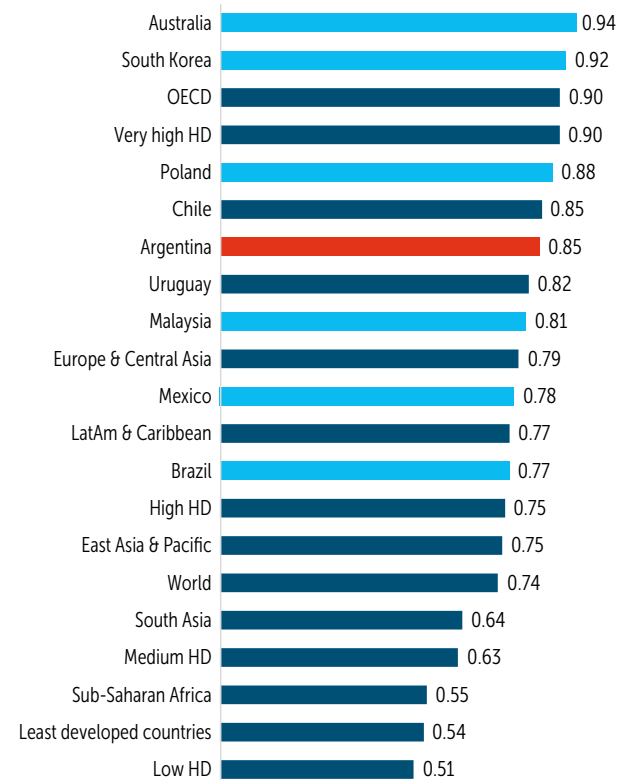
Regional disparities within Argentina are substantial, especially when compared to more developed countries. Although regional income gaps exist across all countries, they are particularly acute in Argentina, leading to large differences in material living standards and well-being. Whilst amongst EU countries the ratio between the regions with the highest and lowest GDP per capita averaged 2.4 in 2018, it was 6.2 in Argentina in 2021 (Figure 1.5). This reflects large differences in regional productivity, as well as in the delivery of public services.

The poorest provinces saw their productivity converge with the richest provinces between 2004 and 2021 as the latter faltered. The provinces with the highest labor productivity are rich in oil, gas, and agricultural land (Chubut, Neuquén, Santa Cruz, Tierra del Fuego, and La Pampa).³ However, these provinces accumulated a productivity decline of 10.2 percent between 2004 and 2021, equivalent to an average annual decrease of 0.6 percent. Against this

Figure 1.4

Argentina is among the top countries for its human development

HDI 2019



Source: UNDP 2020. Note: maximum=1; minimum=0.

backdrop of “frontier retreat”, the poorest northern provinces (Formosa, Jujuy, Corrientes, Chaco, and Santiago del Estero) saw a timid convergence with the leaders, improving their average productivity at the margin (2.7 percent annual average, Figure 1.6). A common feature of all provinces with falling productivity is the declining share of the tradable sector; the rest have managed to maintain their initial shares.

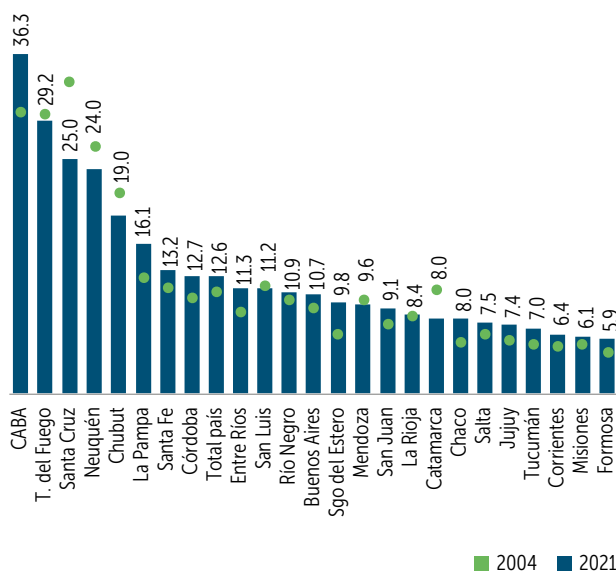
The contribution of labor productivity to growth has been modest, as most workers are concentrated in the least productive sectors.

³ Methodology adapted from OECD (2016). See Araujo and Olaiz (2022).

Figure 1.5

There is a high variation of income across provinces

Per capita GDP by province, in thousand constant 2004 AR\$, 2004 vs 2021



Source: World Bank based on INDEC and CEPAL-MECON. **Note:** AR\$=Argentinian peso; CABA= Buenos Aires Autonomous City.

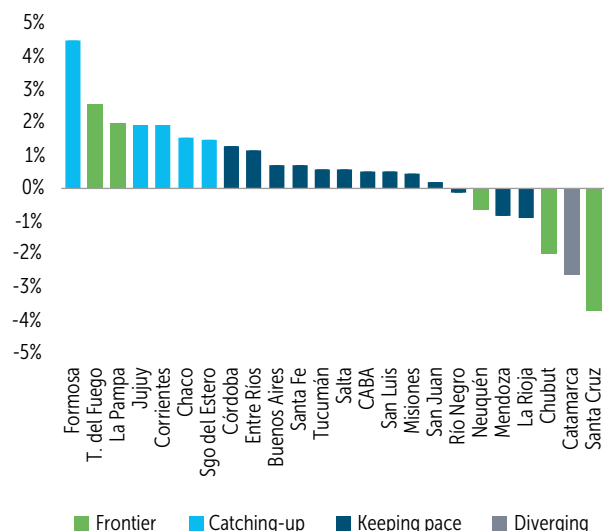
Argentina’s labor productivity is below the average for its regional and structural peers, and it has fallen 7 percent since 2012.⁴ Most workers are concentrated in low productivity sectors such as the public sector, construction, wholesale and retail, and manufacturing. Meanwhile the sectors with the highest value added per worker, such as professional services – a tradable sector – have only played a limited role in employment (Figure 1.7). This tendency has strengthened over time, with employment dynamism growing in lower productivity activities. The lackluster performance of labor productivity in the public sector and other non-tradable services is particularly worrisome, given that this sector has steadily increased its employment share. In the absence of reforms to

⁴ In 2022, Argentina’s labor productivity (measured as output per employed person in 2021 international dollars) was more than 40 percent lower than for Poland and Korea, and more than 50 percent lower than for Australia. It was also 20 percent lower than for Malaysia and Chile and 8 percent lower than for Uruguay. Only Mexico underperformed Argentina (The Conference Board Total Economy Database).

Figure 1.6

Poorer regions’ labor productivity is catching up with faltering richer regions

Average annual growth rate of labor productivity in percent, 2004-2021



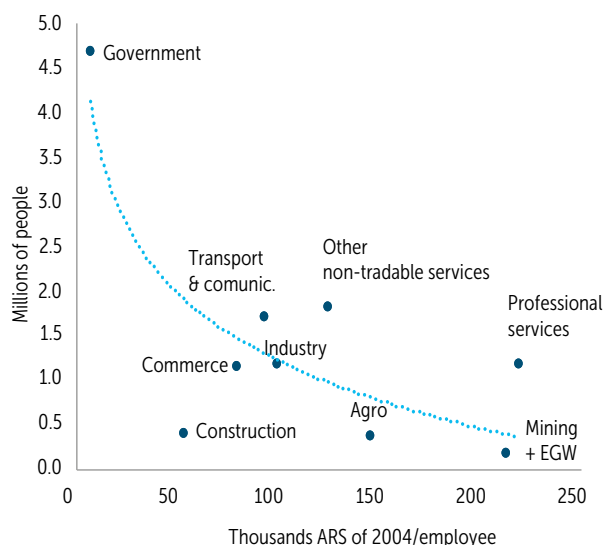
Source: World Bank based on INDEC, Labor Ministry, and CEPAL-MECON. **Note:** productivity is measured in constant 2004 AR\$.

re-ignite growth, the non-tradable sector could capture an increasing share of workers (Beylis et al., 2020). Against this background, Argentina has not progressed its structural transformation in recent years, highlighting that resources are not being reallocated to their most productive uses. Decompositions of per capita income growth in Argentina for the period 2006 to 2019 indicate that the largest gains in GDP per capita came from the increase in employment, while labor productivity contributed negatively (both within and across sectors). In comparison, in Poland, Malaysia, Brazil, Australia, and Latin America and the Caribbean as a whole, within-sector changes were the largest driver of per capita income in all cases (Figure 1.8).

Figure 1.7

Argentina’s workers are concentrated in low productivity sectors

Labor productivity and employment by sector, 2021



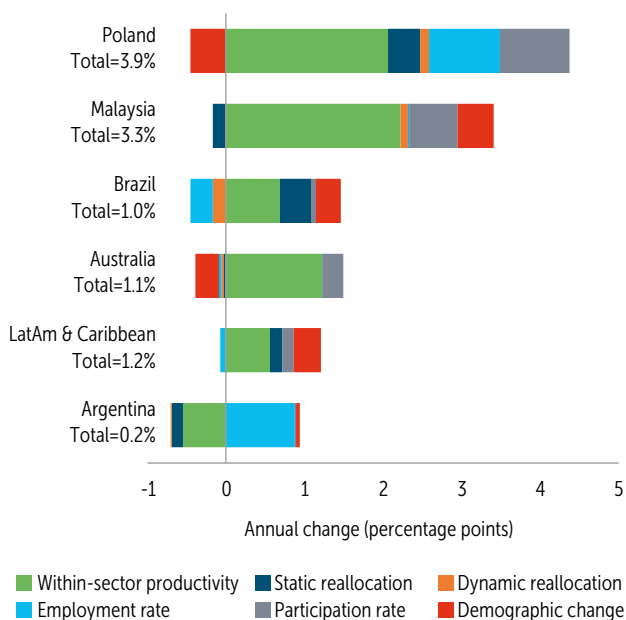
Source: World Bank based on INDEC and Ministry of Labor. **Note:** Private employment is estimated by combining formal private sector employment (data from Ministry of Labor, Employment, and Social Security) with the informality rate (from the permanent household survey – EPH). Public sector employment was taken directly from the EPH. Value added is measured as output per employee. EGW: Electricity, gas & water. Other non-tradable services: Real estate, financial intermediation, education, social and health services. Other: community, social and personal service activities.

A longer-term perspective confirms that Argentina’s growth is driven by factor accumulation instead of total factor productivity, which shows a downward trend. Labor and capital accumulation have supported output growth (Figure 1.9). The capital-output ratio followed a positive trend during the 1950-1974 period, thanks to the dynamics of capital accumulation. Even though capital accumulation has been the main contributor to long-term growth, its level and dynamics, both

Figure 1.8

Gains in GDP per capita came from employment growth, not labor productivity

Decomposition of growth in per capita VA. Annual variation in percentage points, 2006-2019



Source: World Bank Job Structure Tool. **Note:** Cross-country regression model originally developed by Loayza et al (2005) to describe LT growth in LAC. Improved subsequently by Araujo et al (2014).

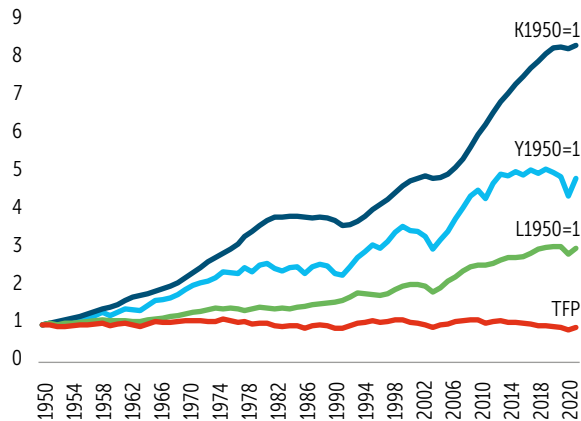
private and public, have been sub-par. Argentina’s per capita capital stock continues to be low, lagging behind structural and regional peers. Additionally, human, physical, and financial capital were not allocated efficiently across sectors – despite factor accumulation, total factor productivity (TFP) has not increased and remains at 1950s’ levels (Figure 1.10).⁵ Lackluster TFP dynamics persist even after adjusting for input utilization effects owing to exacerbated cyclical volatility (Araujo and Coremberg, 2023).

⁵ Total-factor productivity describe the relationship between output in real terms and the inputs involved in its production.

Figure 1.9

Growth is explained by labor and capital accumulation

Source of GDP growth (1950-2021). Index 1950=1

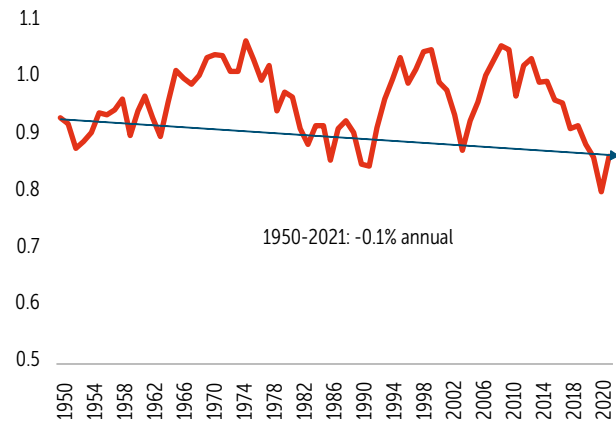


Source: Araujo and Coremberg (2023). **Note:** Y=GDP; K=Capital; L=Labor; TFP=Total Factor Productivity

Figure 1.10

Total factor productivity has stagnated

1950-2021



Source: Araujo and Coremberg (2023).

1.2. Macroeconomic volatility, influenced by a procyclical fiscal policy, constrains growth

The main reason behind Argentina's poor economic performance is the sustained presence of high levels of volatility. Since the second half of the last century, average annual GDP growth has been only 2.5 percent (Figure 1.11). During that time, Argentina has experienced several periods of economic instability, having gone through 15 recessions. The average duration of the recessions was 1.6 years, with an average annual decline in GDP of close to 4 percent in each case. Crisis periods coincide with the presence and built-up of macroeconomic imbalances.

There is a large literature suggesting a negative link between volatility and growth, magnified by the absence of countercyclical fiscal policies and low levels of financial development. Ramey and Ramey (1995) find evidence that countries with higher volatility experience lower growth. Barroso

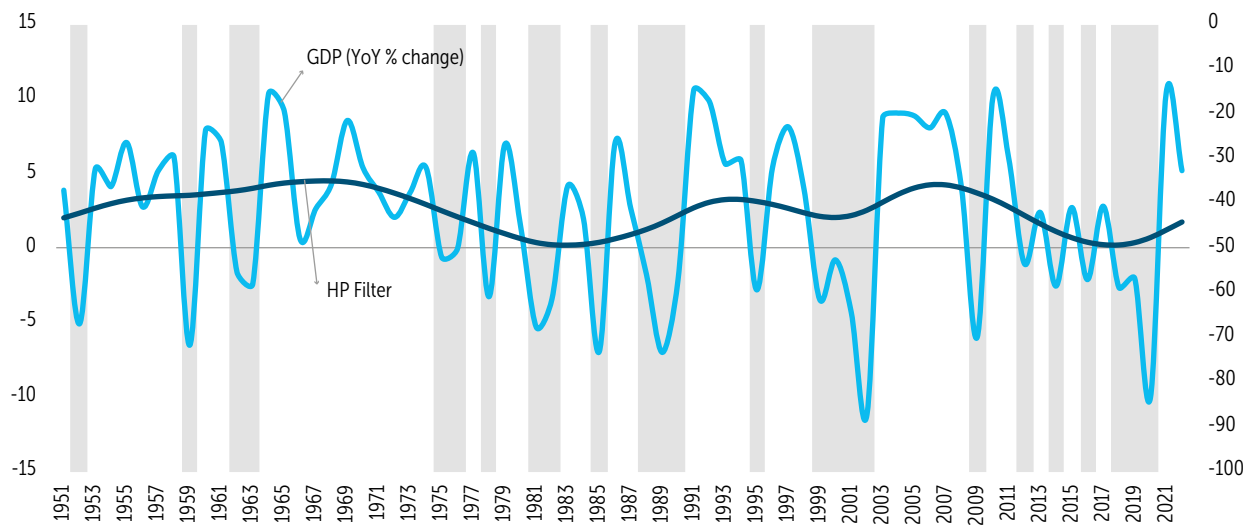
and You (2019) find that, on average, a 50 percent decrease in volatility increases annual per capita growth by 0.25 percentage points. An important channel for the negative impact of volatility on growth is investment: the greater the volatility in output, the more uncertain future demand becomes, and therefore, the less willing firms are to undertake long-term investment decisions (Rafferty, 2005). Hnatkovska and Loayza (2003) also find that macroeconomic volatility and long-run economic growth are negatively related and that this negative link is exacerbated in countries that are poor, institutionally underdeveloped, undergoing intermediate stages of financial development, or unable to conduct countercyclical fiscal policies.

High economic dependence on commodities plays a critical role in volatility. With a territory of 2.8 million square kilometers, the extraordinary fertility of Argentina's land makes it one of the most important agricultural producers in the world. Its

Figure 1.11

Output volatility is high

Annual GDP growth and HP-Filter (%) (1951-2022)



Source: World Bank, based on The Conference Board and IMF (WEO). **Note:** The HP filter remove the cyclical component of the GDP and determines the change in the trend level overtime. The gray shade represent economic crises.

fertile agriculture land gives Argentina greater per capita natural capital than most of its peers (Figure 1.12). Its beef and soybean industries perform at the technological frontier, using some of the most modern practices in the world. Some producers are world leaders in genetics, farm machinery, and innovation. The country also has abundant natural energy resources and a world-class potential for solar and wind energy. It has the second biggest shale gas reserves globally and the fourth largest oil reserves. However, Argentina's main source of wealth is its human capital. Below-par accumulation of physical and human capital explains the country's difference in wealth accumulation compared to its higher-income peers (Figure 1.13).⁶

Commodity price and supply shocks are associated with heightened volatility in Argentina. Even though natural capital is not the

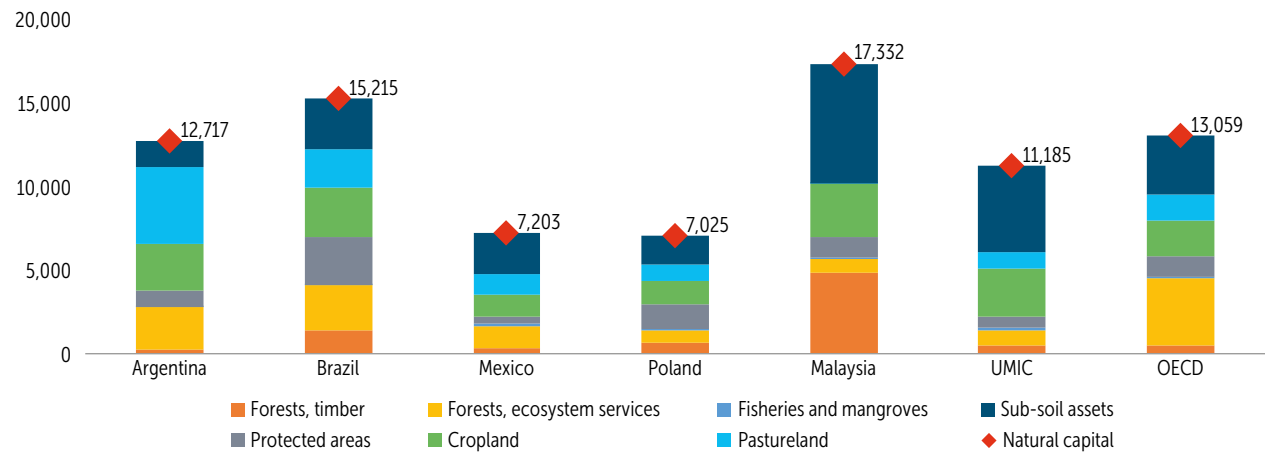
country's main source of wealth, the export basket remains dominated by commodity exports, with about 70 percent of goods exports and 60 percent of total exports associated with agriculture and energy (Chapter 2). Therefore, foreign exchange accumulation and fiscal revenues, directly via export taxes but also indirectly via input-output links of the agriculture sector, are very volatile, being subject to sharp fluctuations in terms-of-trade and in response to climate events. For example, during the last severe drought in 2018, crop production fell 17 percent and the agricultural sector was responsible for half of the economic contraction registered that year (-2.6 percent of GDP). On average, commodity price shocks are associated with almost 40 percent of fluctuations in Argentinean output growth post-1950, also explaining 40 percent and 60 percent of the variation in consumption and investment growth, respectively (Drechsel and Tenreyro, 2017).

⁶ For more details on Argentina's wealth composition and accumulation over time, see Araujo and Yoong (2023).

Figure 1.12

Argentina has more natural capital per person than some of its peers, driven by abundant agricultural land

Riqueza natural per cápita, US\$ constantes, Argentina y países de comparación (2018)

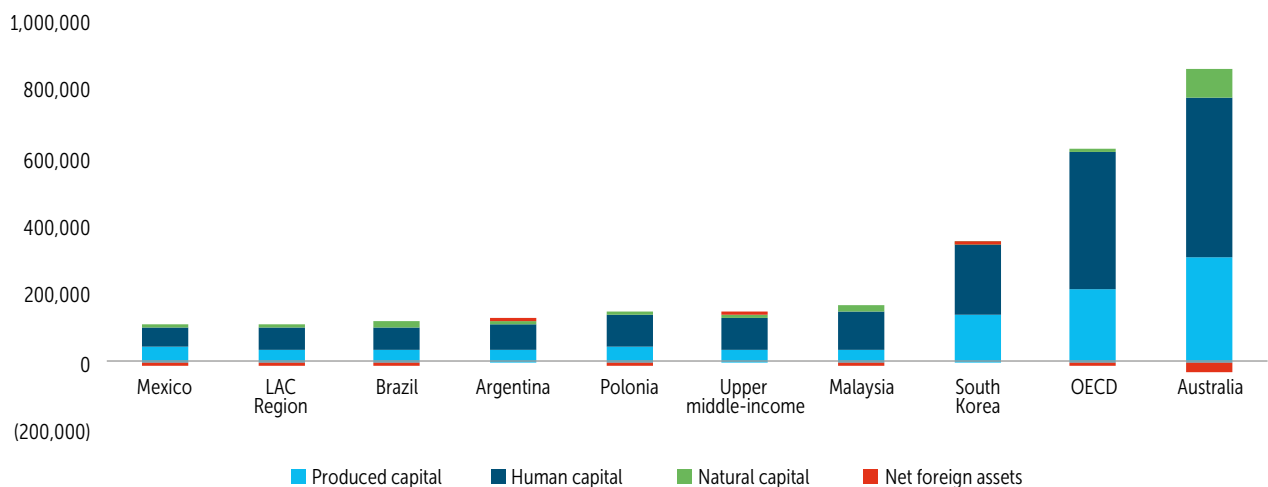


Source: World Bank Group (2021), Changing Wealth of Nations.

Figure 1.13

However, overall wealth is comparatively lower than some of its peers

Per capita wealth, constant US\$, Argentina and peer countries, 2018 (US\$)



Source: World Bank Group (2021), Changing Wealth of Nations. Note: LCR=Latin America and Caribbean Region.

High dependence on commodity exports and associated macroeconomic instability are a common feature of many emerging economies.

Commodities represent about 71 percent of total export value in emerging economies, on average, compared to only 29 percent in developed countries. In contrast, their share in aggregate imports is very similar across both groups, at 33 percent and 31 percent, respectively. These differences affect their response to changes in the international relative prices of commodities and manufactures, amplifying business cycle volatility. For instance, an increase in the relative price of commodities boosts the value of production and exports in emerging markets, while reducing the relative price of goods imported by these economies, triggering an economic boom. In developed economies, in contrast, an increase in the value of production and exports tends to be offset by an expansion in the value of imports, thus having a minimal impact on aggregate economic activity (Kohn et al., 2018). Although emerging economies are generally more fragile than developed ones, pointing to development challenges associated with export diversification and quality upgrading, Argentina's volatility and frequency of boom-and-bust cycles are much greater than for other emerging economies.

Natural resource abundance has also been associated with the “natural resource curse” and “Dutch disease” phenomena.

The resource curse refers to the observation that countries with great natural resource wealth, but which lack a diversified export base, tend to grow more slowly than resource-poor countries (Sachs and Warner, 2001; Mien and Goujon, 2022). Similarly, Dutch disease is generated by the long-term overvaluation of the currency following a natural resource discovery, which leads to large inflows of foreign currency, a sharp surge in natural resource prices, foreign assistance, or foreign direct investment (Mien and Goujon 2021). These contribute to an appreciation of the real exchange rate through a rise in domestic prices or in the nominal exchange rate. This appreciation

weakens the competitiveness of the country's exports and causes the economy to focus on the production of non-tradable domestic goods and services. Both transfers shrink production in the now lagging traditional export sector. The lack of export dynamism results in low and poor economic growth, and a low level of output from factories and industrial facilities, as well as a decrease in employment.

The evidence for the existence of Dutch disease effects in Argentina is mixed.

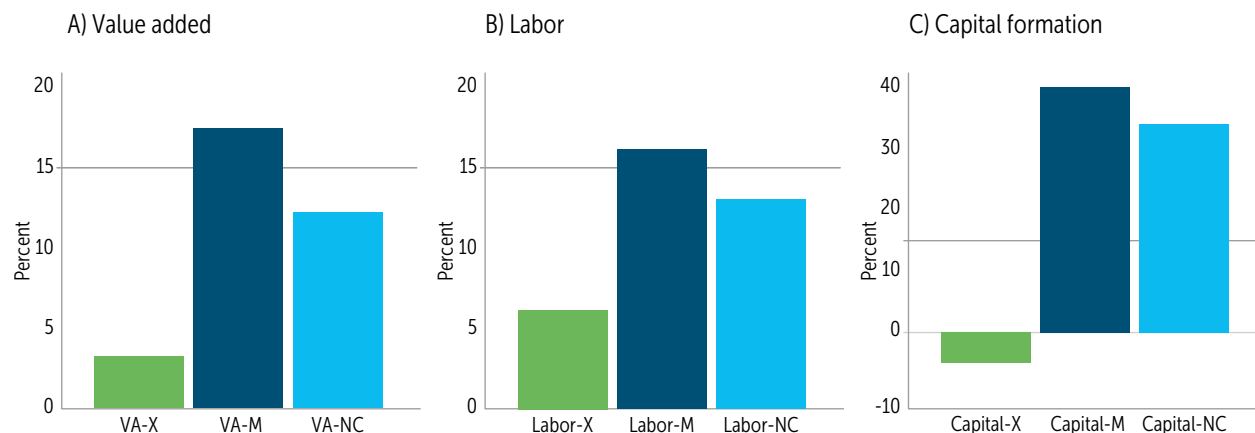
Its booms have been associated with real appreciation of the currency, and negatively associated with the trade and the current account balances, as predicted by the “disease”. Also as expected, improvements in terms of trade have been associated with increases in real GDP, investment, consumption, employment, and foreign direct investment. However, responses to terms-of-trade shocks seem to be magnified in Argentina compared to other commodity exporters (Araujo, Hallak and Trupkin, 2023). Argentina tends to experience greater real exchange rate appreciation, accompanied by a broader deterioration of the trade and fiscal balance, and an excessive response in private consumption. However, there are no significant differences in exports and foreign direct investment. As predicted by the Dutch disease, improvements in terms of trade are associated with investments in the non-tradable sector, though mainly in the non-commodity tradable sector which competes with imports. In fact, following a favorable terms-of-trade shock, the share of value-added and employment in the non-commodity tradable sector increases more than in the non-tradable sector (Figure 1.14).

Escaping the “natural resource curse” hinges on good macroeconomic and structural policies.

Natural resources do not need to determine a country's structure of production or exports. In fact, natural resources can act as a catalyst for economic development when there is an enabling environment that allows for the accumulation of knowledge for

Figure 1.14

Los shocks favorables en los términos de intercambio están asociados a una expansión de los sectores comercializables y no comercializables, distintos de las materias primas



Source: Araujo, S., Hallak, J.C. and D.R. Trupkin (2023). The Impact of Commodity Price Cycles on Argentina's Economy and its Sectoral Composition. **Note:** This figure plots the percentage change in (a) value added, (b) labor, and (c) gross fixed capital formation, after a favorable terms-of-trade shock, by sector (X=exports; M=non-commodity tradable sector, competing with imports; and NT=non-tradables), using the UN industrial classification, ISIC, for all economic activities. Agriculture, fishing and mining are included in the exportable sector; manufacturing in the importable sector; and construction, commerce, services and others are classified in the non-tradable sector. The horizontal lines represent the percentage change in the average detrended terms of trade between regimes.

economic innovation and provides an adequate level of infrastructure quality (Lederman and Maloney, 2007). Lessons can be learned from resource-rich countries that have avoided the unwanted effects of an unexpected increase in rents when a resource boom or other inflows of foreign currency occur. In particular, a long-term countercyclical fiscal policy and a strategy for saving excess income help to counteract the effects of currency inflows, by withdrawing the excess foreign currency from circulating in the economy (Frankel, 2012). Countries such as Botswana (diamonds), Chile (copper), and Norway (oil) offer examples of successful management of natural resource revenues through special fiscal institutions such as sovereign or stabilization funds.

Highly procyclical fiscal policies are linked with economic volatility, as they amplify booms and

busts. It is widely confirmed by the literature that developing countries tend to be more volatile and run more procyclical fiscal policies than advanced economies (Galeano et al., 2021; Frankel, Vegh and Vuletin, 2013).⁷ Argentina stands out globally for having the most volatile GDP and for being among the countries running the most procyclical public spending policies (Figure 1.15). Moreover, Argentina is one of the few countries that has deepened the procyclicality of its fiscal policy over the last decade, potentially exacerbating volatility (Figure 1.16). By contrast, many developed and developing countries have switched from being procyclical to countercyclical. In Latin America, Paraguay and Mexico are two such examples.

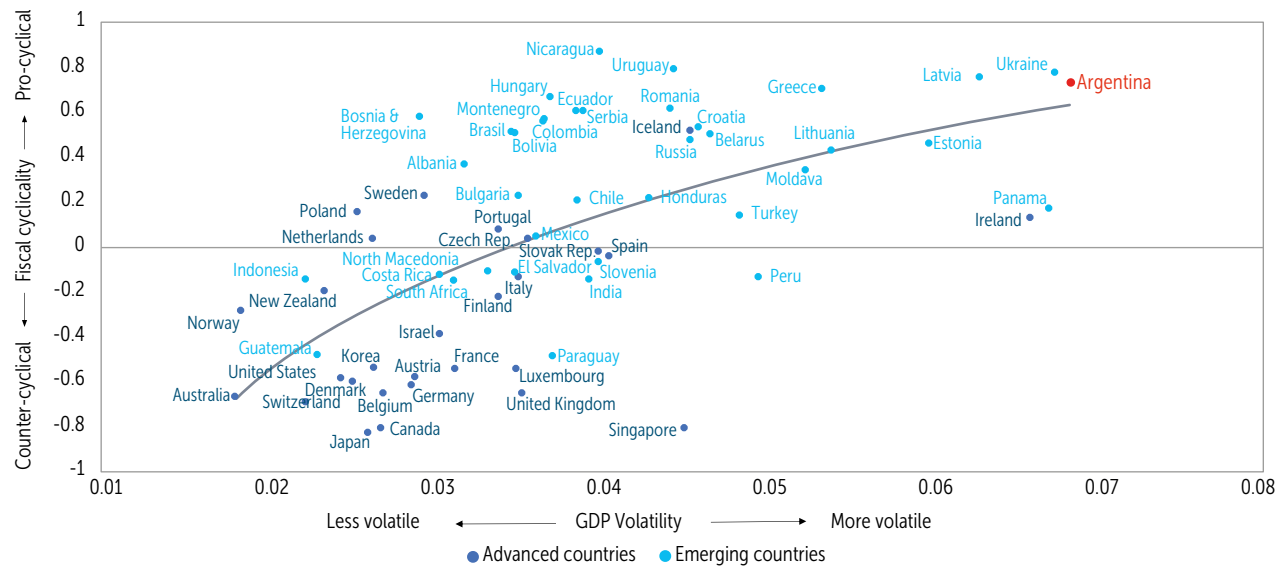
High fiscal procyclicality in Argentina is concentrated on the spending side. Overall public spending in Argentina appear to positively co-move

⁷ A variable is called procyclical (countercyclical) if it fluctuates in a way that is positive (negative) correlated with business cycle fluctuation in GDP.

Figure 1.15

Argentina's extreme macroeconomic volatility is linked to high fiscal procyclicality

Fiscal cyclicality and GDP volatility, 2000-2021



Source: World Bank, based on Végh, Lederman and Bennett (2017). *Leaning Against the Wind. Fiscal policy in Latin America and the Caribbean in a historical perspective.*

with the business cycle in a deterministic manner, with traditional automatic stabilizers having a minor role and a weak overall effect. In particular, the two most important items of public spending, such as pensions and the wage bill, have been the main drivers of aggregate fiscal procyclicality in recent decades. Although conventional literature suggests that there are no objective reasons for these spending items to behave countercyclically, there is a vast consensus that these items should be executed in a neutral way concerning the business cycle.

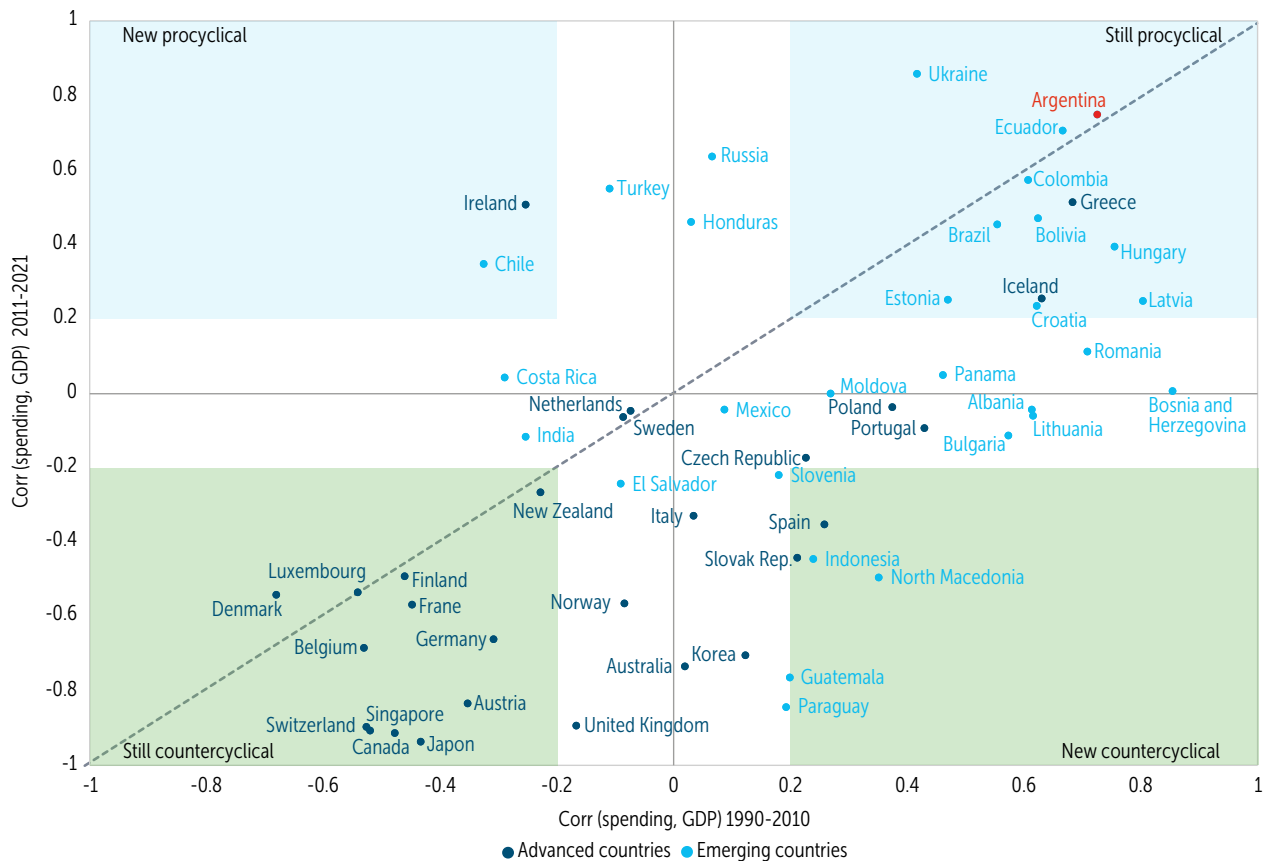
Argentina is among the countries with the most procyclical pension spending during the past decades, which is the main contributor to overall fiscal procyclicality. The evidence for Argentina shows that the public spending in all the main pension schemes has been strongly procyclical and determined by its “price” effects (i.e. how the real value of benefits evolved through time -indexation-)

and, only partially, by its “quantities” effect (i.e. how the number of beneficiaries evolved vis a vis the business cycle), too. Interestingly, while indexation rules typically prevent social security spending to be procyclical in most countries, the Argentine case seems to show the opposite. The design and the erratic implementation of indexation rules have fueled rather than contained procyclicality. Accordingly, protecting the real value of benefits with a well-designed, predictable, and stable indexation formula, as well as implementing reforms to reduce the need for exceptional measures, such as moratoriums, is crucial for mitigating the procyclicality of pension spending in Argentina.

The public wage bill is strongly procyclical, driven by both “price” and “quantity” effects. Compared to its regional and global peers, Argentina stands out for having a large public wage bill. Furthermore, the paper shows that Argentina’s wage bill is largely

Figure 1.16

Argentina is one of the few countries to have deepened its procyclicality



Source: World Bank estimates based on Végh, Lederman and Bennett (2017). *Leaning Against the Wind. Fiscal policy in Latin America and the Caribbean in a historical perspective.*

procyclical, even compared to global and regional standards. Moreover, the number of public servants (“quantities” effect) as well as their average wage (“price” effect), behaved in a very procyclical manner in recent decades, at both levels of government (national and subnational). The significant increase in public employment during the period 2002-2015, almost doubling the number of public servants across all levels of government, is part of the explanation. In addition, the increasing and volatile inflationary phenomena over the past two decades have contributed significantly to wage bill cyclicality, as public wage negotiations are typically not perfectly aligned with inflation. Therefore, creating

greater fiscal space to guarantee wage stability during crisis situations and adopting institutional and regulatory innovations to guide personnel hiring policies would greatly benefit the state and help reduce procyclicality.

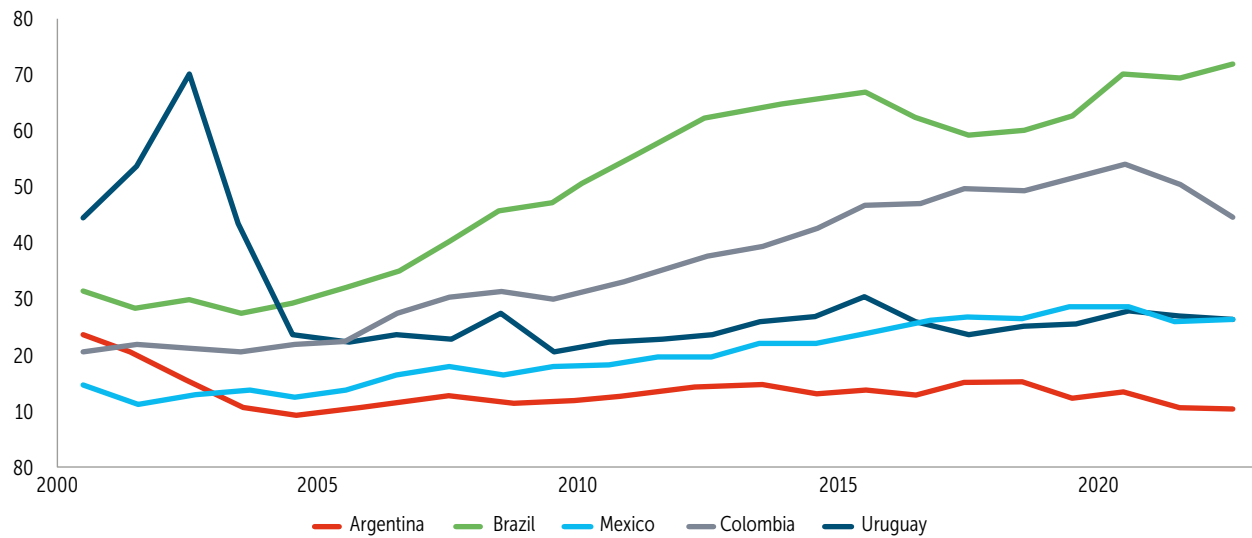
1.3. Public policy constrains private investment, hindering growth

In addition to contributing to the volatility of the economic cycle, financing recurring fiscal deficits crowds out credit to the private sector. Access to credit is very limited for the Argentinian private sector. Domestic credit to the private sector stands

Figure 1.17

Domestic bank credit to Argentina's private sector is lower than regional peers

% of GDP (2000-2022)



Source: World Bank and Central banks; Argentina 2018-2002: BCRA, INDEC.

at 10.6 percent of GDP in 2022, the lowest level in Latin America (Figure 1.17). For most countries in the region, the ratio fluctuates between 28 percent in Uruguay to 72 percent in Brazil. Credit to Argentina's private sector is also well below that in Central Europe economies (50 percent in Poland and 53 percent in the Czech Republic), and even further below the fast-growing countries in Asia (134 percent in Malaysia). Levels as low as Argentina's can only be found in much less developed countries (17 percent in Pakistan and 16 percent in Madagascar).⁸ However, Argentina's ratio was not always so low. In the 1990s, its domestic bank credit to the private sector was comparable to Mexico, Colombia, and Uruguay. A first explanation for the reduction of credit is the weak demand from businesses, itself also a consequence of persistent macroeconomic instability. Many businesses are informal, and stagnant growth and volatility do not encourage them to expand their activities via credit.

Credit scarcity is also driven by the lack of access to international financial markets, as well as a lack of domestic resources in the financial sector owing to a tendency to overspend that curbs domestic savings. But it is also due to a crowding out effect by the public sector, resulting from the size of the public deficit to be financed.

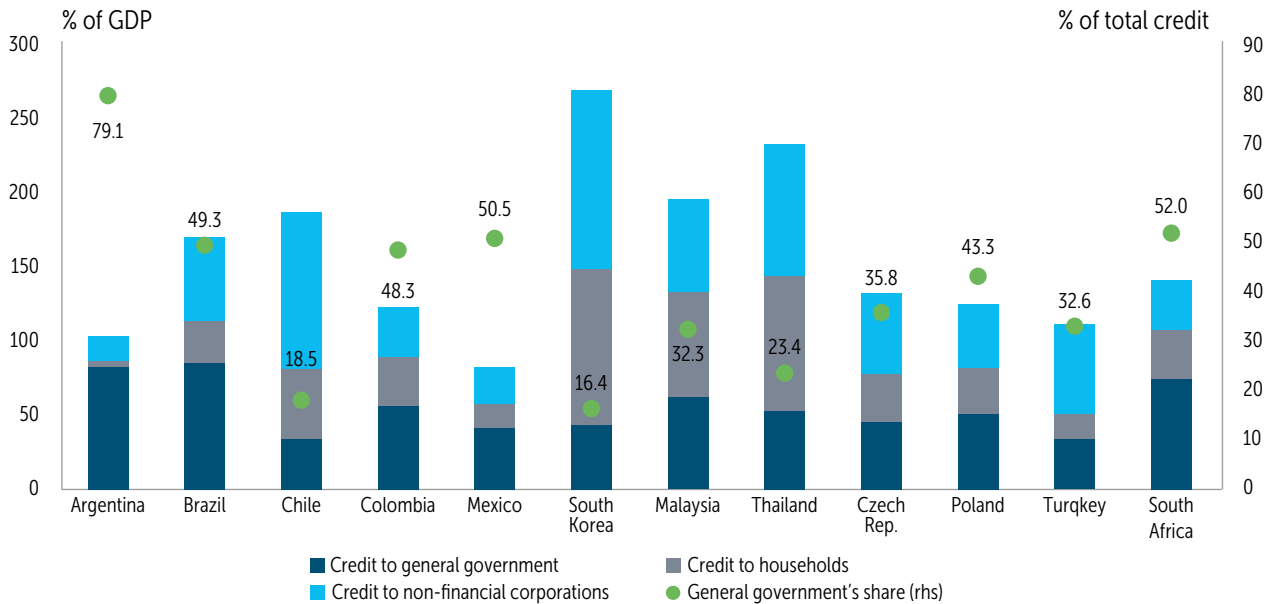
The public sector captures most of the credit available in the economy. Total credit granted to the Argentinian non-financial sector (companies, households, and public administration) by domestic and foreign lenders represented 104 percent of GDP in September 2022 (Figure 1.18). This is the lowest proportion in the peer group, except for Mexico (82 percent). However, it is not much lower than the shares observed in Turkey, Poland, and Colombia. More striking, though, is the distribution of this credit in Argentina, which differs significantly from all the

⁸ The average for the group of countries of which Argentina is part in terms of per capita income (upper middle income, according to the World Bank classification) was 144% in 2020.

Figure 1.18

Credit to the public sector is larger in Argentina than in peer countries

Total credit by sector, September 2022



Source: Bank of International Settlements.

other countries. Of the credit available, about 80 percent was captured by the public administration, compared to a maximum share of around 50 percent in other countries (49 percent in Brazil and 51 percent in Mexico). Some countries see much lower shares (16 percent in Korea and 18 percent in Chile). In Argentina, companies only receive 17 percent of total credit.

Large and continuous shifts in economic policy, at both the macro and micro levels, are an additional source of volatility. Since 1990, Argentina has moved from a very rigid exchange rate regime (convertibility system established in 1991) to a controlled exchange rate, then to a dual exchange rate regime, then to a flexible exchange rate. Today it has a multiple exchange rate regime (Table 1.1). International trade

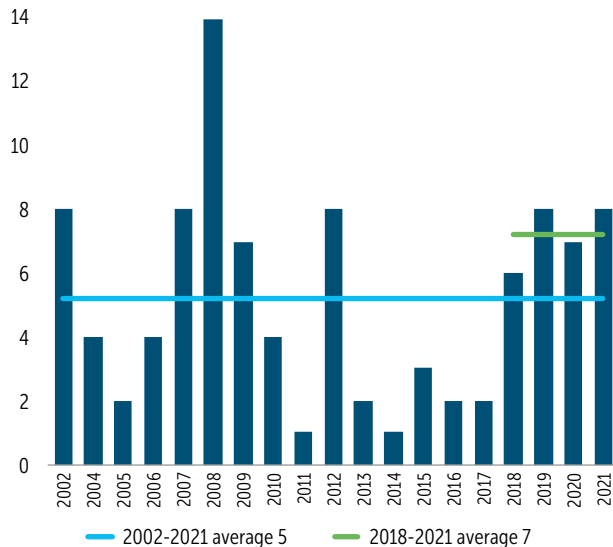
should have expanded gradually with the creation of the Mercosur block in 1991, but this objective never materialized due to the implementation of a growing import control system (temporarily liberalized at the end of 2015). The privatizations of utility companies in the 1990s turned into nationalizations from the middle of the 2000s and were then superseded by a public-private partnership (PPP) system that did not prosper. Argentina went from a “mostly free” economy in 1995 to a “largely controlled” one, according to the index of economic freedom.⁹ Federal tax and budget rules have been frequently modified. The changes in the regulations for export duties are particularly striking. On average, between 2002 and 2021, there were five regulatory changes per year for export duties, and this average rose to seven over 2018-2021 (Figure 1.19).

⁹ The Heritage Foundation <https://www.heritage.org/index>.

Figure 1.19

Argentina sees multiple changes to export duties every year

No. of changes (2002-2021)



Source: World Bank based on CERA.

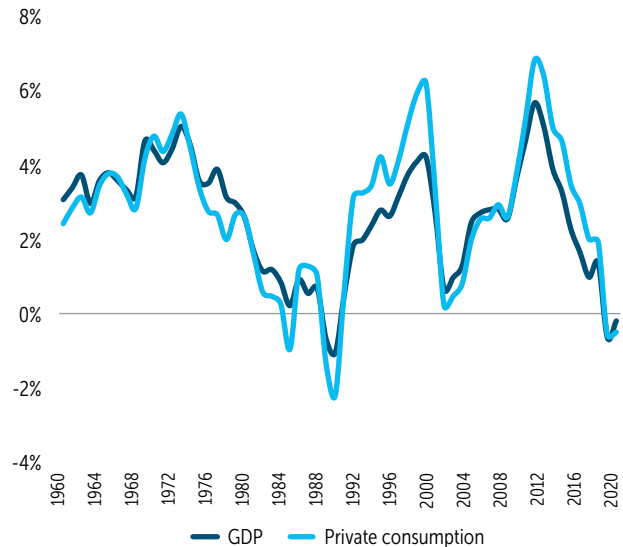
The persistent volatility causes economic agents to lose confidence in the economy's ability to generate stable growth in the long term. This reduces the incentives to look beyond short-term gains, curbing long-term investment decisions—particularly in those projects that are more uncertain. This exacerbates commodity dependence still further, increasing consumption and spending in the short term and also contributing to boom-and-bust shocks. Over the past 60 years, trend growth in consumption has exceeded trend growth in GDP in the periods leading up to crises (Figure 1.20).

Argentina's absorption rate has historically been high and is increasingly explained by intermediate imports. Absorption refers to the total level of spending that occurs in an economy regardless of the origin of goods and services. Over the past 50

Figure 1.20

Consumption growth trends exceed GDP growth trends prior to crises

Annual % change of GDP and private consumption, in local currency at constant 2015 prices (1960-2021)



Source: World Bank based on.

years, the largest increase in domestic absorption occurred between 2003 and 2017, when it expanded by 19 percentage points of GDP, reaching a peak of 105 percent in 2017. The share of imports in absorption also increased sharply during that period, by 8 percentage points, up to 14 percent of the absorption (Figure 1.21). From 2018 onwards, domestic absorption reversed its positive trend, reducing its weight in GDP to represent 98 percent in 2021. In the same vein, imports reduced their weight in absorption, standing at 12 percent in 2021. It should be noted that most imports (76 percent in 2021) are destined for the production process: they are intermediate and capital goods. This, in turn, may reflect the restrictions that govern foreign trade, protecting some sectors that produce final goods and limiting imports to those strictly necessary for the production process.

Table 1.1
Argentina has experienced frequent policy changes since 1990

	Fiscal policy	Export taxes	Monetary policy	Foreign exchange policy	Foreign policy	Labor/ social security reforms	Privatizations/ nationalizations	Pricing policy
1990-1999	<ul style="list-style-type: none"> - Financial Administration Law (1992). - Pacto Fiscal I and II (1992 and 1993). - Fiscal Solvency Law (1999). - Compromiso Federal 1 (1999). 	<ul style="list-style-type: none"> - Elimination of export taxes on all cereals (1991). 	<ul style="list-style-type: none"> - New Central Bank Charter (1991). 	<ul style="list-style-type: none"> - Convertibility Law (Currency Board, 1991). 	<ul style="list-style-type: none"> - Mercosur (Treaty of Asunción, 1991). - Argentina, founding member of the WTO (1995). 	<ul style="list-style-type: none"> - Pension reform (creation of individual retirement accounts, AFJPs). 	<ul style="list-style-type: none"> - Privatizations and start of concessions: telephone, airline, and road concessions (1990); railway (1991); water and sanitation (1992); electricity and gas companies (1992); YPF national oil company (1993); postal service (1997). 	<ul style="list-style-type: none"> - Pricing deregulation.
2000-2009	<ul style="list-style-type: none"> - Federal Commitment for Growth and fiscal discipline (2000). "Impuestazo" (2000). - Federal Commitment 2 (2000). - Zero Deficit Law (2001). - Second addendum to the Federal Commitment for Growth and fiscal discipline (2001). - External debt default (2001). - Agreement between the Nation and the Provinces on the financial relationship and bases of a Federal Tax Sharing Regime (2002). - Fiscal Responsibility Law (2004). - Debt exchange with private external creditors (2005). 	<ul style="list-style-type: none"> - "Fiscal devaluation" (Import taxes and export subsidies). - Reimplementation of export duties (2002). 	<ul style="list-style-type: none"> - "Corralito" (2001). - Asymmetric conversion of dollar assets/ liabilities (2002). 	<ul style="list-style-type: none"> - End of Currency Board and devaluation (2002). 	<ul style="list-style-type: none"> - US, Japan, and EU file complaints with WTO against Argentina for import restrictions. 	<ul style="list-style-type: none"> - Labor reform (2000). - New Labor Law revokes the 2000 reform (2004). - "Unification" of pension system with assets of private funds transferred to the state (2008). 	<ul style="list-style-type: none"> - Revocation of railway concession (2004). - Start of series of nationalizations of previously privatized enterprises: water services in greater Buenos Aires (2006); National Airline (2008); YPF oil company (2012); Railways (2015). 	<ul style="list-style-type: none"> - Government intervention in the statistics agency (INDEC) over inflation methodology (2007).

Table 1.1

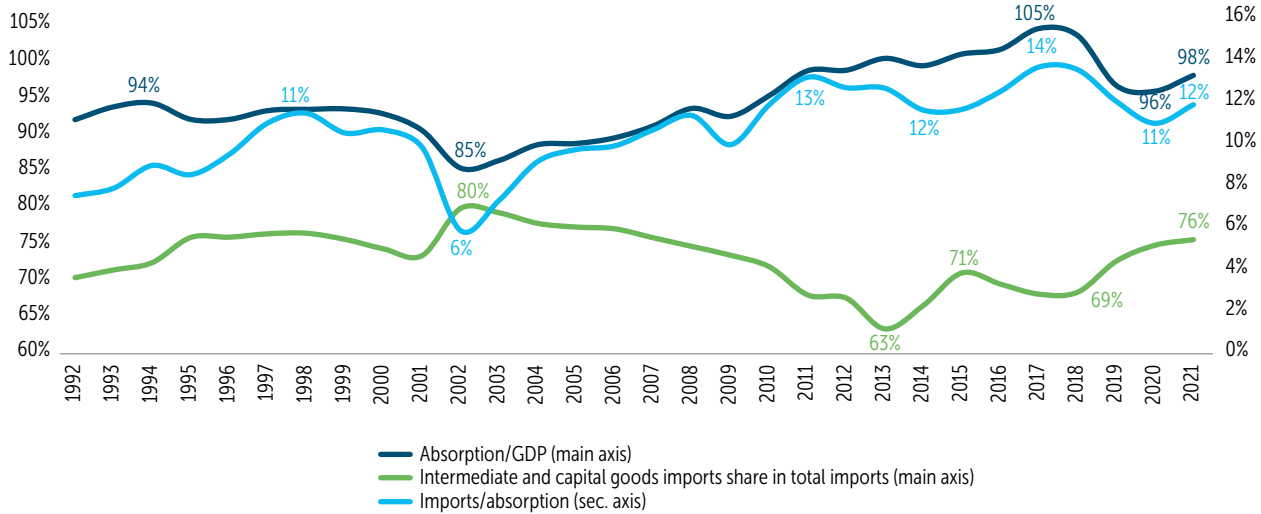
Argentina has experienced frequent policy changes since 1990 (cont.)

	Fiscal policy	Export taxes	Monetary policy	Foreign exchange policy	Foreign policy	Labor/ social security reforms	Privatizations/ nationalizations	Pricing policy
2010-2019	<ul style="list-style-type: none"> - Debt exchange with private creditors holdouts (second phase, 2010). - Financing of the fiscal deficit by the Central Bank of Argentina (2012). - Default on restructured debt following a court ruling in New York (2014). - Agreement with holdouts (2016). - Public utility price increases (2016). - Fiscal Consensus (2017, 2018, and 2019). 	<ul style="list-style-type: none"> - Reduction in export taxes (2016). - Reimplementation of export duties (2018). 	<ul style="list-style-type: none"> - Reform of Central Bank Charter (2012). 	<ul style="list-style-type: none"> - Exchange rate reunification (2015). - Reimplementation of exchange controls (2019). 	<ul style="list-style-type: none"> - Import restrictions (2012). - Reduction of import restrictions (2016). - Accelerated process for OECD adherence (2017-2018). - EU-Mercosur agreement (2019). 	<ul style="list-style-type: none"> - Reform of the Pension System (changes in the formula used to calculate benefits, 2017). 	<ul style="list-style-type: none"> - Public-Private Participation Law (2016). - Sale of the state's shareholding in non-strategic energy assets, such as power plants (2017). 	<ul style="list-style-type: none"> - New pricing agreement scheme ("Precios Cuidados", 2013). - New Supply Law (2014). - Pricing deregulation. - Elimination of partial subsidies to public utilities (2016-2017). - New Antitrust Law (2018). - Freeze prices for 6 months (2019).
2020-2022	<ul style="list-style-type: none"> - Fiscal Consensus 2020 (2020). 	<ul style="list-style-type: none"> - Increase in soybean and sunflower export duties (2020). - Increase in soybean products export duties (2022). 		<ul style="list-style-type: none"> - Tightening of exchange controls (2020-2022). 	<ul style="list-style-type: none"> - Import restrictions (2021-2022). 	<ul style="list-style-type: none"> - Reform of the Pension System (changes in the formula used to calculate benefits, 2021). 	<ul style="list-style-type: none"> - Revocation of Transener and Dioxitek's privatizations (2021). 	<ul style="list-style-type: none"> - Extension of pricing agreements ("Precios Cuidados", 2020/2022).

Figure 1.21

Domestic absorption is elevated and has increased, driven by imports

In local currency, at constant 2015 prices (1992-2021)



Source: World Bank based on United Nations Statistics Division (UNSD) and INDEC. **Note:** Absorption refers to the total level of spending that occurs in an economy regardless of the origin of goods and services. Intermediate and capital goods imports = intermediate goods + capital goods + parts of capital goods.

The flip side of high domestic absorption is a low savings rate (Figure 1.22). Between 2011 and 2019 the savings rate represented 17.5 percent of GDP in Argentina, one of the lowest of its peers, except for Brazil (17.3 percent). It was less than half the average savings of South Korea (35.4 percent) and was also well below Malaysia (32.7 percent), Australia (25.8 percent), Mexico (22.9 percent), and Poland (22.6 percent). The savings rate in Argentina is not only low – it is also entirely driven by the private sector, since the public sector has negative savings (Figure 1.23).

The tendency to overspend is even greater during expansions, with procyclical policies that lead to consumption and investment (both public and private) growing faster than income. In the external sector, this is reflected in an increase in imports through two channels. First, imports

increase due to the rise in demand for imported goods for both consumption and production. Second, growing aggregate demand exerts pressure on the market for non-tradable goods, increasing their relative price, which leads to a real appreciation that further increases imports. As exports are primarily dominated by commodities, which are taxed at the border, they are generally unable to keep up with the rapid increase in imports, leading to a deterioration of the current account (Figure 1.24).

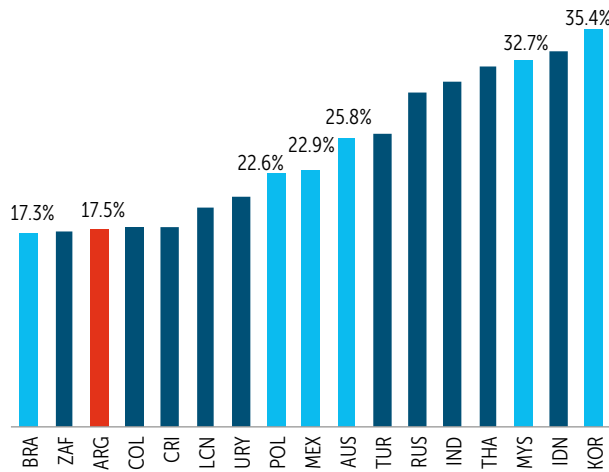
This process generally comes to an end when the rest of the world refuses to continue financing Argentina’s current account deficit. As a result, there is a marked depreciation of the exchange rate, a drastic increase in inflation, a large drop in real wages and a deep recession that reverses the current account and wipes out a large part of the welfare benefits in the period of expansion.¹⁰ These boom-

¹⁰ For more on stop-and-go cycles see, for example, Gerchunoff and Llach (2007), Heymann (2007), Albrieu and Fanelli (2008) and Gerchunoff and Rapetti (2016).

Figure 1.22

Argentina's savings rate is lower than its peers

Gross domestic savings, % of GDP, 2011-2019 average



Source: WDI (WBG). Note: Gross domestic savings are calculated as GDP minus final consumption expenditure (total consumption). The green bars identify the comparator countries.

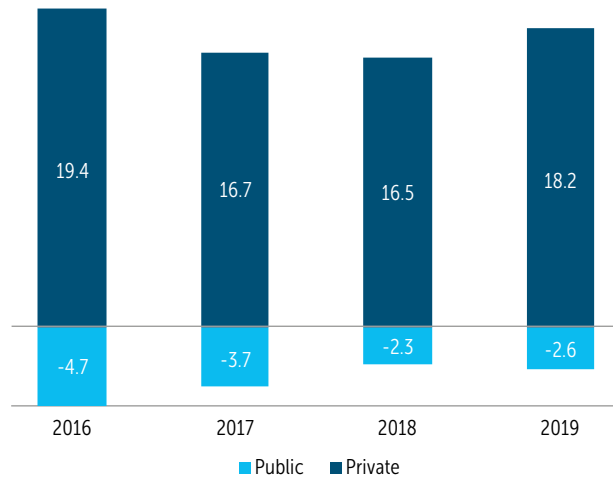
and-bust episodes in turn result in underinvestment in natural capital (which takes time to reap rewards) and in an increase in extractive policies to generate short-term liquidity (contributing to the liquidation of assets and even illegal extraction). As the economy grows and the current account deteriorates, the external restriction begins to operate and usually causes a marked depreciation of the real exchange rate (RER). After a period of appreciation, the RER usually suffers a marked depreciation (Figure 1.25). Adverse climate events or commodity price shocks may trigger such crises, given Argentina's low export competitiveness. Large devaluations are defined as those in which the depreciation of the exchange rate in one year is greater than one standard deviation: since 1950, Argentina has seen five such episodes, each of which generated important economic contractions (a 5 percent decrease on average).

These episodes of depreciation have seen economic activity contract significantly as

Figure 1.23

Gross domestic savings are entirely driven by the private sector

Gross domestic savings, % of GDP (2016-2019)



Source: INDEC.

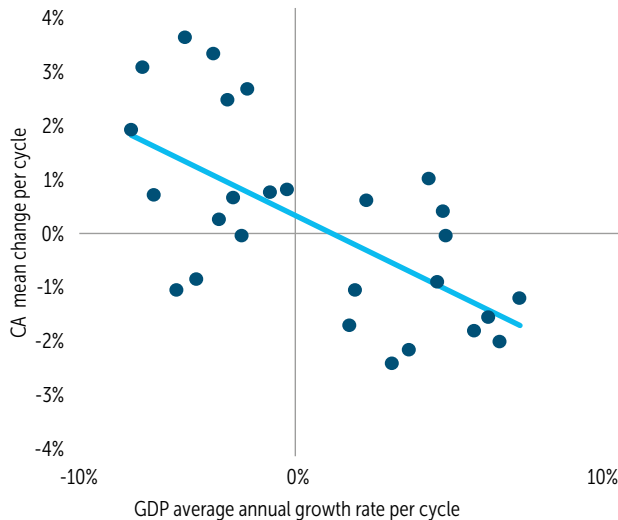
Argentina's productive structure means that exports are not very sensitive in the short run.

Commodities are the main tradable goods produced domestically. Since these activities are mainly insensitive to RER movements, low aggregate elasticities are the expected result of their large share of the productive structure. As most of Argentina's main agricultural products are already near the technological frontier, there is less room to boost production capacity via higher short-term profitability. Consequently, sharp RER adjustments do not substantially foster exports in the short term, and most of the adjustment occurs through imports. However, low aggregate elasticities do not imply that the RER is neutral to growth. On the contrary, a large proportion of differentiated products and labor-intensive manufacturing goods are quite elastic to the level and stability of the RER (Palazzo and Rapetti 2023). Over time, repeated boom and bust cycles coupled with RER swings have impeded the economy from shifting from primary

Figure 1.24

The current account deteriorates during expansions

Correlation between current account (% of GDP) and GDP growth (1950-2021)



Source: Ferreres and Instituto Nacional de Estadística y Censos (INDEC). **Note:** Each dot is a period of consecutive growth or contraction of economic activity, in percentage (x-axis), and the corresponding change in the current account balance, in percentage points of GDP (y-axis), all expressed in annual averages.

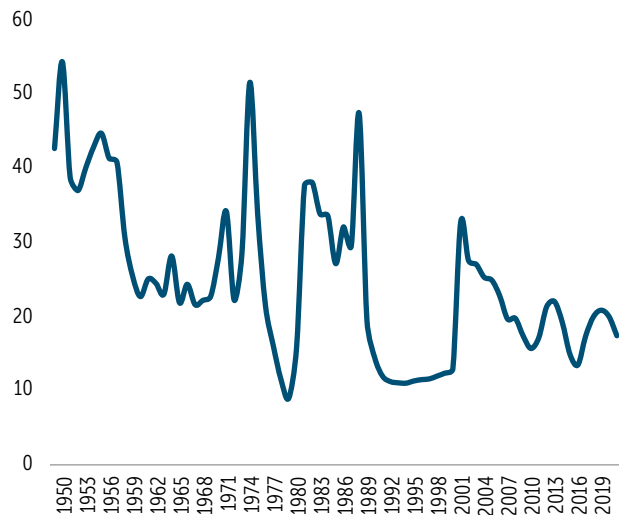
and homogeneous to differentiated and labor-intensive goods, encouraging economic agents to focus on activities with larger expected returns, such as resource extraction, and sectors protected from international competition.

High volatility translates, in turn, into a high net liquid position for the private sector. Argentina is a net creditor to the rest of the world, mainly because of the significant positive net position of its non-financial private sector. As of the fourth quarter of 2021, the country's net creditor position was US\$ 77,568 million, which represents 16 percent of GDP. Families and companies (excluding the financial sector) maintained a positive net international investment position (excluding direct investment) of 56 percent of GDP (US\$ 273,695 million in 4Q-2021, Figure 1.26). This high net credit contrasts with

Figure 1.25

The real exchange rate usually suffers a marked depreciation after a period of appreciation

RER Index (1950-2021)



Source: Central Bank of the Republic of Argentina (BCRA). **Note:** RER= real exchange rate. A real depreciation of the peso is shown as an increase in the index.

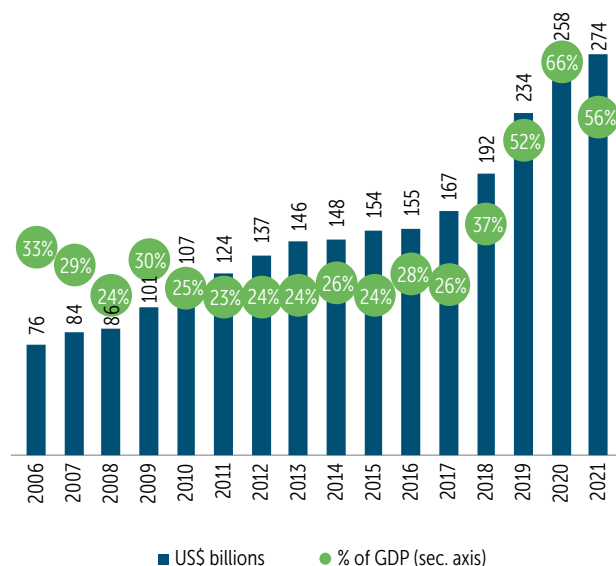
peer countries. In fact, only Argentina and Malaysia were net creditors to the rest of the world in 2021. The remaining comparators were net debtors, led by Australia, where the credit position of the private sector is negative and equivalent to 34 percent of GDP (Figure 1.27).

When investors and consumers face situations of high uncertainty regarding the future evolution of aggregate demand and employment, they prefer to stay liquid. This situation is similar to episodes when developed countries suffer long periods of recession and uncertainty (as was the case for the financial crisis of 2008-2009), although in those cases families and companies demand local currency. On the other hand, in Argentina, macroeconomic stress situations usually lead to abrupt depreciation of the peso and acceleration of inflation. Therefore, to meet

Figure 1.26

Argentina’s private sector has a positive net international investment position

Net international investment position of families and companies (excluding direct investment). In US\$ billions and % of GDP (2006-2021)



Source: World Bank based on INDEC (Balance of Payments and International Investment Position).

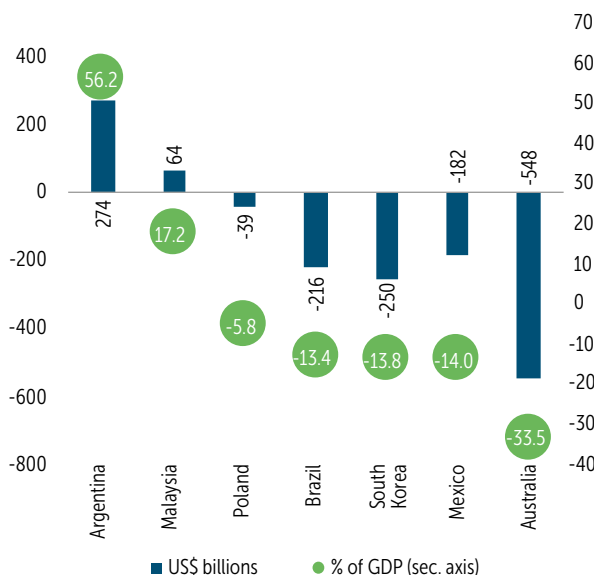
the objective of increasing its liquidity position in the face of uncertainty, the private sector turns to the dollar or other hard currencies, which are safer than the peso as a reserve of value and which therefore provide better coverage against depreciation and inflation.

The result is a low investment rate. Argentina has the seventh lowest investment rate in Latin America, and is among the countries with the lowest investment rate in the world (ranked 124 out of 171 countries, IMF 2022). The country’s investment rate stood at 20 percent of GDP in 2021, in line with the regional average of 18 percent, but below the world average of 27 percent and the Asian emerging country average of 39 percent (Figure 1.28). In the same vein, the depth of the financial system is low: credit granted to the private sector in Argentina

Figure 1.27

The high net credit position contrasts with peer countries

Net international investment position of families and companies (excluding direct investment). In US\$ billions and as % of GDP (2021)



Source: World Bank based on IMF and INDEC.

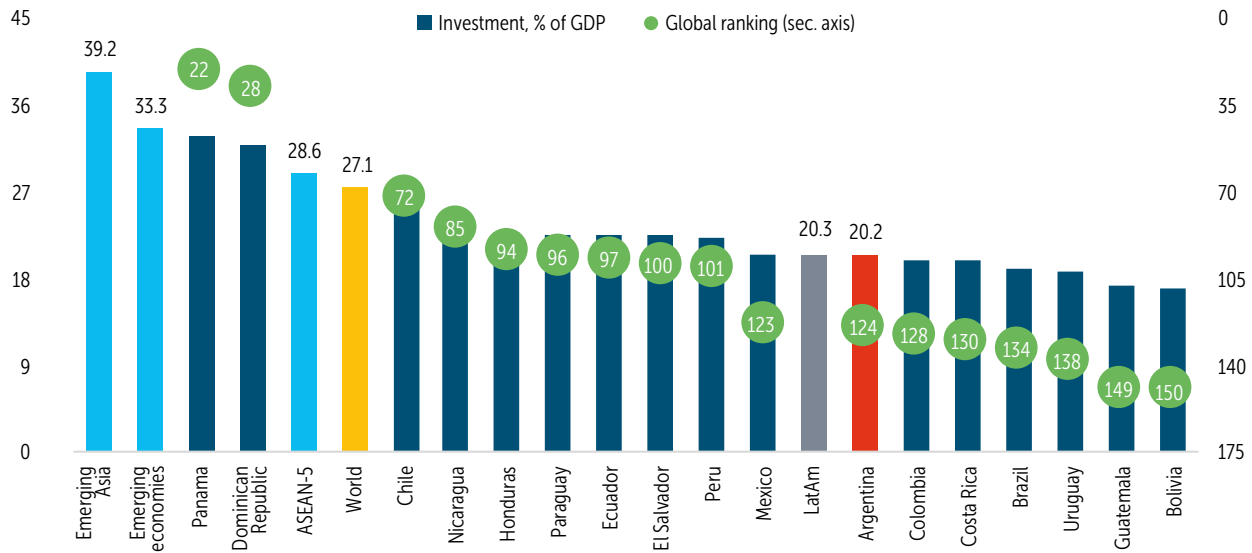
is only 9 percent of GDP, while in Brazil it exceeds 70 percent, and 92 percent in the European Union (World Bank Group, 2020a).

Low investment is not offset by high foreign direct investment (FDI), unlike other peer countries with low investment rates, such as Brazil. After the commodities super-cycle ended, the Argentine domestic investment rate began to show a downward trend (from an average of 17.1 percent of GDP between 2003 and 2012 to 15.1 percent between 2013 and 2020). Although this negative trend was replicated in most comparator countries (except for Malaysia), in those cases an increase in FDI was observed, which partially offset the fall. However, this did not occur in Argentina, where FDI fell from representing 2.3 percent of GDP in 2003-2012 to 1.5 percent in 2012-2020 (Figure 1.29).

Figure 1.28

Argentina's total investment rate is low

Total investment as % of GDP and global ranking (2021)

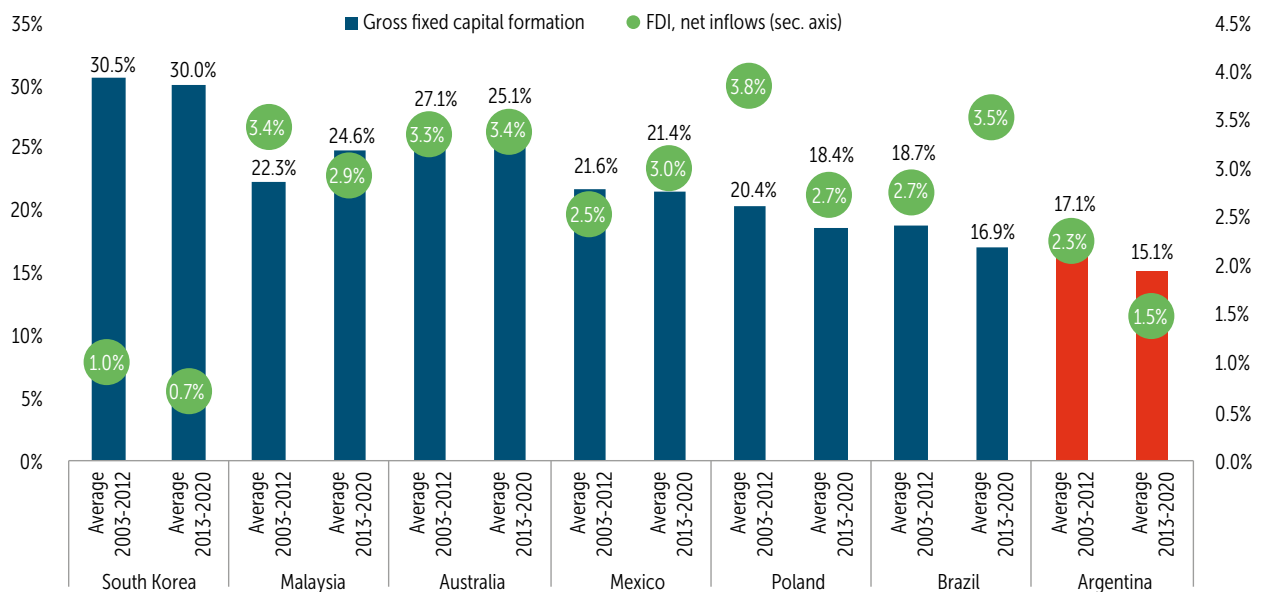


Source: IMF (2022), World Economic Outlook, October 2022.

Figure 1.29

Foreign direct investment does not offset low investment, unlike in peers

Gross fixed capital formation vs FDI, in % of GDP

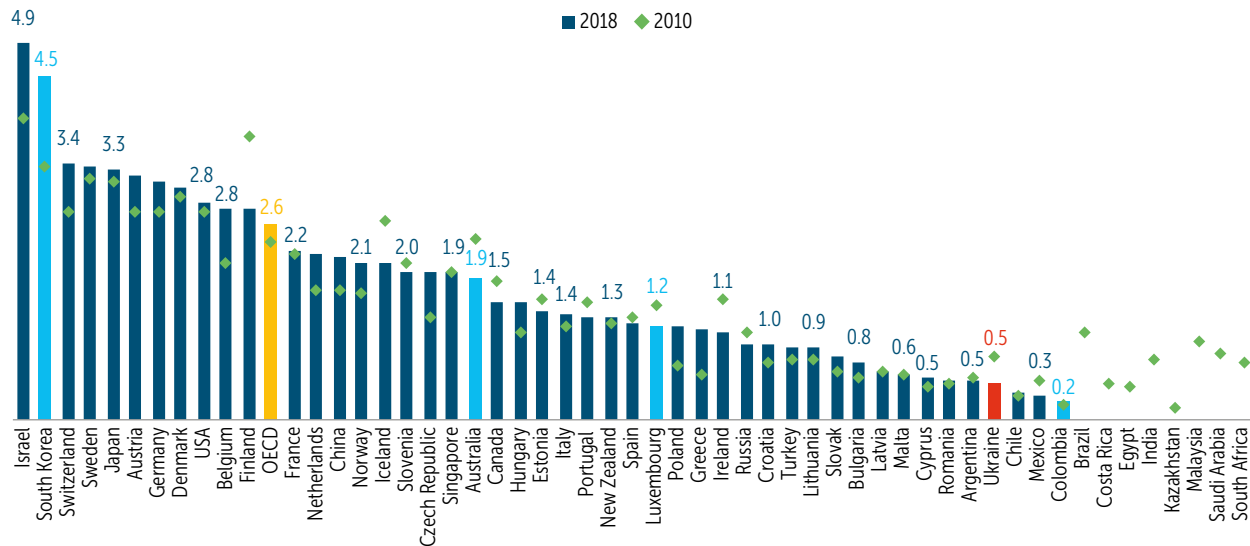


Source: World Bank Group (2020a) World Development Indicators.

Figure 1.30

R&D spending is low in the international context

Domestic gross expenditure on R&D, in % of GDP, 2010 and 2019



Source: World Bank estimates based on OECD (2021), OECD Science, Technology and Innovation Outlook 2021: Times of Crisis and Opportunity.

Low investment is reflected in Argentina’s low levels of innovation and R&D spending – sources of sustained high growth rates in developing economies. Since the 1980s, high R&D intensity, as well as a strong share of business spending on R&D, have become characteristics of high-growth developing economies, playing a key role in a country’s ability to move into higher income categories (Primo Braga et al., 2009; Gurcanlar et al., 2020). Investment and innovation allow for the production of new ideas and technologies, opening up commercialization opportunities which translate into positive dynamic growth benefits. These occur via the reallocation of resources to growing firms, a process that can account for as much as half of economic growth (Andrews and Criscuolo, 2013). In Argentina, R&D represented barely 0.5 percent of GDP in 2019, well below its comparator countries, especially South Korea (at 4.6 percent of GDP, Figure 1.30). This limits the potential for setting in motion

this virtuous process of dynamic reallocation of resources which would allow it to achieve higher and sustained growth rates.

Within this framework, the capital stock per person has grown very slowly in Argentina, showing even poorer behavior than the regional average. Between 1960 and 2019, Argentina increased its capital per capita at a rate of just 1.2 percent per year. This figure is half the OECD average (2.3 percent per year) and is even lower than the regional average (1.9 percent, Figure 1.31).

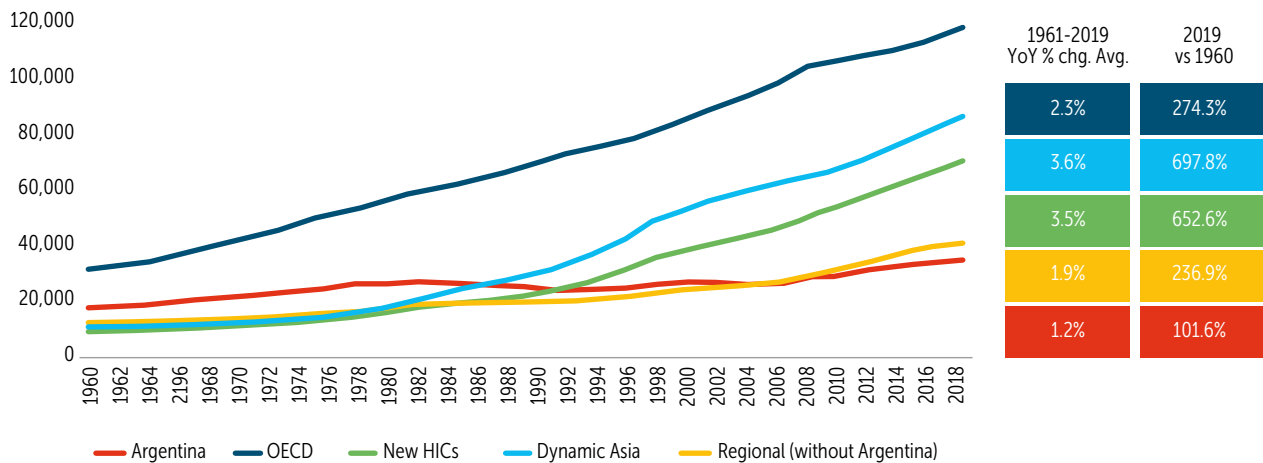
1.4. Argentina has decoupled emissions from growth, but emissions intensity is a challenge

Greenhouse gas (GHG) emissions have decreased over the last decade, driven by a deceleration in deforestation. The largest contributors to Argentina’s

Figure 1.31

Per capita capital stock has also shown slow growth

In billions of 2017 US\$ PPP (1960-2019)



Source: World Bank estimates based on IMF Investment and Capital Stock Dataset, 1960-2019.

GHG emissions are the agriculture and energy sectors (Figure 1.32). GHG emissions reached 366 million tons of carbon dioxide equivalent (MtCO₂e) in 2018, according to the latest available information.¹¹ The energy sector represents half of total emissions (51 percent), including the energy sector (16 percent), transport (14 percent), manufacturing and construction (9 percent), burning fuels by other sectors (9 percent) and fugitive emissions (3 percent). In turn, the agriculture sector is responsible for 39 percent of emissions, comprising livestock activities (22 percent), as well as agriculture, forestry, and other land use (17 percent). Between 2012 and 2018, the total reduction in overall GHG emissions reached

10 percent, a process driven entirely by agriculture and forestry and other land uses in the context of deceleration in deforestation (Figure 1.33); emissions from other sectors remained stagnant or even increased.¹² Emission reductions were achieved at the same time that the agriculture sector expanded and increased its participation in total value-added.¹³ However, further mitigation gains could be obtained from this sector, as sustainable soil practices could increase carbon sequestration. In addition, options are available for reducing the emissions intensity of the livestock sector, including improving pasture quality, animal health and grazing management (World Bank Group, 2022).

11 Data from the National Inventory of Greenhouse Gas (GHG) Emissions published by the Government of Argentina in 2021, with data up until 2018.

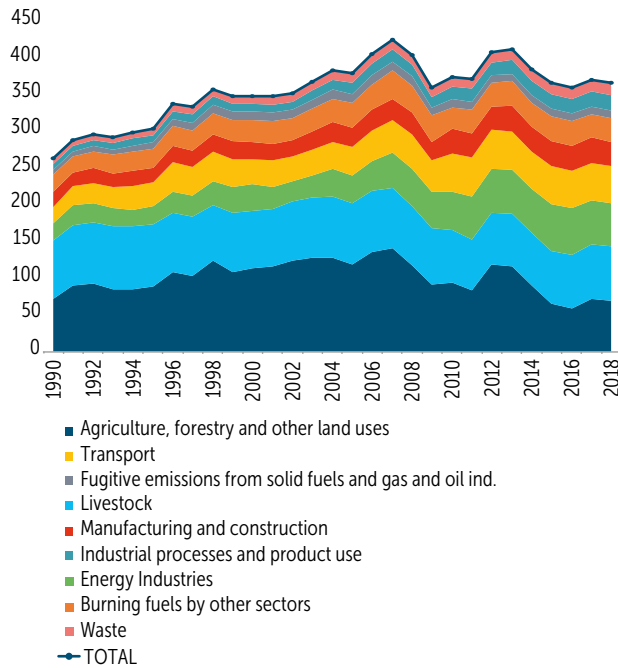
12 The reduction of GHG emissions in the agricultural sector followed the enactment in 2007 of Forestry Law 26,331, protecting 80 percent of native forests and paving the way for a reduction in deforestation. However, if the analysis is undertaken using 2010 as the base period, the reduction in overall GHG emissions is lower (2 percent), because of the increase in emissions between 2010 and 2012. According to Egolf (2017), there is evidence of an increase in forest fires in the period 2009-2011, during the transition period following the approval of Law 26,331 (World Bank Group, 2022).

13 Agricultural value added increased at an average annual rate of nearly 4 percent between 2012 and 2017 (before the contraction registered in 2018 in the context of a severe drought). In this period, the share of the sector (in AR\$2004) increased from 7.6 percent to 9 percent.

Figure 1.32

GHG emissions have declined in the last decade

MtCO₂e by sector (1990-2018)



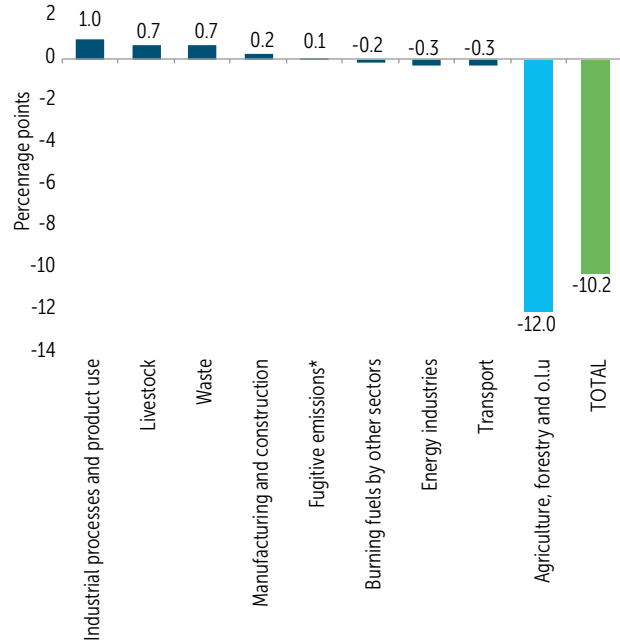
Source: World Bank, based on data from GoA (2021), Inventario Nacional de Gases de Efecto Invernadero.

GHG emissions have decoupled from economic activity and emission intensity has declined, but remains high. In the period 2000-2018, Argentina decoupled its GHG emissions from its economic activity. GHG emissions increased less than GDP over the period, indicating a reduction in emissions intensity (ratio between GHG emission and GDP) of 29 percent. During the period 2012-2018, GDP only increased 0.6 percent, but emissions declined, leading to a reduction in emission intensity of 11 percent. Even so, Argentina has a higher emission intensity than all its peers, except Malaysia (Figure

Figure 1.33

Emissions decline has been driven by the forestry sector

Contribution to GHG emissions variation, percentage points (2012-2018)



Source: World Bank based on data from GoA (2021), Inventario Nacional de Gases de Efecto Invernadero. **Note:** *Fugitive emissions from solid fuels and gas and oil industry; o.l.u=other land.

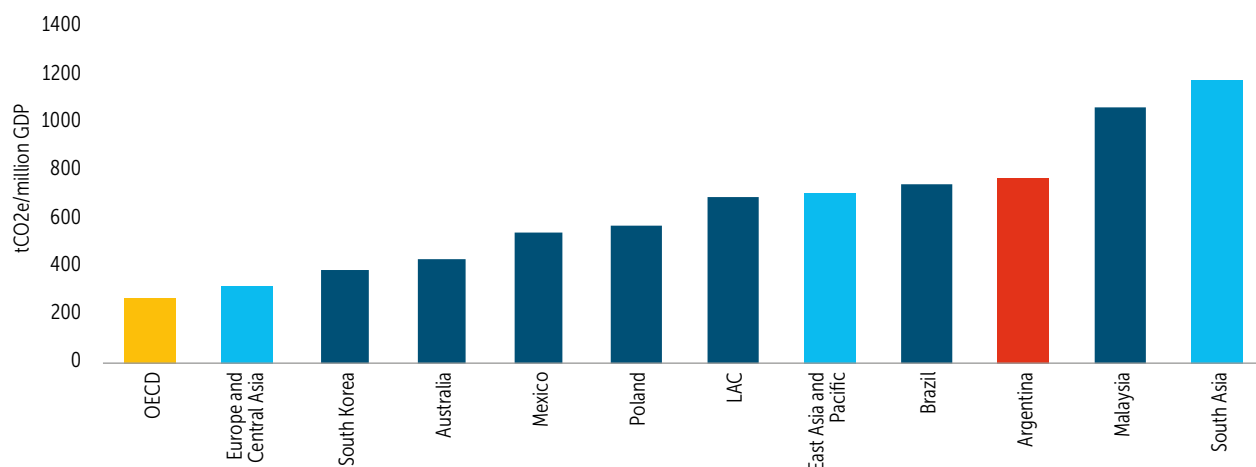
1.34). The international benchmark shows Argentina ranking mid-table for emissions intensity for all countries for which information is available (nearly 190), but showing improvements since 2010.¹⁴ Going forward, there are concerns over whether further reductions are attainable, particularly if gains in deforestation reach a ceiling. Making efforts to invert the trend across all sectors would diversify emission reductions and ensure they do not depend on a single driver (World Bank Group, 2022). In this sense, boosting GDP growth will mean obtaining efficiency gains, reducing emissions per unit of output.

¹⁴ For international comparisons of emissions intensity, data is taken from Climate Watch Data Explorer (World Resource Institute), which reports Argentina's emissions intensity at 771.6 tCO₂e per million of GDP in 2018 (higher than the figure reported by the Government of Argentina of 515 tCO₂e per million of GDP measured in 2004 AR\$).

Figure 1.34

Emissions intensity remains higher than most peers

Emissions (tCO₂e) per GDP unit, 2018



Source: Climate Watch-World Resource Institute (WRI).

1.5. Policy recommendations

To foster sustainable growth and mitigate economic volatility, it is imperative to curtail fiscal procyclicality and reestablish fiscal policy as a key instrument for macroeconomic stabilization.

On the spending side, which has emerged as the primary contributor to fiscal procyclicality in recent decades, it is crucial to address the procyclical bias in key budgetary components, notably pensions and the wage bill. In particular, reforming the pension indexation formula to safeguard the real value of benefits against unexpected shifts in inflation becomes paramount in mitigating fluctuations. Moreover, a more comprehensive pensions reform is also critical to better align contributions to benefits and avoid relying on ad hoc pensions moratoriums. Furthermore, implement effective fiscal rules, with specific guidelines for prudent public staffing policies, including institutional agreements with subnational administrations, emerges as a critical instrument

to restore fiscal sustainability while curbing procyclicality. Simultaneously, strengthening traditional automatic fiscal stabilizers such as unemployment insurance system and the personal income tax assumes vital importance in enhancing the overall resilience and adaptability of fiscal policy to economic shocks.

Boosting GDP growth will also require reducing emissions per unit of output.

There are opportunities for decarbonization (climate change mitigation) across the whole-of-the economy, as detailed in World Bank Group (2022).¹⁵ Regarding the energy sector, it is crucial to develop a consistent medium-term plan that include relationships between electricity production, oil and gas extraction and transport electrification, to progressively phase out thermal power production and scale up renewable. In addition, short term options for energy efficiency can be adopted in the residential, commercial, manufacturing and

¹⁵ The World Bank Country Climate and Development Report for Argentina provides details on decarbonization priorities. See section 3.2 (World Bank Group, 2022).

public sectors, for which is important to strengthen regulations for new buildings and implementing efficiency standards for appliances and heating systems. Emission efficiency gains can also be achieved in agriculture through the adoption of climate-smart agriculture practices for reducing emissions and increasing carbon sequestration, while maintaining the competitiveness and leading position that the country has as food exporter. Improving pasture quality, animal health, and grazing management could reduce both CO₂

and methane emissions, while the adoption of sustainable soil management practices could also mitigate national agricultural emissions and energy-efficient cold chains and storage can reduce food loss and waste, energy use, and therefore emissions. Finally, on the transport sector, there are opportunities for efficiency gains in the freight sector - including the improvement of multimodality, upgrading the freight railways, improving the efficiency of road logistics and improving freight transport access to urban ports.

Table 1.2
Policy recommendations

1. Reduce fiscal procyclicality
<ul style="list-style-type: none"> ➤ Reform the pensions indexation formula to better protect the real value of benefits for unexpected shifts in inflation. ➤ Avoid relying of ad hoc pension moratoriums by better aligning contribution to benefits. ➤ Implement effective fiscal rules for sustainability, with specific guideline for prudent public staffing policies. ➤ Strengthen traditional automatic fiscal stabilizers, such as unemployment insurance and personal income tax.
2. Reduce emissions intensity
<ul style="list-style-type: none"> ➤ Develop a consistent plan for the energy sector while adopting short term energy efficiency measures and standards in the residential, commercial manufacturing and public sectors. ➤ Adoption of climate-smart agriculture practices for reducing emissions and increase carbon sequestration. ➤ Obtain efficiency gains in the transport freight sector through upgrading the freight railways, improving the efficiency of road logistics and improving freight transport access to urban ports.

References

- Acemoglu, Daron, Simon Johnson, James Robinson and Yungyong Thaicharoen. 2002. "Institutional causes, macroeconomic symptoms: volatility, crises, and growth". Working Paper 9124, National Bureau of Economic Research.
- Albrieu, Ramiro and Jose Maria Fanelli. 2008. "Stop-and-go or go and-fail? Sobre aceleraciones, crisis e instituciones en la Argentina." *Desarrollo Económico* 48 (190/191): 235–68, 2008.
- Andrews Dan and Chiara Criscuolo. 2013. "Knowledge based capital, innovation, and resource allocation". *Economics Department Working Papers* N° 1046, OECD, Paris.
- Araujo, Jorge T., Markus Brueckner, Mateo Clavijo, Ekaterina Vostroknutova and Konstantin M. Wacker. 2014. *Benchmarking the Determinants of Economic Growth in Latin America and the Caribbean*. World Bank Publications - Reports 21318, The World Bank Group.
- Araujo, Sonia and Ariel Coremberg. 2023. "Argentina growth accounting. Adjusting by factor utilization and natural capital". CEM Technical Background Paper, unpublished.
- Araujo, Sonia and Belen Olaiz, 2022. "Regional growth dynamics in Argentina". CEM Technical Background Paper, unpublished.
- Araujo, Sonia, Juan-Carlos Hallak and Danilo Trupkin. 2023. "The impact of commodity price cycles on argentina's economy and its sectoral composition". CEM Technical Background Paper, unpublished.
- Araujo, Sonia and Pui Shen Yoong. 2023. "Measuring natural capital in Argentina and incorporating it in growth analysis". CEM Technical Background Paper, unpublished.
- Barroso, Rafael and Chenli You. 2019. *Country Economic Memorandum for Sao Tome and Principe - Background Note 1: Economic Growth and Volatility in São Tomé and Príncipe*. The World Bank Group.
- Beylis, Guillermo, Roberto Fattal Jaef, Michael Morris, Ashwini Rekha Sebastian, and Rishabh Sinha. 2020. *Going Viral: COVID-19 and the Accelerated Transformation of Jobs in Latin America and the Caribbean*. The World Bank Group.
- Drechsel, Thomas and Silvana Tenreyro. 2017. "Commodity booms and busts in emerging economies". Working Paper 23716, National Bureau of Economic Research.
- Egolf, Patricia. 2017. "Estudio econométrico sobre incendios forestales e incentivos económicos a partir de la ley de bosques en Argentina" (Econometric study on wildfires and economic incentives since the forestry law in Argentina). Universidad del CEMA, Argentina.
- Frankel, Jeffrey A. 2012. "The natural resource curse: a survey of diagnoses and some prescriptions". Chapter 2. In *Commodity Price Volatility and Inclusive Growth in Low-income Countries*. International Monetary Fund.
- Galeano, L., Izquierdo, A., Puig, J.P., Vegh, C.A., Vuletin, G. (2021). Can Automatic Government Spending be Procyclical? National Bureau of Economic Research, Working Paper 28521, Cambridge.
- Gerchunoff, Pablo and Lucas Llach. 2007. *El ciclo de la ilusión y el desencanto. Un siglo de políticas económicas argentinas (The cycle of illusion and disenchantment. A century of argentinean economic policies)*. Editorial Ariel, Buenos Aires.
- Gerchunoff, Pablo and Martin Rapetti. 2016. "La economía argentina y su conflicto distributivo estructural (1930–2015)." (The argentine economy and its structural distributive conflict). *El Trimestre Económico*. LXXXIII (2) (April-June).
- GoA (2021), *Inventario Nacional de Gases de Efecto Invernadero* [National Inventory of Greenhouse Gases]. Government of Argentina.
- Gurcanlar, Tugba, Alberto Criscuolo, Daniel Gomez Gaviria and Xavier Cirera. 2020. *Spurring Innovation-Led Growth in Argentina: Performance, Policy Response, and the Future*. The World Bank Group.
- Heymann, Daniel. 2007. "Macroeconomía de las Promesas Rotas." (Macroeconomic of broken promises). *Revista de Economía Política de Buenos Aires* 2:27–53
- Hnatkovska, Viktoria and Norman Loayza. 2003. "Volatility and growth". *Policy Research Working Paper Series* 3184, The World Bank Group.
- IMF. 2022. *World Economic Outlook October 2022*. International Monetary Fund.

- Kohn, David, Fernando Leibovici and Hakon Tretvoll. 2018. *Trade in Commodities and Business Cycle Volatility*. Federal Reserve Bank of St. Louis.
- Lederman, Daniel and William Maloney (eds). 2007. *Natural Resources: Neither a Curse nor a Destiny*. World Bank Group and Stanford University Press.
- Loayza, Norman, Pablo Fajnzylber and César Calderón. 2005. *Economic Growth in Latin America and the Caribbean: Stylized Facts, Explanations, and Forecasts*. The World Bank Group.
- Mien, Edouard and Michael Goujon. 2022. "40 years of Dutch disease literature: lessons for developing countries". *Comparative Economic Studies* 64, 351–383.
- OECD. 2021. *OECD Science, Technology and Innovation Outlook 2021: Times of Crisis and Opportunity*. OECD.
- OECD. 2016. *Regional Outlook 2016: Productive Regions for Inclusive Societies*. OECD.
- Palazzo, Gabriel and Martin Rapetti. 2023. "From macro to micro and macro back: Macroeconomic trade elasticities in a developing economy". *Structural Change and Economic Dynamics*, 65: 223-252.
- Primo Braga, Carlos A., Pier Carlo Padoan, Vandana Chandra and Deing Eröcal. 2009. *Innovation and Growth Chasing a Moving Frontier*. OECD.
- Rafferty, Matthew. 2005. "The effects of expected and unexpected volatility on long-run growth: evidence from 18 developed economies". *Southern Economic Journal*, 71(3): 582-591.
- Ramey, Garey and Valerie A. Ramey. 1995. "Cross country evidence on the link between volatility and growth". National Bureau of Economic Research Working Paper, 4959.
- Sachs, Jeffrey and Andrew Warner. 2001. "The curse of natural resources". *European Economic Review* 45(4-6): 827-838.
- United Nations Development Programme (UNDP). *Human Development Report 2020: The Next Frontier: Human Development and the Anthropocene*. UNDP, 2022.
- Végh, Carlos A., Daniel Lederman and Federico R. Bennett. 2017. *Leaning Against the Wind. Fiscal policy in Latin America and the Caribbean in a Historical Perspective*. The World Bank Group.
- World Bank Group. *Country Climate and Development Report: Argentina*. The World Bank Group.
- World Bank Group. 2021. *The Changing Wealth of Nations 2021: Managing Assets for the Future*. The World Bank Group.
- World Bank Group. 2020a. *World Development Indicators, 2020*. The World Bank Group.
- World Bank Group. 2020b. *World Development Report 2020: Trading for Development in the Age of Global Value Chains*. The World Bank Group.

CHAPTER

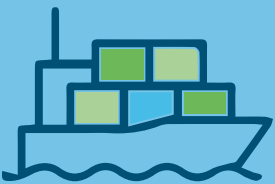
2

Enhancing Trade Integration for Competitiveness and Growth

2.1. Export performance is disappointing

Argentina has much to gain from integrating into the world economy.

International trade can help raise growth and improve living standards. Greater trade integration can boost productivity by shifting production toward sectors and firms with greater comparative advantage and higher efficiency, expanding the extent of markets and creating opportunities for overall output and employment. Trade liberalization also makes a wider range of intermediate inputs available, lowering costs and increasing firm competitiveness, and enhancing investment, technological spillovers, innovation, and other dynamic effects that can accumulate over time. For consumers, greater trade integration can also lead to lower prices and a wider and increasing variety of goods and services, leading to higher real incomes and a greater choice of consumption goods and services.



However, Argentina has one of the most closed trade regimes in the world. The country has one of the lowest trade-to-GDP ratios globally—a measure of trade openness. It is also one of the lowest among countries with comparable income levels (Figure 2.1). And while geography partly explains Argentina’s low openness ratio, its trade openness is still 43 percent below its predicted value after controlling for geographic remoteness and other factors determining trade flows (Figure 2.2).

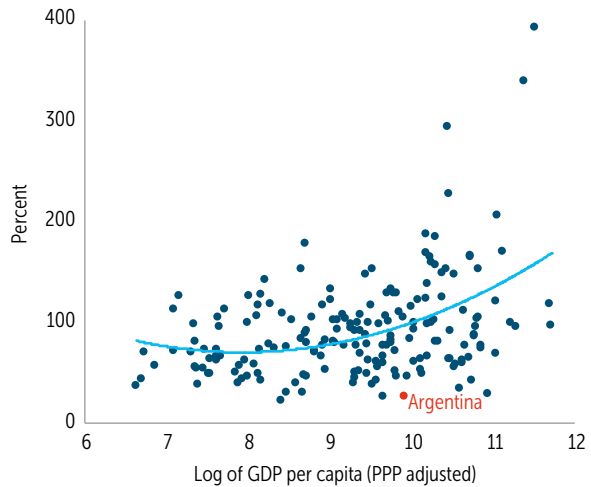
Argentina’s trade performance has tended to deteriorate over time, and the country has lost competitiveness in global markets. Even though global demand has grown for Argentina’s main export sectors in a period marked by stagnant growth in Argentina (e.g food, beverages and tobacco and agriculture, forest and fishing, Figure 2.3). Yet, Argentina’s has lost market share across the board. Its overall share of trade in GDP has in general declined in recent decades, reaching its lowest point in 2015 (Figure 2.4). More recently this measure has started to climb, but is still below its historical average. The most recent three-year average (2019–2021), at 32 percent, is about 10 percentage points below the average for the early 2000s. Argentina has also been losing its global market share, especially since 2009, as its exports have grown at a lower rate than global exports (Figure 2.5).

Although the weak export performance can be partly explained by the boom-and-bust nature of commodity price movements, volume exports have also underperformed (Box 2.1). In the most recent years (2018–2019), exports in Argentina grew somewhat faster than global exports. While this has seen it gain some lost terrain, the cumulative losses over the last decade dominate overall.

Figure 2.1

Argentina’s trade-to-GDP ratio is one of the lowest in its income group

Trade to GDP and income per capita, 2019

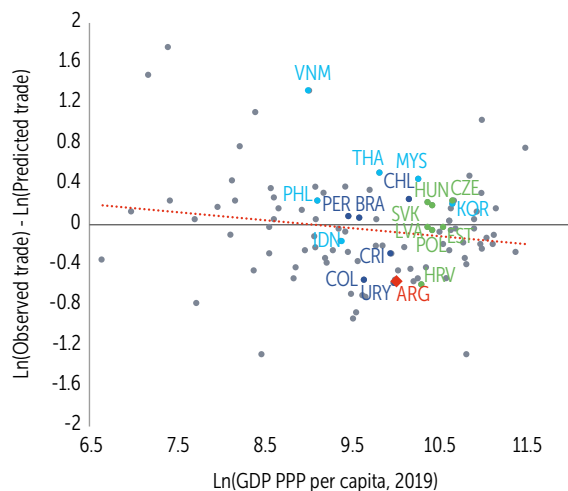


Source: Estimaciones del Banco Mundial basadas en los IDM.

Figure 2.2

Trade openness is well below potential

Observed vs. predicted trade by per capita GDP

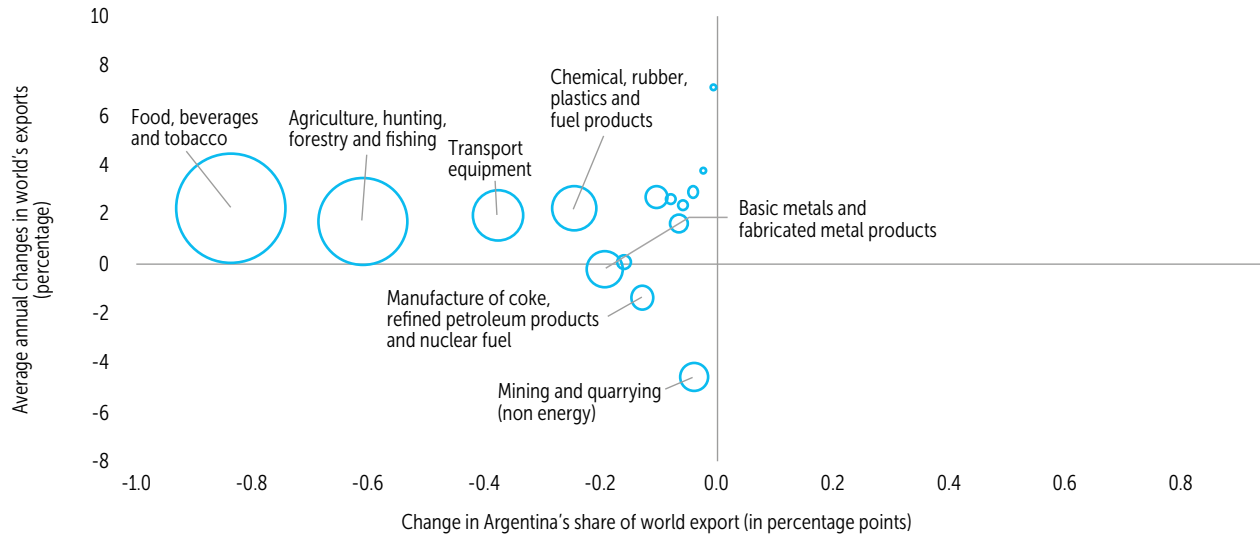


Source: Hallak and Araujo (2021). Note: The figure compares Argentina’s observed foreign trade with its foreign trade as predicted by a gravity equation that includes usual controls such as GDP and GDP per capita, bilateral distance among trading partners, indicator variables for country pairs that share a border, a common language, or a colonial heritage, as well as an indicator variable for landlocked countries. Country’s income level is measured by per capita GDP in purchasing power parity terms.

Figure 2.3

Argentina has lost market share in all its export categories

(2012-2019)

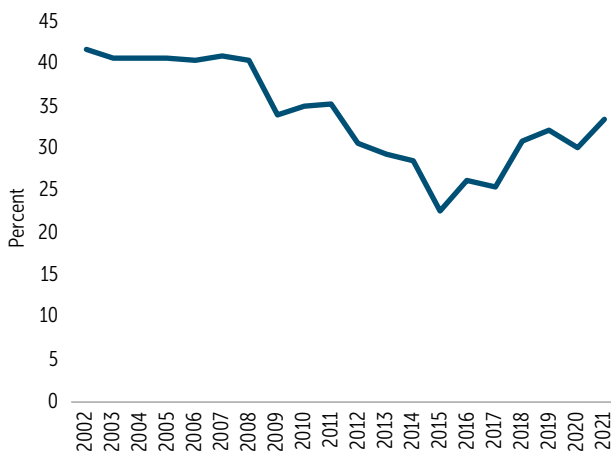


Source: WITS, World Bank Group. **Note:** The figure compares world demand growth across industries (Y-axis) with Argentina's market share growth in these industries (X-axis). World demand has growth for all industries above zero on the Y-axis (e.g. food, beverages and tobacco). World demand has shrunk for those industries below zero on the Y-axis. The size of the bubbles represents the share of each industry in Argentina's exports. PP=percentage points.

Figure 2.4

Trade's contribution to GDP has declined

% share of trade in GDP in Argentina (2002-2021)



Source: World Bank Group WDI.

Figure 2.5

Argentina has been losing global market share

Argentina's export growth as % of world growth (2006-2020)



Source: World Bank Group Measuring Export Competitiveness.

BOX 2.1. ARGENTINA'S EXPORT PERFORMANCE IS WEAK, AS MEASURED BOTH BY VALUE AND QUANTITY

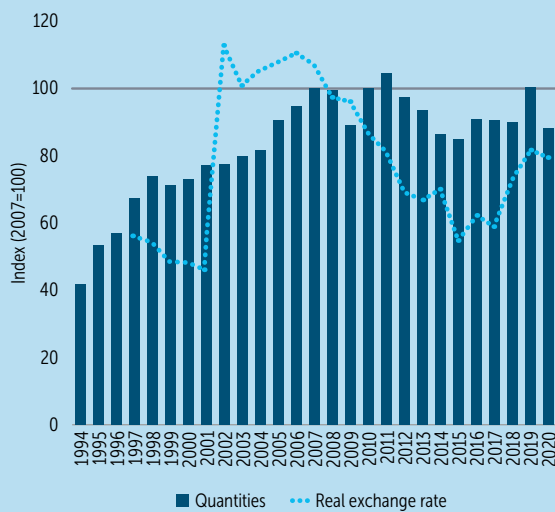
Argentina's export basket remains concentrated in agricultural and other natural resource-based products. Primary agricultural products represent nearly 30 percent of total exports, while manufactured agriculture-based products represent slightly below 40 percent, and oil and energy about 6.5 percent. The soy sector (soybeans and related products, such as soy oil and soybean flour) is the largest, accounting for 27.5 percent of total exports in goods in the past five years. Cereals (mainly corn and wheat) are the second largest export, having increased their share in total exports from 13 to 18 percent between 2017 and 2021.

Commodity exports are more susceptible to price volatility than other products. Their performance in terms of export value can be attributed in part to the sharp drop in prices at the end of the commodity super cycle.¹⁶ However, Argentina's exports have also deteriorated when measured by volume. Figure B.2.1.1 shows the volumetric evolution of Argentinean exports since the mid-1990s, while Figure B.2.1.2 compares growth in export quantities over the last decade.

Figure B.2.1.1

Growth in export volumes have deteriorated...

(1994-2020)

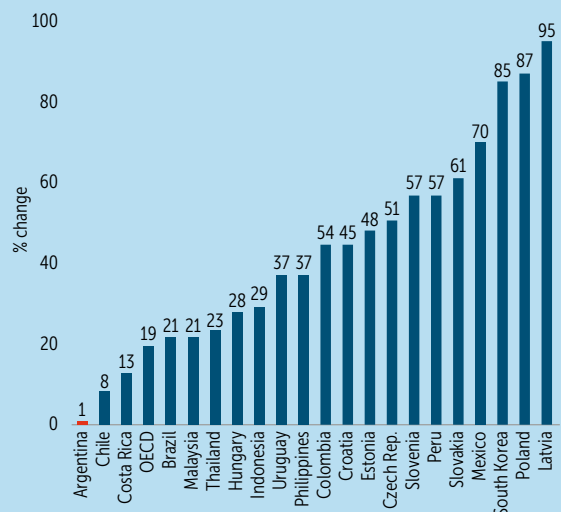


Source: UNCTAD.

Figure B.2.1.2

... and is sluggish compared to other countries

% export growth by volume (2007–2019)



Source: UNCTAD.

¹⁶ A sustained period of high commodity prices, including oilseeds and cereals of which Argentina is a major exporter, took place in the beginning of the 2000s. This period came to an end in the beginning of the 2010 decade.

Argentinean exports are dominated by homogeneous products with little scope for differentiation. Commodities continue to make up the bulk of Argentina's exports. About three-quarters of Argentina's exports consist of homogeneous goods that compete with prices in global markets and are susceptible to price volatility (Box 2.1). The country's exports of both differentiated and non-differentiated products have stagnated over the last decade (Figure 2.6). Not being able to diversify its exports to more differentiated products exposes the country to external shocks and exacerbates macro-economic vulnerabilities (Chapter 1). For instance, in both 2019 and 2009, agricultural goods (principally oilseed products, beef, and cereals) were the main exports. While the export value of the top agricultural products has grown in the last decade, the values for others have fallen, increasing the concentration of exports among these principal exports. Vehicles are Argentina's top differentiated manufacturing export (discussed in detail in Chapter 4), and exports have grown at an average annual rate of 9 percent – doubling their export share.¹⁷ In general, however, export products are highly concentrated in primary and resource-based products, and this trend has increased over time.¹⁸

Participation in global value chains (GVCs) is low. GVC-related trade offers countries new opportunities to integrate into the global economy, providing entry points for higher value-added exports of manufactured goods and services, helping developing countries reduce their reliance on exports of unprocessed primary products. Yet, by

several metrics, Argentina is behind other countries in value chain formation, and its participation in GVCs is particularly low in terms of backward linkages, which are typically associated with learning and technological upgrading. The share of high technology exports in Argentina is one of the lowest of its peers (Figure 2.7). In 2015 foreign value added accounted for only 7 percent of Argentina's gross exports, significantly below the share in more GVC-integrated LAC economies such as Mexico (36 percent).¹⁹ Forward trade linkages, measured as the share of exports that Argentinian domestic value added represents in foreign exports, are somewhat larger, having attained 16.6 percent in 2015. The largest sectoral components in this metric relate to value added in the chemical sector (e.g., the production of petroleum products and alcohols) and foodstuffs (e.g., soybean products) that are used as inputs in other countries' exports.

GVC linkages have also declined in the last decade, from an already low base. Backward participation in GVCs in 2015 was lower than a decade earlier, as Argentina's exports used fewer foreign inputs (Figure 2.8). This trend is observed across all economic sectors. Transport equipment (vehicles) and electronics are the sectors with the largest share of global inputs embedded in Argentina's exports; yet these are also the sectors with the largest drop in GVC participation. Forward linkages have remained relatively more stable, with just a modest decrease from 17.4 percent in 2005 to 16.6 percent in 2015, as exports continue to be dominated by basic commodities.

17 This category refers to trucks, which are mostly exported to Brazil.

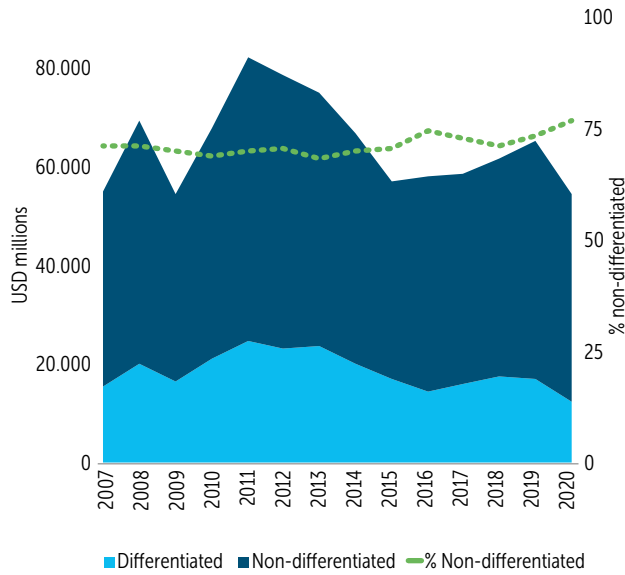
18 For example, Argentina has become relatively less complex according to the Economic Complexity Index, where it has fallen from position 36 to position 53 over the period 2000-2020 (see Annex 2A).

19 Some non-OECD countries are included in the OECD's trade in value added (TiVA) database (<https://www.oecd.org/sti/ind/measuring-trade-in-value-added.htm>). Other LAC countries with TiVA data include Brazil, where foreign value added in gross exports was 13 percent in 2015, Chile (14 percent), Colombia (13 percent), and Costa Rica (18 percent). All show higher GVC participation than Argentina.

Figure 2.6

Non-differentiated products represent most of Argentina's exports

Exports by differentiation (2007-2020)

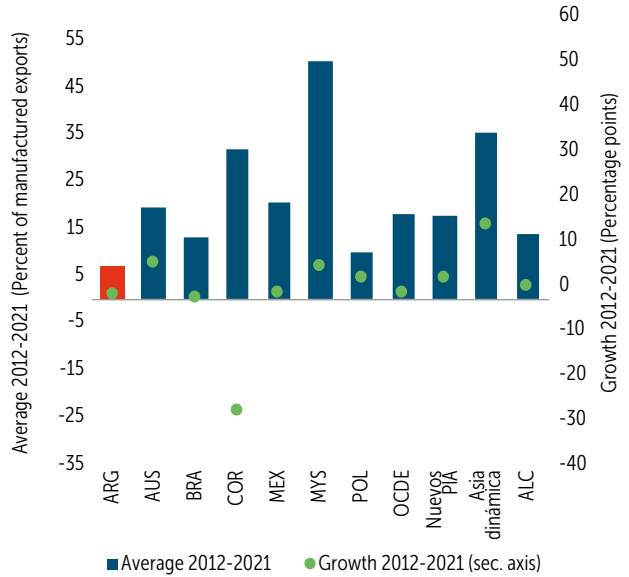


Source: World Bank estimates based on Dirección General de Aduanas and Bernini et al. (2018).

Figure 2.7

High-tech exports make up a tiny and slow-growing share

As % of manufactured exports, average and change (2012-2021) in pp

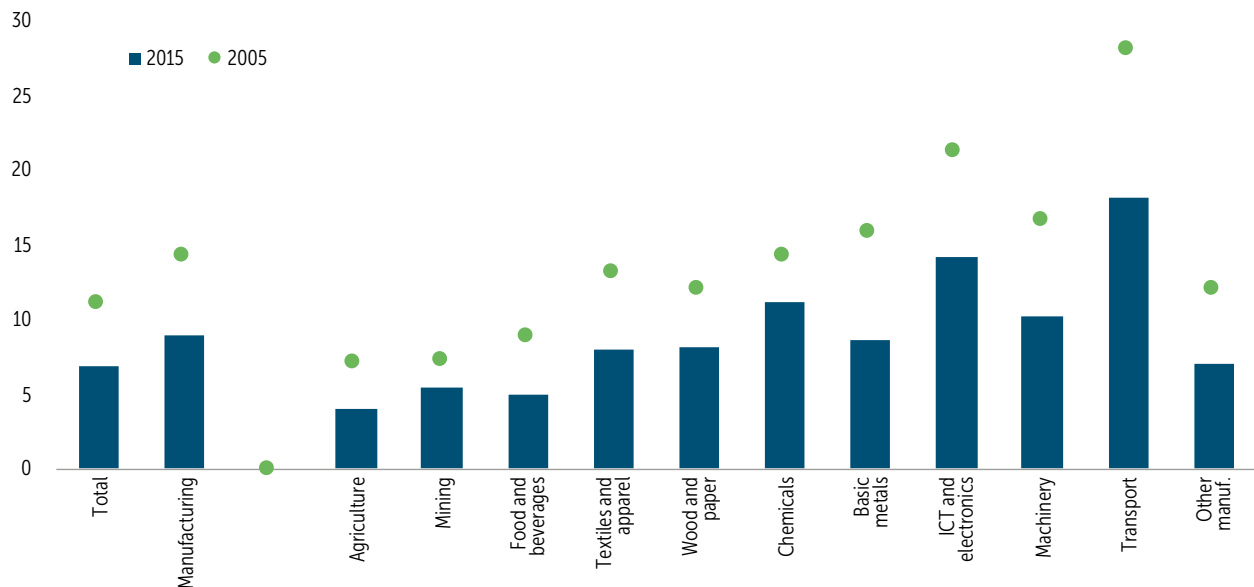


Source: World Development Indicators.

Figure 2.8

Backward participation in GVCs has declined

Foreign value-added content of Argentina's exports (2005 and 2015)

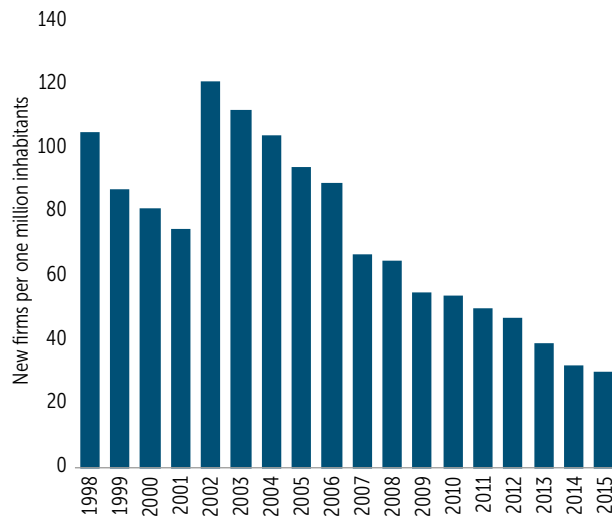


Source: OECD Trade in Value Added Database.

Figure 2.9

The number of new exporters has constantly declined since 2002

New firms per million inhabitants (1998-2015)



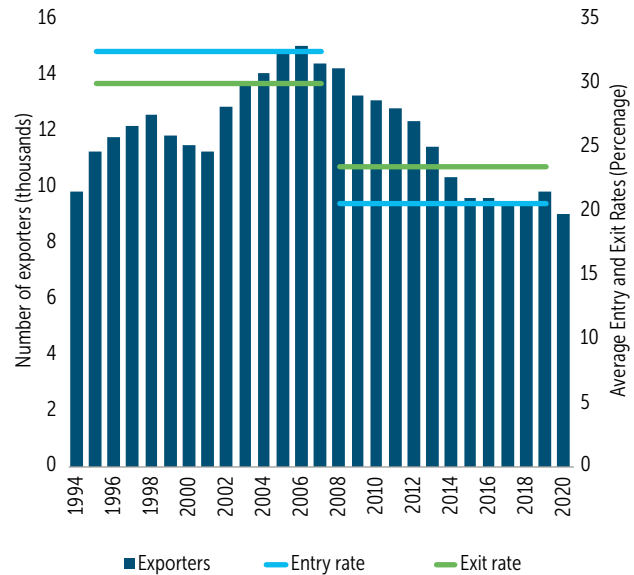
Source: Licetti et al. (2018), Strengthening Argentina's Integration into the Global Economy: Policy Proposals for Trade, Investment, and Competition. World Bank Group.

The number of exporters has been declining over time. At the micro level, the number of exporting firms per capita has decreased continuously since the early 2000s (Figure 2.9). By 2015, the density of exporting firms (i.e., the number of firms for the level of population) was about a third of what it was a decade earlier. As a result of this decline, the number of exporters per capita in Argentina is now among the lowest in the region, while the country had one of the highest number of exporters per capita in the LAC region in the early 2000s (Park et al., 2019). The decline in exporting firms, which also holds in absolute terms, can be tracked to a dramatic fall in entry rates for the period 2008-2019 relative to the previous decade, to the point that the exit rate now exceeds the entry rate (Figure 2.10).

Figure 2.10

High exit rates mean that the number of exporters has declined

Number of exporters and average entry and exit rates



Source: World Bank based on Dirección General de Aduanas.

2.2. Trade costs and frictions limit Argentina's export potential

Argentina has several trade frictions that create an anti-export bias. These frictions affect the country's competitive position on international markets and its prospects for export growth and upgrading away from a limited number of traditional exports. As mentioned above, distance to markets and other geographic conditions can translate into high transportation costs. But Argentina's underperformance in trade goes beyond these factors. Its lack of trade facilitation measures affects the time, costs, and predictability of trade operations at the border, further decreasing national competitiveness. There are a series of other trade

policy measures that further hinder the country from greater integration into global markets and create an anti-export bias, including tariff and non-tariff measures that distort relative prices at home versus abroad. There are also information frictions and coordination failures that could be addressed through more effective export promotion support.

2.2.1 A complex array of tariff and non-tariff measures increase cost and time for traders

Tariff barriers are high in Argentina – more than double the level in other economies in the region, such as those in the Pacific Alliance. As part of Mercosur, since 1995 Argentina – along with the other Mercosur parties – has applied a common external tariff to imports from outside the bloc. The tariff scheme is high by international standards. On a most favored nation basis, Argentina imposed an average tariff of 13.4 percent in 2020. In comparison, tariffs in the Pacific Alliance countries are on average 5.3 percent (Figure 2.11).²⁰ Argentina’s tariffs are among the highest, along with Brazil and South Korea, of its comparators. Furthermore, the common external tariff has stayed high for a long time, contrasting with the experience of other countries that have been reducing tariffs unilaterally. Mexico is a case in point: the country had average tariffs comparable to those of Argentina in 2008, but by 2016 had reduced them by about half. The average tariff in Argentina is in double digits in 10 out of 16 broad sectors of the tariff schedule (Table 2.1). The highest rates are in the textiles and apparel and footwear sectors, where average tariffs are around 26 percent. Not only is the average tariff high in these sectors, but nearly all products within these sectors face double-digit tariffs. Another sector with high levels of tariff protection is food products, where the average tariff

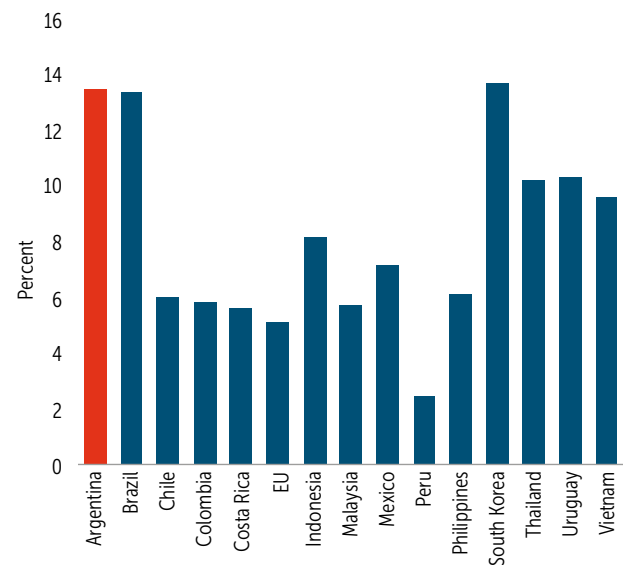
is close to 15 percent and most products in the sector (about 88 percent) face tariffs of at least 10 percent.

While the Mercosur common external tariff was reduced in 2022, there is still room to modernize the tariff schedule to bring it closer to regional averages. In July 2022, Mercosur partners agreed to the first significant tariff reform since the incorporation of the common tariff scheme in 1995. This reform implied the reduction of tariff in Argentina for about 71 percent of tariff lines with non-zero duty rates.²¹ The resulting tariff is on average 10 percent lower. While this is a welcome reform, performed in a horizontal way, there is still room for further negotiations to bring the average tariff closer

Figure 2.11

Tariffs in Argentina are higher than most of its comparator countries

Average MFN tariff, in percent



Source: WTO/ITC/UNCTAD (2021), World Tariff Profiles, 2021. Note: MFN=most favored nation.

20 The Pacific Alliance is a trade bloc integrated by Chile, Colombia, Mexico and Peru.

21 All Mercosur countries reduced duties in 2,124 tariff lines from 2 percent to zero and reduced duties by 10 percent for another 4,762 tariff lines. Each country separately reduced tariffs by 10 percent in additional tariff lines (between 1,106 and 1,430). Argentina did not cut tariffs on additional products.

Table 2.1

Textiles and food products have the highest tariffs
Average MFN tariff in Argentina by sector

	Av. Tariff	% products with t>10%
01-05, Animal prod	9.4	6.7
06-15, Veg. prod	8.7	4.8
16-24, Food prod	15.3	88.3
25-26, Minerals	3.5	0.0
27, Fuels	0.3	2.3
28-38, Chemicals	7.3	29.1
39-40, Plastic, rubber	12.9	74.6
41-43, Hide and skins	12.8	39.1
44-49, Wood, paper prod	9.6	51.1
50-63, textiles and articles	26.1	94.0
64-67, Footwear, headgear	25.6	100.0
68-71, Stone, ceramic, glass	11.1	49.0
72-83, Base metals	12.0	69.8
84-85, Machinery, elect equip	11.5	64.1
86-89, Vehicles and transport	13.9	74.8
90-99, Misc	15.1	75.9

Source: World Bank estimates from TRAINS data.

to that of regional peers. Furthermore, the revision excluded several sensitive products, predominantly in the textile and apparel, footwear, automotive, and dairy sectors. Given that some of these products are high-tariff goods, this reduction is increasing tariff dispersion. These remaining distortions should be taken into consideration in subsequent reforms.

In addition to tariffs, most import products in Argentina are subject to non-tariff measures (NTMs) that can add significant trade costs.

According to UNCTAD data, most imports in Argentina are subject to technical measures—such as sanitary and phytosanitary measures and technical barriers to trade—across most products (Figure 2.12). This is the highest frequency ratio of all peers, suggesting that these technical measures are

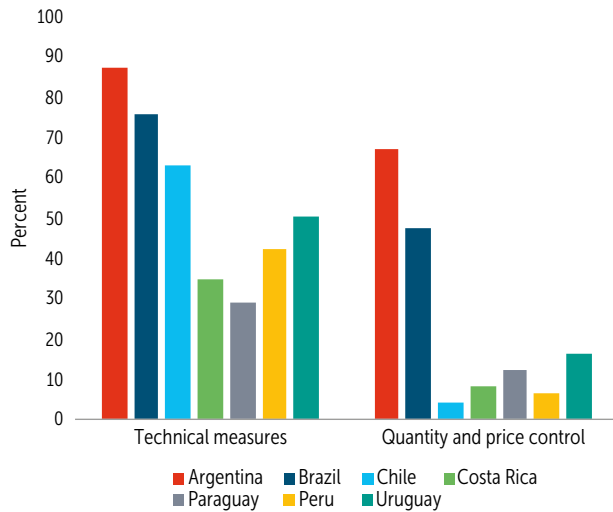
excessively used in Argentina. While these technical regulations may impact trade flows, their stated intent is often to protect human or animal health, workplace safety, the environment, or consumers. On the other hand, NTMs such as quantity and price controls could interfere with the market pattern of trade more directly. And in terms of this type of NTM, again Argentina shows an unusually high frequency ratio, with about 65 percent of imports subject to some quantity or price controls.

Non-Tariff measures are not only prevalent in Argentina – they can significantly restrict imports. On average, these measures raise the trade cost of imported goods as much as if the average extra tariff was 22 percent, based on price-gap estimations (Licetti et al. 2018). Similar to tariffs,

Figure 2.12

Non-tariff measures are significant

Products subject to NTMs by type of NTM and peer country, in percent



Source: World Bank estimates based on UNCTAD TRAINS-NTM data.

the largest restrictions are in manufacturing, where the *ad valorem* equivalent on non-tariff measures is about 26 percent.²² Together with tariffs, which are already high, the presence of these regulations can bring the trade cost of tariff and non-tariff measures close to 35 percent.

Quantity controls for imports are prominent in Argentina. Import control in Argentina has been increasing in the last four years, driven by macroeconomic constraints, and reflected in very low levels of international reserves. While non-automatic licenses are justified for certain imports for safety reasons, such as hazardous imports, the list of tariff lines subject to licenses includes goods from tariff-protected sectors, such as textile and apparel, machinery and equipment, paper products, and furniture. These controls, therefore, benefited

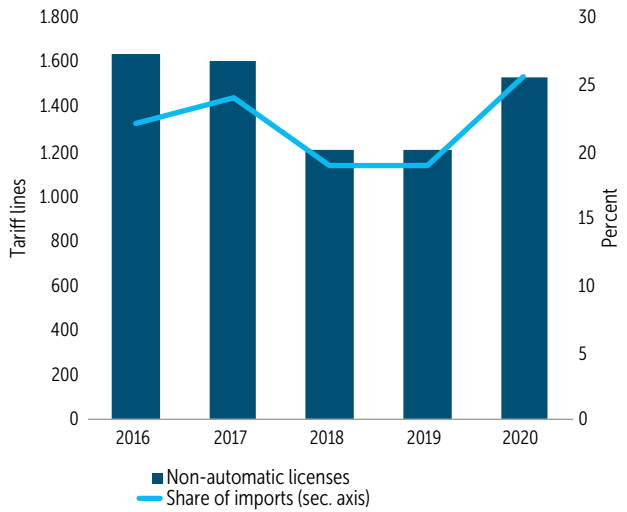
22 The *ad valorem* equivalent (AVE) of an Non-Tariff Measures represents the approximately additional costs that complying with the regulation entails for traders, as a share of the value of the product. See Cadot et al (2018)

23 This import licensing regime, known as the Declaración Jurada Anticipada de Importación (DJAI), was considered to be highly restrictive and non-transparent, and was challenged and determined to be WTO-inconsistent by the WTO Appellate Body in 2015.

Figure 2.13

Reductions in tariff lines subject to quantity controls have been reversed

Non-automatic import licenses in Argentina



Source: World Bank estimates based on Ministry of Production, Resolution 5/2015 and modifications.

protected industries to the expense of economic welfare. Between 2012 and 2015 all merchandise imports required import licenses.²³ By the end of 2016, following the introduction of the Imports Monitoring System (*Sistema Integral de Monitoreo de Importaciones*, SIMI), close to 1,600 tariff lines were affected, representing 25 percent of trade. Further revisions brought this requirement down to close to 1,200 tariff lines in 2018 and 2019 (Figure 2.13). However, this downward trend in the number of products subject to non-automatic import licenses was reversed in 2020, as a strategy to halt the drain on foreign reserves. In October 2022, the SIMI system was replaced by a new one, SIRA, consisting of a case-by-case evaluation of import orders managed jointly by the tax collection agency, the Secretary of Trade, and the Central Bank (CB). This has led in practice to further import restrictions.

Argentina has also been a major user of export taxes. Following the economic crisis of 2001, the government of Argentina established an *ad-valorem* tax on all exported products in 2002.²⁴ ²⁵ While the measure was intended to be transitory, it remained largely unchanged until the end of 2015, making Argentina one of the few countries to apply this tax widely. In 2015 export taxes accounted for about 7 percent of total tax revenues, while import duties represented less than half of that, at about 3 percent.²⁶ Argentina is one of the countries to tax their exports the most, both in terms of the number of products taxed as well as the average duty rate.²⁷

Export taxes on almost all goods were eliminated or reduced in 2016, but were increased again in 2018. In 2016 export taxes were eliminated for about 98 percent of tariff lines subject to such duties, though they remained for certain products including soybeans and soybean products (soybean meals and oil), certain fuel products (coal, gas, and biodiesel), skins and leather, and scrap paper and metals. These products represented Argentina's main exports. Overall, the trade-weighted average export tax rate fell by nearly half, from close to 16 percent in 2015 to close to 8 percent in 2017. In 2018 export taxes were increased for all exports in Argentina as a fiscal measure. Export taxes for biodiesel increased to 15 percent, and as part of the package of measures to accelerate fiscal consolidation, all exports were subject to a new tax of 12 percent.²⁸ This tax was in addition to any other applicable export taxes, for example 18 percent for soy products and 15 percent for biodiesel. In December 2019, export taxes increased even further, with rates of 33 percent

for soybeans, 12 percent for corn and wheat, 4.5 and 3 percent for basic and intermediate industrial inputs respectively, and 5 percent for services.²⁹ On average, export taxes have reverted to their high 2015 levels. Several modifications to export taxes have been made since 2020, which can be broadly characterized as raising or maintaining rates on soy products and other crops, while reducing rates or eliminating export taxes altogether in manufacturing and non-crop agricultural products ("*productos de las economías regionales*"), as well as allowing for reductions of exceptions according to firm size, favoring small and medium-sized enterprises (SMEs). Recognizing their negative impact on exports, export taxes for services have been eliminated since January 2022. The volatility of export taxes stems primarily from their use to reinforce federal revenue collection during crises, via several decrees, as this is the only tax collected by the federal government not subject to revenue-sharing federal rules.

2.2.2 Regional trade agreements are few and relatively shallow

Argentina has sat at the margins of regional integration arrangements, lagging behind peers in market integration and value chain formation. In contrast to the general trend around the world, the country has not increased its participation in preferential trade agreements in recent decades (Figure 2.14). Part of this reflects Mercosur membership, which limits Argentina's ability to negotiate bilateral trade agreements on its own, having to seek consensus and coordination with all members (Gonzalez, 2021).

²⁴ An *ad valorem* tax is based on the assessed value of a product, usually established as a percentage.

²⁵ Resolution 11/2002 of the Ministry of Economy and Infrastructure.

²⁶ Based on statistics from the Ministry of Finance ("*Informe sobre la Recaudación Tributaria*").

²⁷ Consolidated data on export taxes across all countries and products is less readily available than for import tariffs. Laborde, Estrades, and Bouët (2013) provide a recent compilation of 60 countries. Argentina has the second largest average export tax rate (9.1 percent) after Russia.

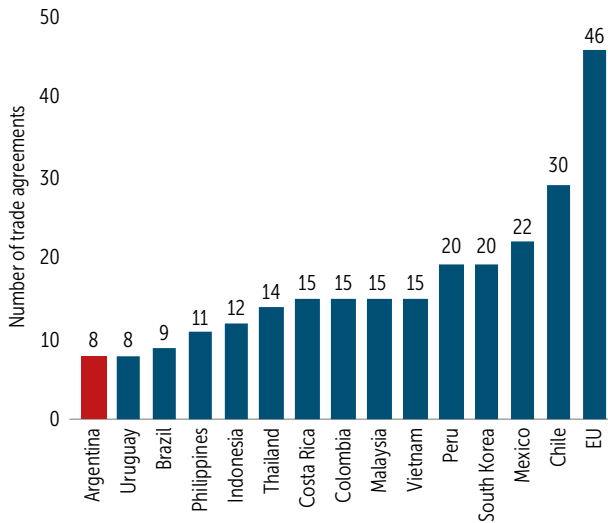
²⁸ Decree 793/2018. For most products (9,669 tariff lines listed in Annex 2A), the export tax should be the lower of 12 percent or of 3 pesos per dollar of the FOB value of exports. For the remaining roughly 600 products, the tax should be the lower of 12 percent or 4 pesos per dollar of exports.

²⁹ The export tax on services was eliminated in January 2022 with the goal of increasing jobs in the sector and inflows of foreign currency.

Figure 2.14

Argentina has fewer trade agreements than comparators

Number of trade agreements currently in force



Source: WTO.

Argentina has also tended to negotiate shallower agreements than regional peers outside of Mercosur. For example, the scope of Argentina's agreements, such as those signed with India and the Southern African Customs Union (SACU), is only partial, covering mainly tariff liberalizations and the elimination of certain non-tariff barriers. Deep free trade agreements (FTAs) go beyond these traditional areas, and include provisions related to, *inter alia*, investments, services, intellectual property rights, the environment, etc. For example, about half of the agreements signed by Chile are deep trade agreements with the European Union, United States, Japan, Australia, New Zealand and other developed economies.³⁰ In Argentina, even the deeper free trade agreements – such as those signed with Egypt and Israel that include elements such as the elimination of export taxes and the assessment of anticompetitive

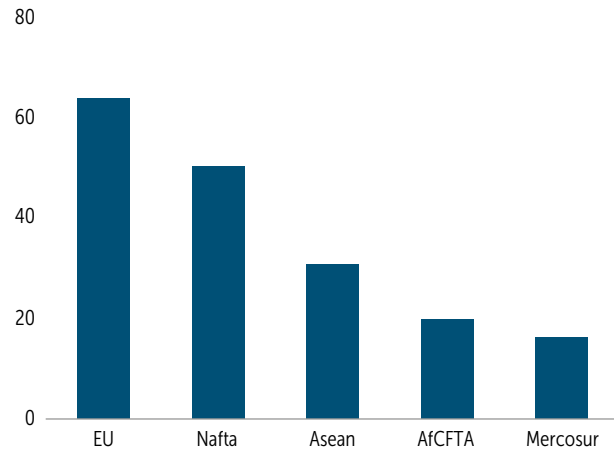
30 Developed countries more commonly negotiate this type of agreement.

31 Lee et al. (2021) find that trade facilitation provisions improved the export performance of Peruvian firms participating in GVCs, increasing their probability of exporting, as well as their export values.

Figure 2.15

Trade within Mercosur is below other blocs

Intra-bloc trade as share of total trade, in percent



Source: Capital Economics and IMF.

behavior – lack many other provisions generally included in deep agreements that could be beneficial. These include public procurement regimes, local content and export performance requirements for foreign direct investment, liberalization of trade in services, and intellectual property rights (Hofmann et al., 2017). Other provisions that could improve Argentinian firms' position in foreign markets include customs simplification and trade facilitation; these are also missing from most of these agreements.³¹

Trade within MERCOSUR is also impaired. Not only is the MERCOSUR bloc one of the most closed regimes for its trade with third countries, intra-MERCOSUR trade is also affected by a number of internal trade frictions related to NTMs. Non-tariff barriers in Mercosur are prevalent and restrictive, especially in Brazil and Argentina, and many of

these measures affect intra-zone Mercosur trade. As a result, the share of trade within Mercosur is low by global standards. Nearly 16 percent of Mercosur exports are destined to other MERCOSUR nations (Figure 2.15). This is well below the 64 percent of exports of EU nations that go to other members of that bloc, as well as the corresponding figures for the NAFTA and ASEAN blocs. It is even below the 19.9 percent of African exports destined for other African nations currently negotiating the African Continental Free Trade Agreement (AfCFTA).

2.2.3 Trade compliance procedures tend to be cumbersome

Lack of simplified procedures and streamlined processes at ports prevents the seamless flow of cargo in and out of Argentina. One of the most important ways to improve this would be the creation of the “Foreign Trade Single Window” (known by its Spanish acronym, VUCE). VUCEs are used worldwide to speed up export and import procedures by allowing firms to submit all necessary documentation through a single platform. They provide certainty and transparency to firms (particularly exporters) about the different procedures they will need to follow for

trading and therefore encourage them to venture into exporting. Most countries in Latin America have made substantial progress in advancing VUCEs. Estimates show that the implementation of the VUCE in Costa Rica increased exports by 71 percent between 2007 and 2013 by increasing the number of foreign buyers (Volpe Martincus, 2016). Sales per buyer also increased, with larger impacts for firms that, because of nature of their exports, required permits from more public entities.

Despite its importance for trade facilitation, development of the VUCE has not progressed as much as expected in Argentina. The country is one of the latest adopters of the VUCE project within the region, and lags behind most other countries in its implementation (Veiga and González, 2021). In particular, it is still not yet possible to submit all the required documentation through VUCE, and customs’ and VUCE’s systems are not yet sufficiently interconnected. In fact, only 30 percent of border agencies have participated in Argentina’s VUCE, compared to 100 percent in countries like Colombia, Costa Rica, and El Salvador, and only 5 percent of export procedures were covered by the single window (Table 2.2).

Table 2.2

La adopción de la Ventanilla Única de Comercio Exterior ha sido lenta
Situación de los regímenes de ventanilla única de comercio exterior (2015)

	Border agencies	Of which in SW	%	Export procedures	Of which in SW	%
Argentina	40	12	30	245	12	5
Chile	21	11	52	50	43	86
Colombia	21	21	100	-	-	-
Costa Rica	16	16	100	105	105	100
Ecuador	24	20	83	142	138	97
El Salvador	9	9	100	54	42	78
Honduras	11	9	82	-	8	-
Paraguay	15	13	87	46	44	96
Peru	-	21	-	-	260	-
Trinidad and Tobago	18	16	89	-	38	-
Uruguay	24	9	38	100	36	36

Source: Volpe Martincus (2016), *Out of the Border Labyrinth: An assessment of trade facilitation initiatives in Latin America and the Caribbean*. Inter-American Development Bank.

In addition to bureaucratic procedures, firms participating in foreign trade face regular shipment controls and screening due to security and legality concerns. These customs interventions may generate additional trade costs, undermining products' competitiveness. The Authorized Economic Operator (AEO) is an international program used to reduce these costs for eligible firms based on requisites such as financial solvency and compliance with customs requirements, taxes, and security standards. Firms included in AEO programs receive several benefits in terms of trade facilitation, such as less frequent inspections, quicker processing times for shipments, and simplified procedures for export or import operations. In Argentina, the AEO program was launched very recently – October 2017 – and by 2020 included only 49 firms. Other countries, including some in the region, have longer standing programs, and some – such as Mexico and Brazil – cover a substantial number of firms (Figure 2.16). In the case of Mexico, Volpe Martincus (2016) estimates

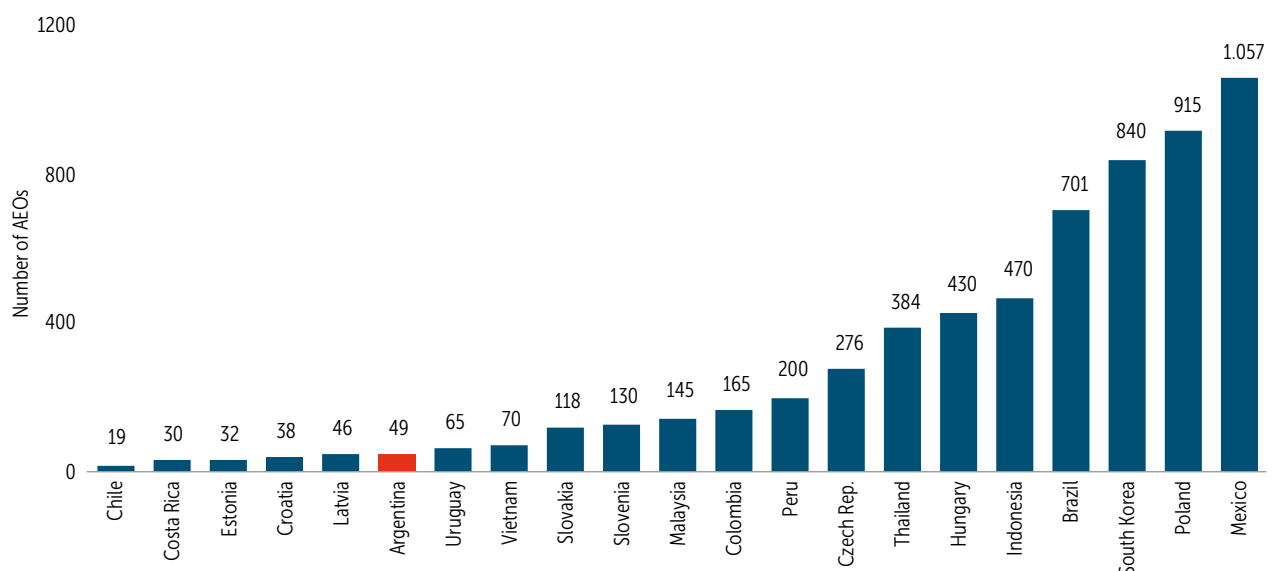
that the AEO program created in 2011 induced a 73% increase in exports between 2011 and 2014. In the case of Colombia, although launched more recently (in 2015), the AEO program is also associated with better export performance in terms of export value, number of destinations, and number of products.

Other standard trade facilitation regimes are also lagging behind, particularly those targeted at new exporters. One notable example is the simplified regime for small exports, *Exporta Simple*. This regime facilitates and speeds up the export process for new exporters sending very small shipments through international couriers. Volpe Martincus (2016) finds that the implementation of this program in Peru helped create new exporters, and those that later became regular exporters increased in size, survived longer, and diversified their export destinations. Despite being a key instrument for lowering entry barriers for new exporters, in Argentina its implementation is only incipient. Launched officially

Figure 2.16

Argentina is behind in its adoption of the Authorized Economic Operator program

Number of AEOs, 2020



Source: World Customs Organization and European Commission.

in December 2017, *Exporta Simple* allows firms to export up to US\$ 15,000 per shipment and up to US\$ 600,000 annually. The latest data (October 2019) shows that the platform was used by around 1,500 users to export US\$ 2 million per month (Fernández, 2021). However, since 2020 the use of this regime has declined, in part because exporters shipping through this platform have been required to pay export taxes previously exempt for this regime (the exemption was reinstated in late 2021).

Simplified regimes for temporary admission are also lacking. Trade facilitation regimes for importing goods for processing and re-exportation do not work fluidly or have not been yet implemented in Argentina. One salient case is the ATA carnet, an international document used to allow duty-free temporary importation of goods that will be used and re-exported without transformation within 12 months of entering the country. The imported goods can be used to produce exportable products such as advertising films, for organizing artistic and sporting events, or simply as commercial samples. This international document has been signed by 87 countries and territories – including Brazil, Chile, and Mexico – but not by Argentina. If it did so, it would facilitate exports in sectors such as audiovisual services that often require the temporary entry of imported equipment.

The effectiveness of the national trade facilitation committee (NTFC) seems to be limited. The NTFC was created in 2019, following commitments made by the country to the WTO Trade Facilitation Agreement. However, so far, its operability has been very limited. Political support will be necessary for it to fulfill its important role of linking public actors with each other and with private stakeholders.

2.2.4 Lagging port and connectivity systems is a hindrance for competitiveness

International comparisons show Argentina's logistics performance to be intermediate, and the country is progressively falling in the rankings. The Logistic Performance Index (LPI) shows that Argentina fell from a ranking of 45 in 2007 to 62 in 2018 and is behind Brazil, Mexico, and Chile, as well as most countries in Europe and Asia.³² However, it is similar to many other countries in the region (Figure 2.17). Argentina's LPI score in 2018 was significantly lower (at 59 percent) than the score for Germany, the top performer.

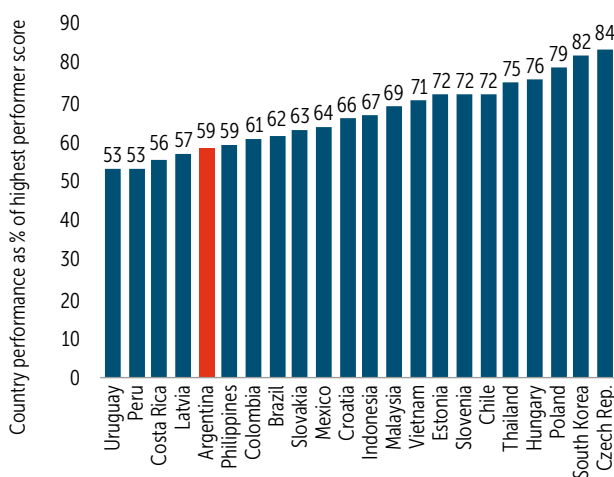
Lack of infrastructure investment has dented Argentina's logistic competitiveness. The LPI score only shows a minor decline from 3.1 in 2010 to 2.9 in 2018 (Figure 2.18). The main reason for the fall in its rank position is the relative improvement of other countries during the period. Argentina's ranking in the LPI has declined across various components. The main decline is in customs procedures (where there is ample room for improvement as discussed above). However, its infrastructure ranking has also been declining. As a consequence of Argentina's fragile macroeconomic conditions, investment in public infrastructure –including export-related infrastructure such as ports, roads, river dredging, and railways – has been limited. Trains are slow and unreliable, and only used to transport commodities in bulk. Ports are expensive and roads require investment in maintenance and upgrading. Digital connectivity is also behind that of neighboring countries. Public investment efficiency gains could be achieved through public investment management that focuses in particular on strategic planning for

³² LPI data are gathered through a worldwide survey of logistics professionals on how easy or difficult they experience trade logistic along six dimensions: 1) The efficiency of customs and border management clearance; 2) The quality of trade- and transport-related infrastructure; 3) The ease of arranging competitively priced international shipments; 4) The competence and quality of logistics services; 5) The ability to track and trace consignments; 6) The frequency with which shipments reach consignees within the scheduled or expected delivery time. Then, data is aggregated on a single indicator (score), allowing for comparisons between countries, regions, and income groups. Rankings are based on this indicator (being 1 the country with highest score). The overall LPI score is a more telling indicator than the LPI rank, because scores are more accurate and provide a better basis for comparison over time (Arvis et al, 2018).

Figure 2.17

Argentina's logistic performance is below most of its peers...

Logistic Performance Index (2018), % of highest performer score



Source: Arvis et al. (2018), Connecting to Compete 2018: Trade Logistics in the Global Economy. World Bank Group.

resource allocation, and which frames decisions within a medium-term perspective (World Bank Group, 2021; IMF, 2022).

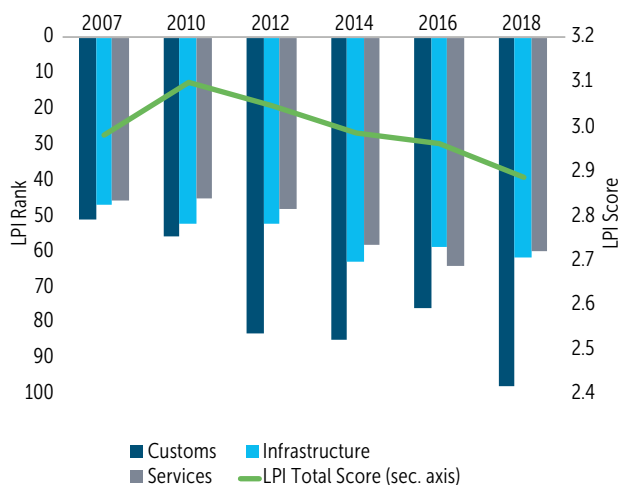
The navigation system performs unevenly across various areas of activity. Travel speeds on waterways is slow, especially for bulk carriers and tankers. The country is also going backwards in its integration of its liner services within global maritime networks: in the UNCTAD connectivity ranking³³, the country has fallen from position 34 to 57 in the last 15 years. The performance of the container terminals is mixed; its operational performance is generally low when compared to with other ports of reference. The main reasons are the inadequate configuration of the port space, outdated infrastructure, and an inefficient use of existing resources (or insufficient cargo). The ports dedicated to agri-bulk, on the other hand, are generally very efficient.

33 UNCTAD Liner Shipping Connectivity Index , <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx>.

Figure 2.18

...and has declined over time

LPI score and ranking for Argentina



Source: Arvis et al. (2018), Connecting to Compete 2018: Trade Logistics in the Global Economy. World Bank Group. **Note:** A decline in the score and ranking implies a worse performance.

Improvements are needed to enhance waterway infrastructure and operating conditions. The Plata and lower Parana waterway must offer channels with adequate depth, width, and waiting and maneuvering areas. The improvements made in recent decades were adequate to manage the progressive increase in the country's foreign trade flows. However, several next steps are needed to address deficiencies in nautical access to river ports and the loss of direct line services. These include increasing the draft allowed in the waterways, new crossing sections, and new anchorage areas. The country also needs a strategic plan that goes beyond the Puerto Nuevo terminals in the Buenos Aires port for the future movement of containerized cargo, taking into account the multiple terminals in the area, the current restrictions (on nautical access, maneuvering areas, dockside depths, yards, etc.), the outlook for demand, and trends that will

condition activity, particularly the behavior of the line services market.

Railways are an important component of Argentina's logistics system, particularly apt for transporting bulk volumes, but are performing well below potential. Half of the 15,000 km operational network is operated by three private freight concessionaires, with the other half run by a state-owned enterprise (SOE) that covers the narrow-gauge system and two private concessions that were reverted to the government. Altogether, the system moves 5.2 percent of the total domestic tons-km, mainly grain and byproducts, as well as minerals and construction materials, all as bulk cargo. The railways could make a useful contribution to reducing logistics costs, particularly in a context of growing grain and minerals exports.

The country is in the process of establishing a new open-access regulatory model governing around 60 percent of railway freight, but is facing a headwind. The regulatory model is facing several difficulties. These include the access charge private operators will have to pay to the SOE managing the rail network and an investment plan to enhance infrastructure condition to allow for a complete open access model. The few results obtained so far and the proximity of the termination of private concessions risk weakening railway management instead of improving it, at a time when it needs it most. A particularly critical issue is the massive investment in infrastructure required as a precondition for implementing and ensuring the safe, efficient, and reliable operation of the open-access model.

Argentina is also facing the challenge of improving its digital infrastructure. Digital infrastructure is needed for digital trade (or trade that occurs over digital networks). And logistics chains and their

associated logistics are increasingly managed through digital processes that require high quality digital infrastructure covering the main nodes and the most important freight corridors with quality service (bandwidth, latency). Digital tracking and inventory management are key components of the modern transfer of goods between countries and clients. IT technologies are key to digitalize and automate operations, as well as to enhance security. The country should continue the expansion of fiber optics networks and internet coverage in the main logistics corridors and rural areas, particularly outside of the Pampas region. High level IT services in the main hubs will be key for enhancing connectivity between all components of the global supply chain.

Enhancing, improving, and preserving the road network would also benefit trade logistics. Roads are essential for all freight movements in the country (domestic, exports, imports, in transit), as well as for passenger transport. Road transport is present in most parts of the supply chains that deliver export products. Action should focus on adding capacity to some primary links, generating B-trains corridors, creating a robust rural roads improvement program, and conserving bridges.³⁴

Air freight in Argentina, both international and domestic, is limited. Before the pandemic the value of goods transported by plane represented 3 percent of exports and 11 percent of imports. Exports in 2021 reached 81,700 tons (77,700 tons of imports)³⁵. Air freight is mostly carried in the holds of passenger planes (around 80 percent). The main goods transported are pharmaceutical products, electronics, auto parts, fresh products (fruits, fish and shellfish), special cargo (satellites, jets, etc.) and express mail and packages. Express transport is one of the segments with the greatest prospects on the world market, based on the development of

³⁴ B train means a combination of vehicles composed of a truck tractor and a semi-trailer, followed by another semi-trailer attached to the first semi-trailer.

³⁵ The sources is the National Civil Aviation Administration (*Administración Nacional de Aviación Civil*), December 2021 Monthly Report, <https://datos.anac.gob.ar/estadisticas/>.

e-commerce. The low level of participation of air transport in Argentina's trade may be because it is already meeting current demand (considering the competition from other modes). However, there are some high value-added products, largely produced outside the Pampas regions, for which the lack of direct air connections with destinations, together with seasonality, prevent them from being transported by air. The lack of competition in air cargo terminal and handling services may also be a factor constraining the expansion of air transportation.

The current legal framework does not support logistics as an integral concept, undermining competitiveness. Certain logistics activities are either not explicitly defined by law, or only in passing, leaving legal voids and grey areas. In general, sector regulations are dispersed, fragmented, and subject to constant revision—sometimes in opposition to other standards. Observance and implementation can differ substantially from written norms. More importantly, subsidiary norms derived from binding labor agreements have filled the above-mentioned regulatory void, going further to define functions, scope, and limitations associated to specific logistics activities and for the personnel engaged in them. While social regulation should protect the public interest from negative externalities, the latter also weigh on labor costs and productivity. The issue of vertical integration will also require attention, as stakeholders indicate that access to shipping and port services on an equal footing is not a given for independent logistics operators.

2.3. Towards a gradual process of trade integration

The process to deepen Argentina's integration to the global economy should be gradual, well-coordinated with macroeconomic reforms, and include mitigation measures to offset transition

costs. Microeconomic reforms, trade integration, and the associated changes in relative prices would trigger a reallocation of production factors that entail efficiency gains but also adjustment costs. While overall productivity is expected to increase, thereby contributing to economic growth, some sectors and segment of the population may be affected due to import competition. Protecting workers instead of jobs is good practice to ensure that people negatively affected by the trade shock can be reallocated. Both active labor-market policies (such as job search assistance and training) and passive policies (including income support and social insurance programs) can prove effective. Complementary policies and reforms in other markets (such as housing, credit, and infrastructure) play a crucial role in facilitating geographic mobility, thereby reducing adjustment frictions.

Key opportunities to start this process include:

2.3.1 Moving ahead on the EU-MERCOSUR FTA would bring many benefits

The recent FTA with the EU is the first deep, modern, and comprehensive trade agreement ever negotiated by MERCOSUR and could be a game changer.³⁶ It represents a deep agreement that breaks new ground in several policy areas beyond tariffs, including technical barriers to trade, regulations on services, government procurement, and intellectual property. Implementing the EU-MERCOSUR FTA will thus create a unique window of opportunity to push an agenda of institutional upgrading in Argentina in several critical areas, such as transparency, anti-corruption, accountability, efficiency and efficacy of government policymaking, regulatory quality and enforcement, and sustainable development. The agreement incorporates reforms that the country could implement unilaterally –

³⁶ After twenty years of negotiations, the EU and Mercosur countries announced on June 28, 2019 an agreement for an EU-MERCOSUR FTA. This FTA still needs to be ratified by all parties before it can enter into force.

such as rationalizing NTMs and export restraints – and anchors them in a treaty. At the same time the agreement allows for reforms in Argentina that require coordinated actions at the MERCOSUR level. Of other potential agreements with other countries, this is one that has been seen as potentially resulting in larger reforms.

The agreement covers a wide range of tariff and non-tariff measures that would increase market access and contestability. For example, it aims to eliminate many bilateral duties immediately, and most remaining tariffs gradually. Argentina has a high number of NTMs, both in absolute terms and when

compared to other Mercosur countries (particularly Uruguay and Paraguay, while somewhat closer to Brazil) and other neighbors in the region. Under the agreement, commitments on technical measures aim to identify, prevent, and eliminate unnecessary SPS and TBT impediments to trade and to enhance cooperation on such aspects. Argentina would also have to address issues related to its import licensing, export duties, and capital control regimes to secure full compliance with the agreement. Box 2.2 summarizes some specific reforms that involve strengthening various dimensions of Argentina’s institutional quality and the progressive elimination of NTMs.

▶ **BOX 2.2. THE EU-MERCOSUR FTA WOULD ENTAIL REGULATORY AND INSTITUTIONAL REFORMS IN ARGENTINA**

Rationalizing import, export, and capital controls. The agreement aims at simplifying import licensing regimes, bringing transparency, and avoiding opaque import and export licensing procedures from imposing unnecessary costs and significant barriers on exporters. The agreement also aims to dismantle non-automatic import and export licenses. Notably, Argentina currently has a non-automatic licensing regime in place which covers over 1,500 tariff positions, representing slightly over a quarter of imports. The agreement would also eliminate export duties or establish upper limits for certain products (e.g., export taxes for soybean products would be limited at a maximum rate of 14 percent³⁷). However, eliminating export duties for some key goods that make up the largest share of Argentine exports – mainly soybeans, wheat and other cereals – could significantly reduce tax revenue. This might be challenging to implement in the country’s current economic context. The agreement also contemplates a progressive reduction of capital controls.

Strengthening regulatory quality and enforcement. The agreement requires Argentina to implement (and generalize or enhance, where they already exist) core elements of good regulatory practice (GRP). These would include publishing regulations in advance, conducting public consultations on draft regulations and allowing for a transitional period between publication and entry into force. The agreement also contemplates the creation of a centralized body to regulate, implement and monitor the application of GRPs across all regulatory agencies. It also aims to introduce regulatory impact assessments (RIAs) and periodic retrospective evaluations of policy measures of general interest. While these are not binding commitments, implementing RIAs for key regulatory proposals would dramatically improve regulatory quality in the country. The agreement also seeks to strengthen the parties’ legal and institutional capacity to secure enforcement of critical areas, notably geographic Indications.

37 As of March 2023, soybeans and main soy-related products are taxed at 33 and 31%, respectively. See https://www.argentina.gob.ar/sites/default/files/tributos_vigentes_al_31-12-2022.doc.pdf.

➤ BOX 2.2. THE EU-MERCOSUR FTA WOULD ENTAIL REGULATORY AND INSTITUTIONAL REFORMS IN ARGENTINA (CONT.)

Streamlining trade compliance processes. Under the agreement, Argentina would adopt a self-certification approach for rules of origin. After entry into force, the country would have to start accepting certifications issued by EU exporters (“self-certification”). It will have three additional years (possibly extended to five), to introduce the issuing of statements of origin by Argentine exporters for goods that will be exported to the EU. In some sectors, Argentina would also implement certificate recognition and/or recognize test results issued by EU conformity assessment bodies. Specific areas in which this practice will have to be implemented include electrical and electronic equipment safety; electromagnetic compatibility of equipment; energy efficiency; and hazardous substances in electrical and electronic equipment. Additionally, provisions seek to progressively introduce self-certification of compliance with technical regulations (suppliers’ declarations of conformity). Even though there is no binding commitment upon MERCOSUR countries to implement this approach, doing so would dramatically reduce the bureaucratic and monetary costs that EU firms must incur when introducing a product on the Argentine market, and conversely, the costs of Argentine exports to the EU.

Enhancing transparency and accountability. The agreement would seek to revise the domestic legal and institutional framework that regulates public procurement. Public procurement reforms would aim to (i) strengthen overall transparency, efficiency, competition, and equal opportunities; and (ii) guarantee substantive principles for the treatment of EU bidders (i.e., national treatment; prohibition of applying certain preferences and “offsets”). The agreement also creates notification or consultation mechanisms that guarantee that the parties will be notified or participate in the process of issuing a new law or regulation. Additionally, the agreement establishes focal points and other mechanisms to answer stakeholders’ enquiries on trade issues.

The impact of the EU-Mercosur FTA on the economy has been modelled for this report. The economic impacts of implementing the EU-MERCOSUR FTA in Argentina are estimated using a Computable General Equilibrium (CGE) model. The main features of the modeling framework are described in Annex 2A. The emphasis of the analysis is on economy-wide and main sectoral effects. The analysis incorporates many of the market access commitments made by the parties, including reductions in tariffs, non-tariff barriers, and export taxes. Four distinct scenarios are

constructed, examining the impact of a progressive addition of reforms.³⁸ However, the likely economic effects of the agreement should be assessed based on the third or fourth scenarios (where tariffs, NTMs, and export taxes are considered together), as they better reflect the trade provisions of the FTA.³⁹ Liberalization in certain areas could be gradual, for example market access in sensitive sectors (Figure 2.19). To capture full implementation, the modeled scenarios are thus compared to a baseline projection extended up to 2035.⁴⁰

38 The scenarios are: 1) Tariffs scenario: on top of Baseline scenario, it incorporates the tariff schedule of the agreement; 2) Tariffs + NTM scenario: complements scenario 1 with reduced ad-valorem equivalent values for NTMs. It assumes that EU reduces their NTMs (on imports from Mercosur) by 10 percent, while Mercosur countries reduce theirs by 20 percent (on imports from either the EU or other Mercosur countries); 3) Tariffs + NTMS + Export Taxes scenario: Complements scenario 2 with a reduction in export taxes for soy in Argentina by 30 percent; 4) Tariffs + NTMS + Export Taxes All: extends scenario 3 to include an elimination of all exports taxes in Argentina. See Annex 2A for more detail.

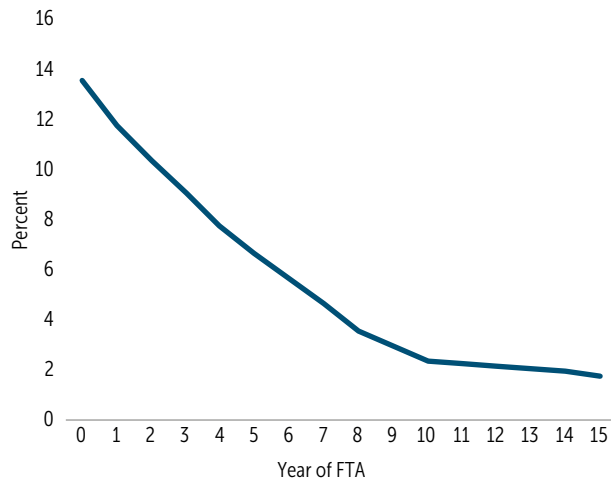
39 The difference between the third and fourth scenarios relates to the degree of reduction of export taxes. The agreement includes an annex stipulating that export taxes are allowed to increase up to maximum for a determined number of products (mainly on soybeans), but Argentina could lower its export taxes even below this maximum, in compliance with the agreement.

40 The impact is assessed by comparing the deviations in the economic variables relative to a baseline projection of the Argentinean and world economies to a notional 2035, given no changes in current policies as of 2020.

Figure 2.19

Liberalization of trade could be gradual for certain areas

Average bilateral tariff in Argentina for EU imports under the EU-Mercosur FTA



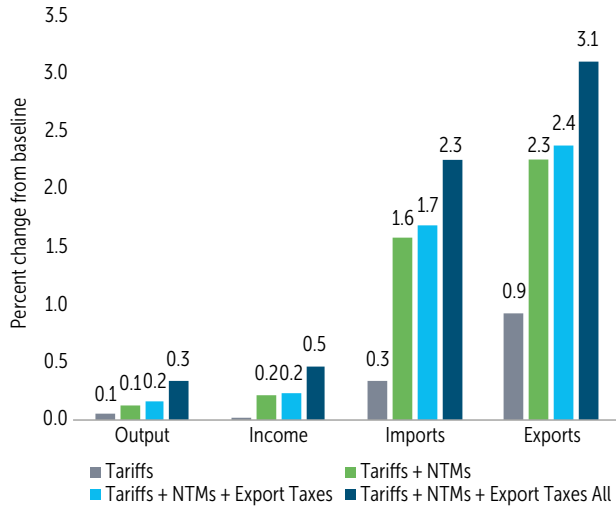
Source: World Bank estimates based on tariff offers schedules.

Aggregate impacts are positive, albeit modest, for the entire economy in all the scenarios. However, it should be noted that the estimated effects on output and real income from the CGE framework are likely to be conservative. The ability to assess comprehensively the impact of policy changes depends on the extent to which all changed conditions can be measured. While the CGE model employed is dynamic and allows investment and capital stock to change over time because of the agreement, the model does not incorporate other dynamic factors proposed in the literature on endogenous growth, such as productivity increases via for example, knowledge spillovers or scale economies. These are difficult to model and to incorporate in this type of analysis.⁴¹ Besides the additional opportunities for trade among existing firms, trade and tax reforms would also strengthen competition within sectors, reallocate resources towards more productive firms,

Figure 2.20

The EU-Mercosur FTA would improve output, real income and trade

Effects of four scenarios as % change from baseline



Source: World Bank estimates from CGE framework.

and free up resources currently held by less efficient ones. This is particularly relevant for Argentina, as shown in Chapter 1, as intra-sector reallocation explains higher rates of economic growth among Argentina's peers but not in Argentina. Taking these points together, the overall benefits to be expected from a comprehensive trade liberalization agenda are likely to exceed significantly those estimated by the model. As such, it is more relevant to focus on the direction of the change in key economic variables that result from trade liberalization rather than on the quantification of the impact.

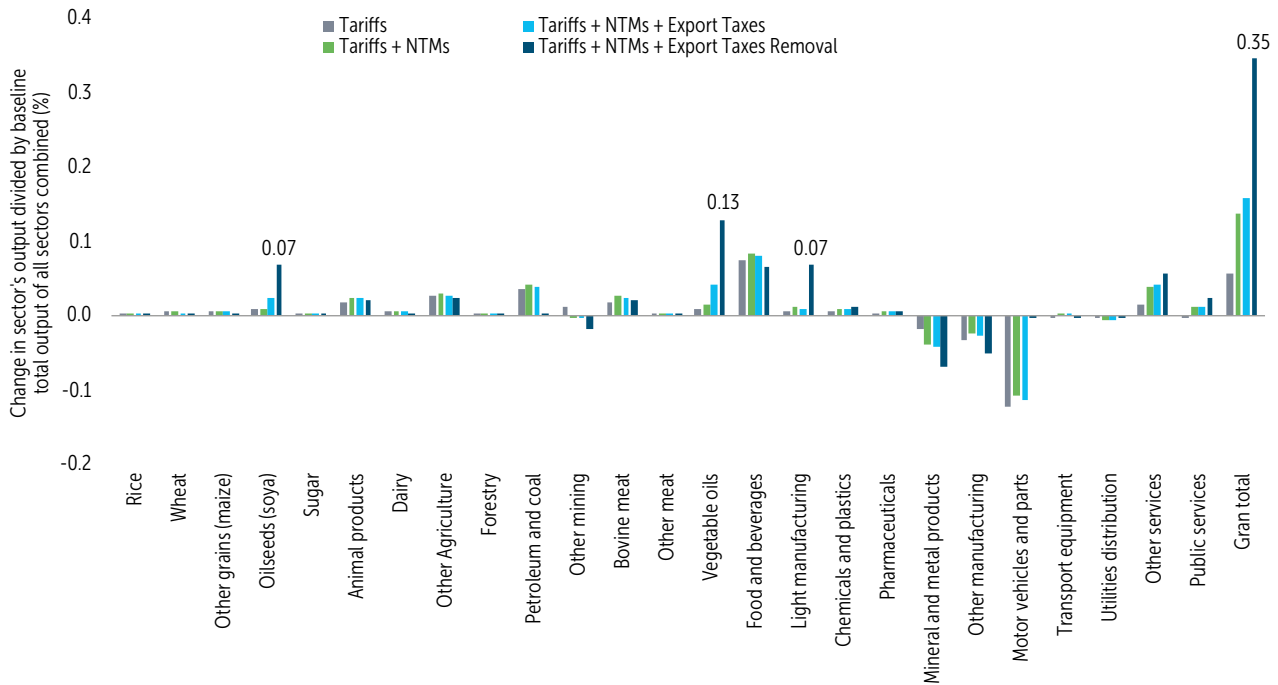
The EU-MERCOSUR agreement would improve Argentina's trade balance, increase income, total trade, and output. The model results show an increase in real output stemming from the elimination of all export taxes, relative to the baseline projection through 2035 (Figure 2.20). Overall welfare would

⁴¹ The effects that are relative to the baseline scenario are deviations per year (see the annex for a graphical depiction to interpret the estimated deviation). As such the gains accumulate over time (area between the two curves).

Figure 2.21

The effects of the trade liberalization would vary across sectors

Change in sectoral output as % of baseline total output



Source: World Bank estimates from CGE framework.

be at least 0.5 percent higher than the baseline (scenario 4), reflecting higher real income from consumers' greater purchasing power. Total imports would increase by about 2 percent and exports would increase by about 3 percent, leading to an improvement in Argentina's trade balance (see tables in Annex 2A). Taking all the trade and tax reforms together, NTM liberalization and the reduction of all export taxes are responsible for most of the trade gains. The bilateral trade effects of the agreement are significant for both parties, as Argentine exports to the EU would expand by about 40 percent, while bilateral imports into Argentina from the EU would increase by about 27 percent.⁴²

While the economy expands overall, the effect varies across sectors, with the largest expansion occurring in food and agriculture. Trade liberalization among the parties allows them to exploit their comparative advantages, presenting opportunities to some sectors and challenges to others. Food and agriculture in Argentina is the sector that would expand the most under the agreement, accounting for about half of the overall expansion in output across all sectors (Figure 2.21).⁴³ The largest expansions in dollar terms occur for food and beverages (where soybean meal, wine, and juices are significant exports), vegetable oils (where soybean oil is a key product), and services

42 Bilateral exports to the rest of Mercosur would expand by almost 1 percent, mostly driven by higher exports to Brazil.

43 Note that the deviations are presented as share of total output in the baseline, so that the sectoral percentages sum to the percent change in output across all sectors.

for which demand expands from the liberalization of services barriers (see tables in Annex 2A). Output in certain manufacturing industries, however, would be marginally lower relative to the baseline. This is the case for mineral and metal products and other manufactured products (including machinery and electronics). For the automotive sector, output could either contract or remain neutral, depending on the specific scenario, with output falling mostly from the liberalization of tariff protection.

slight increases. For metal products and machinery/electronics the increase is mostly driven by lower NTMs, while the increase in light manufacturing exports (apparel/footwear) reflects export gains from lower tariffs in the EU. Exports of vehicle and parts could fall in most scenarios. The incremental effect on exports of rationalizing export taxes manifest primarily in the vegetable oil sector (which includes soybean oil).

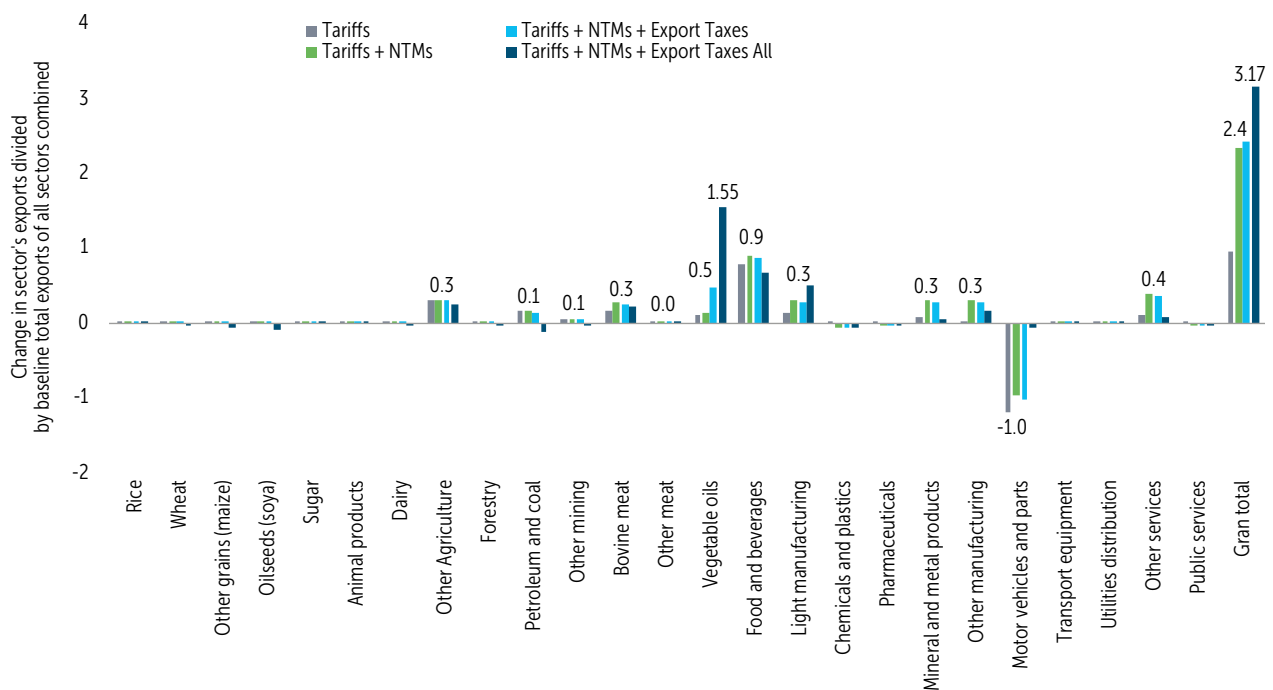
The expansion of exports is driven particularly by increased exports of food and agriculture, while manufacturing exports would be slightly lower. The muted drop in manufacturing exports reflects a heterogenous effect across industries (Figure 2.22). Exports of light manufacturing (which includes apparel and footwear products), mineral and metal products, and other manufacturing would experience

While the contraction in manufacturing activity is not large, policies to facilitate labor transitions should be considered. The agreement would increase import competition in manufacturing where high trade barriers currently exist. Industries in this sector would also likely release labor as other sectors benefiting under the agreement, such as services and food and agriculture, draw resources into their expanding activities. Industries in this situation

Figure 2.22

Food and agriculture would drive export expansion

Change in sectoral exports as % of baseline total exports

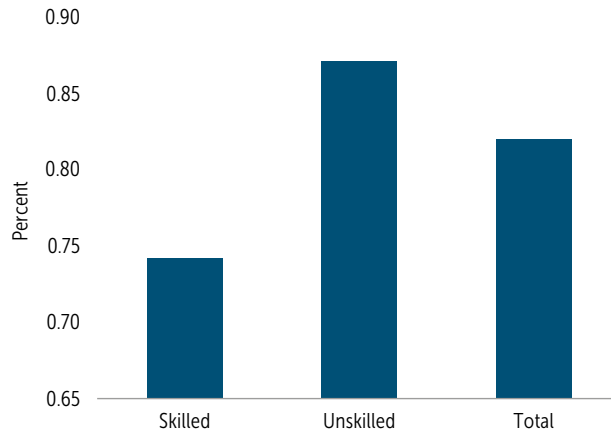


Source: World Bank estimates from CGE framework.

Figure 2.23

The EU-Mercosur FTA would increase wages of both skilled and unskilled workers

Effects of EU-Mercosur FTA on wages in Argentina, in percent



Source: World Bank based on CGE framework.

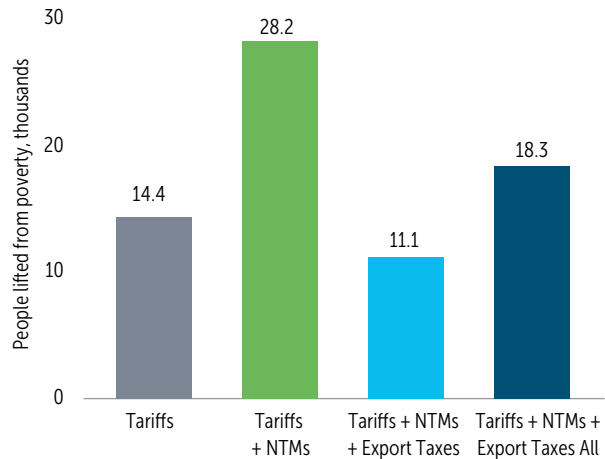
would likely include metal products and segments of the automotive sector. The overall contraction of manufacturing activity in these sectors, if it materialized, would not be large (less than 1 percent), and would represent a small fraction of labor turnover in the sector and for the overall economy.⁴⁴ Yet, while the model employed to estimate the effects of the agreement assumes that labor transitions to other activities without costs, this may not be true in many cases, and domestic policies should be put in place to help them move to other sectors of the economy or to further specialize in niche products in their industry.

The positive trade and output effects of the agreement in the economy would benefit wages

Figure 2.24

The agreement is likely to be pro-poor...

People lifted from poverty by 2035 compared to baseline scenario, in thousands



Source: World Bank based on CGE framework and the ARG-IDD.

of both skilled and unskilled workers. As the economy-wide effects are (conservatively) small, so are the positive effect on wages. For total labor the EU-MERCOSUR FTA would increase wages, on average, by about 0.82 percent (Figure 2.23). The effect is positive for the two categories of labor introduced in the model (skilled and unskilled), but is somewhat larger for unskilled workers, whose wages would increase by 0.87 percent, versus an increase in wages for skilled workers of 0.74 percent.

Similarly, the agreement is likely to be pro-poor.

The modelling suggests that the EU-MERCOSUR FTA would have positive effects on poverty—lifting between 11,000 to 28,000 people out of poverty.⁴⁵ Figure 2.24 reports the number of people lifted

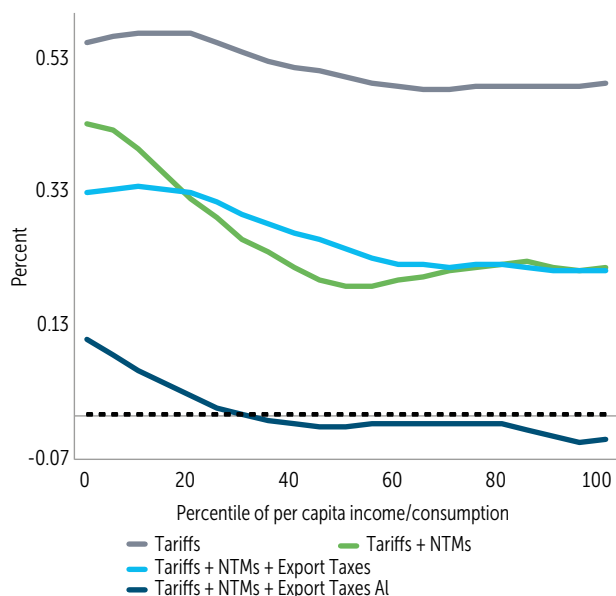
⁴⁴ Beccaria and Maurizio (2018) estimate exit rates from a job in Argentina using household survey data over the period 2003-15. The yearly rate for the economy as a whole is 28 percent, and 27 percent for their category of “industry”. According to these estimates, those who leave a job transition within the year to either another job (55 percent of those changing labor status), unemployment (15 percent), or out of the labor force (30 percent).

⁴⁵ Poverty is measured using a poverty line of US\$ 6.85 per day in PPP terms, the revised international poverty line for upper-middle-income countries in 2017 prices.

Figure 2.25

... and have progressive distributional effects

Growth incidence curves under FTA scenarios



Source: World Bank based on CGE framework and the ARG-IDD.

from poverty, on average, by each scenario after the full implementation in year 15. The net effect on poverty reduction goes from 11,100 in the export tax scenario, to 28,200 in the Tariffs + NTMs scenario. These small estimates go together with the (likely conservative) estimates from the CGE model that suggests that welfare, measured as real income, increases only slightly under the simulated scenarios. However, the microsimulation results show that the positive welfare effects hold not only on average for all the population, but also for the segment of the population under the poverty line.

Furthermore, the agreement would have progressive distributional impacts for the urban poor in Argentina. Growth incidence curves (GIC) compared to the baseline scenario show a progressive

trend (a GIC with a negative slope), meaning that the poorest households located in the lower centiles of the income distribution would benefit more in terms of real income gains under the agreement than households in the higher centiles (Figure 2.25). The largest effect in play is the sectoral reallocation from the agreement, particularly amid the expansion of certain sectors such as food and beverages, light manufacturing, bovine meat, and vegetable oils.

2.3.2 Leveraging the potential of trade in services

Trade in services offers skilled employment and structural transformation opportunities. Traditionally associated with low-skilled jobs, the services sectors are in reality very heterogenous. The emergence of the digital economy is expanding access to markets and allowing an increasing number of sectors to become tradable (Nayyar, Hallward-Driemeier and Davies, 2021). Services are also often and increasingly embedded in manufacturing goods, meaning their total contribution to foreign trade is higher than what the direct contribution reveals. Knowledge-intensive services are increasingly dynamic sources of innovation, offering the potential for productivity gains and the creation of high-skilled jobs (Stehrer et al, 2012; Jensen, 2013; Sorbe, Gal, Millot, 2018).

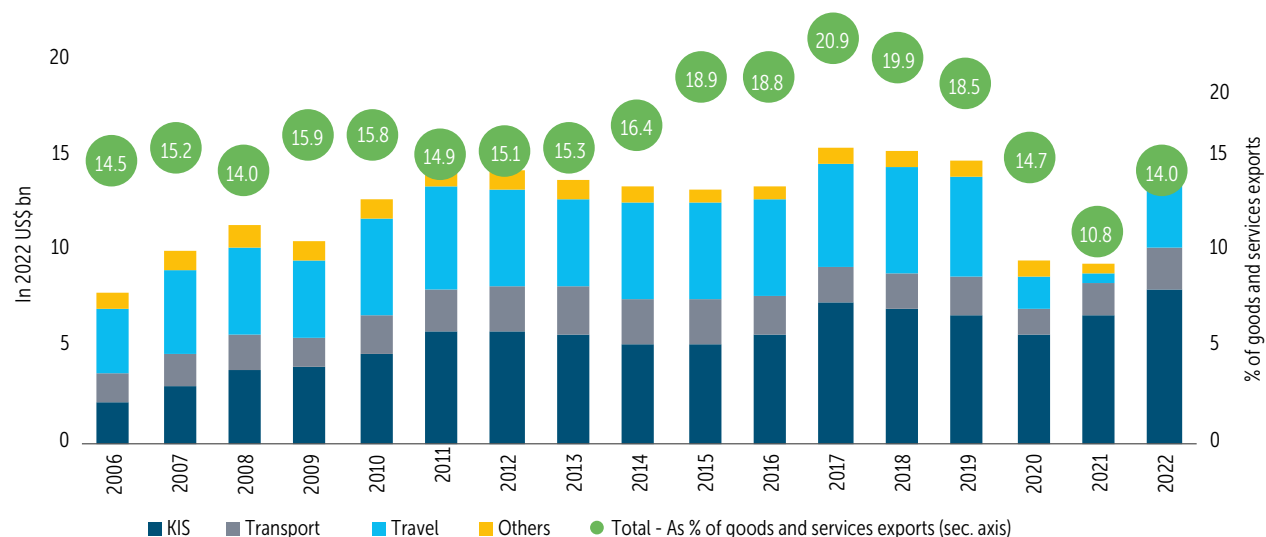
Services trade makes a considerable contribution to foreign exchange in Argentina. In 2022, according to INDEC data, trade in services amounted to nearly US\$ 35.7 billion, accounting for 17.8 percent of the country's total foreign trade in goods and services. Knowledge-intensive services make up the main component of services exports, accounting for 56 percent of the total in 2022. ⁴⁶ Business and personal travel expenses accounted for another 24 percent of services exports, while the remaining

⁴⁶ Knowledge-intensive services include legal, accounting, management consulting, and public relations services, research & development, advertising, marketing research and public opinion polling services, audiovisual and related services, architectural, engineering, scientific and other technical services, and others.

Figure 2.26

Service exports growth has stalled, but KIS is increasing its share

Services exports by sector, in 2022 US\$ and as a % of goods and services exports (2006-2022)



Source: INDEC. **Notes:** KIS= knowledge intensive services and includes legal, accounting, management consulting, and public relations services; research & development; advertising, marketing research, and public opinion polling services; audiovisual and related services; architectural, engineering, scientific, and other technical services, and others. "Others" includes construction; financial services; charges for the use of intellectual property not included elsewhere.; leasing; trade-related services; telecommunications services, and government goods and services not included elsewhere.

share was divided between transport and other services (15.5 and 5.1 percent, respectively). Exports of transport services consist primarily of services provided to foreign operators in ports, airports, and to foreign land transportation operators. In turn, the miscellaneous "others" category comprises diverse activities such as charges for the use of intellectual property (1.6 percent), financial services (1.5 percent), and telecommunications (0.7 percent).

Services exports grew over 2006-2011 in line with trade in goods, but has decelerated afterwards (Figure 2.26).⁴⁷ From 2006 to 2011, the average annual increase stood at 11 percent, in line with exports of goods (13.8 percent). Since then, services exports have remained relatively constant (from

2012 to 2019) and have even fallen slightly (with an average annual rate of growth of -1.2 percent). In 2020 they collapsed by 37 percent, hit by the COVID-19 pandemic. After showing a decline of 5 percent in 2021, they recovered vigorously in 2022 (42 percent), driven by the low base effect. Services exports in 2022 still stood 2.5 percent below pre-pandemic levels and 6.9 below the 2017 peak (of US\$ 15.5 billion).

Since 2012, service exports performance has been limited by the application of foreign exchange controls. This derived in the appearance of parallel markets with a higher price of the dollar than the official one, inducing some companies to seek to bill their services from other locations where they do not

⁴⁷ The analysis is from 2006, which is when the National Institute of Statistics and Censuses (INDEC) changed Argentina's balance of payments statistics methodology, adopting IMF Balance of Payments Manual number 6, meaning the new data is no longer comparable with previous data.

were exposed to foreign exchange loss (Lachman and López, 2022). The increase in local wages measured in dollars could also have had a negative impact, due to the appreciation exchange rate, especially during the 2012-2015 period.

Knowledge intensive services have nearly quadrupled, increasing their share in total services exports from 28 percent in 2006 to 56 percent in 2022 (Figure 2.27). KIS have emerged as one of the main sources of innovations and demand of qualified workers (Desmarchelier et al., 2013). Argentina became an attractive location for the provision of international services of large multinationals companies. In the same line, a handful of medium-sized and large local companies that successfully internationalized, in some cases reaching the category of “unicorns”. Argentina ranks 24th in the global ranking of computer exports (leading the Latin American ranking) and 34th in business services. It also stands out in the case of personal, cultural, and recreational services (including health, education, audiovisual, and others), being the first in Latin America and ranking 19th worldwide (López et al., 2014).

Human capital is a key driver of the KIS success story. A survey of large national and multinational companies finds that export growth of KIS services has been fostered by the availability of qualified human capital, language skills, cultural affinity with export markets (mainly the Americas, compared to competitors like India), and a common time zone (López and Ramos, 2013). Reducing macroeconomic imbalances, lifting foreign exchange controls and reducing the frequency of changes in the rules of the game would allow Argentina to benefit even more from the comparative advantage it enjoys in KIS.

Computer services are the largest component of KIS exports (Figure 2.28). These consist primarily of exports of software services, which have been fostered by the local availability of domestic

entrepreneurial capabilities and a favorable policy framework that includes tax incentives and initiatives to stimulate training of human resources (López and Ramos, 2018). Currently, Argentina’s international participation in exports of consumer services prominently consists of man hours for relatively undifferentiated or standardized programming, which add limited value compared to more complex programming developments and are highly sensitive to the exchange rate due to their dependence on costs. The other major components of knowledge-intensive services exports are legal, accounting, management consulting, and public relations services (30 percent); research and development (8 percent) – primarily clinical trials; advertising, market research, and public opinion polling services (5 percent); audiovisual and related services (4 percent); and architectural, engineering, scientific, and other technical services (3 percent).

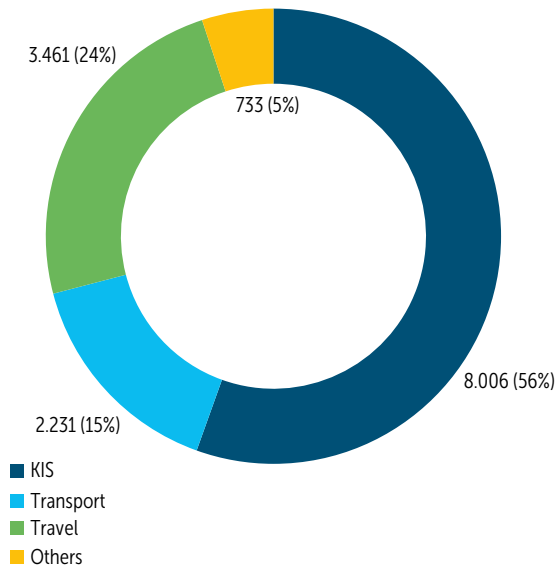
In value added terms, the share of domestic services in Argentina’s exports is higher than in other countries. According to the OECD TiVA database, domestic services accounted for 42.5 percent of total exports in value-added terms in 2018. This share is the highest of all Argentina’s regional and structural comparators (Figure 2.29). Services’ share in trade in value added terms has also increased over time: in 2008 services accounted for about one third of trade in value-added exports. For manufacturers, domestic services value added content was 21.9 percent of gross exports, with the highest shares in ICT and electronics (25.2 percent), food products (24 percent) and chemicals and pharmaceuticals (23.6 percent, Figure 2.30). In this sense, it is worth noticing that although most of the services are non-tradable, KIS represents a highly qualified and tradable segment.

Even though global services trade has more than tripled in the last two decades, barriers to trade in services are much higher than those for trade in manufactured goods. At the same time, there is a

Figure 2.27

KIS represents more than half of Argentina's service exports...

Service exports, in million US\$ and as a % of the total, 2022



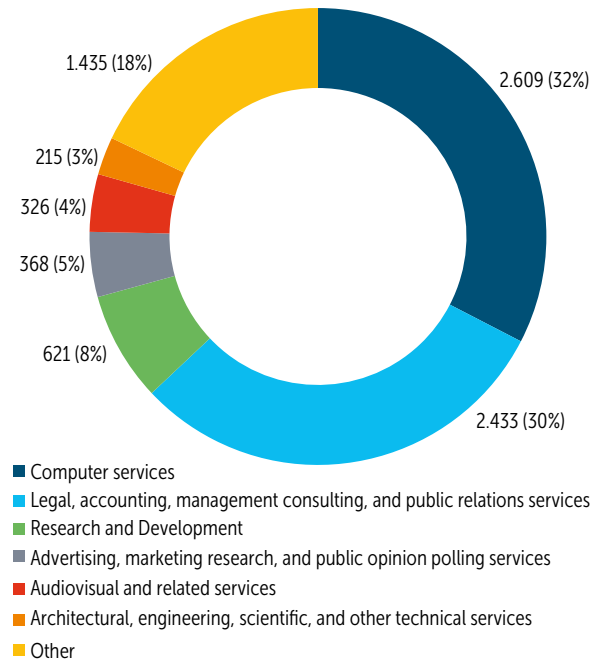
Source: INDEC.

growing recognition that the dismantling of barriers to trade in services offers opportunities to exploit untapped economic potential. According to Benz and Jaax (2020), policy-induced services trade costs are relatively high among OECD countries. Expressed as percentages of total trade value, average multilateral costs for cross-border services trade are around 57% for communication services and 54% for business services, 60% for transport services, 103% for insurance services, and around 255% for financial services. Additionally, the OECD Services Trade Restrictiveness Index (STRI) reveals that barriers to services trade are rising: in 2019, trade restrictions were 30 percent higher than in the previous year, while the pace of services trade liberalization slowed

Figure 2.28

...mainly led by computer services

KIS exports, in million US\$ and as a % of the total, 2022



Source: INDEC. Note: "Other" includes other business services; other cultural and recreational personal services; waste treatment and decontamination services; agricultural and mining services; and information services.

by 60 percent.⁴⁸ For Argentina, this calls for renewed efforts to include services trade issues in its trade negotiation agenda.

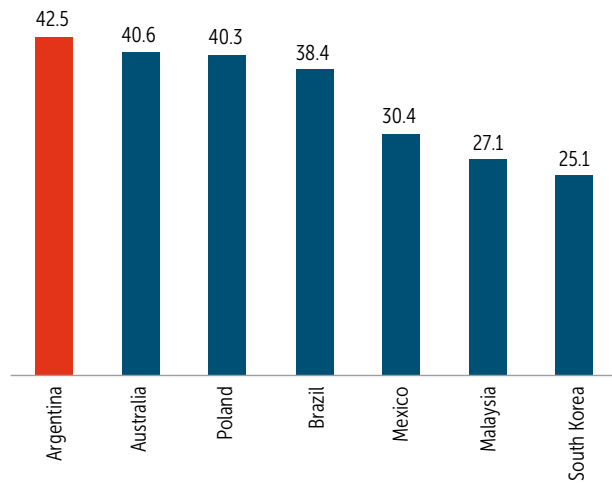
Looking forward, there is broad agreement that KIS offer an opportunity for Argentina's structural transformation toward more robust growth. Firstly, these activities can generate skilled jobs and foreign exchange from exports, while developing skills in various areas – from technological and organizational to commercial. In addition, productivity spillovers can emerge via mobility of human capital from these sectors to other industries. KIS can also help improve the competitiveness of other productive activities by providing services complexes and

48 OECD Service Trade Restrictiveness Index <https://stats.oecd.org/Index.aspx?DataSetCode=STRI>

Figure 2.29

Domestic services make up a higher share of exports than peers...

Domestic services value-added share of gross exports, in % (2018)



Source: OECD (TiVA database).

generating knowledge transfers. Furthermore, the country's stock of natural capital provides a basis for generating business agglomerations – clusters – of KIS providers associated with these activities, such as the biotech sector, in line with experiences such as those of Australia, Canada or Norway. Finally, older interconnections between the KIS and the other tradable activities (via productive linkages, joint technological developments, personnel mobility, etc.) will surely help promote productivity gains in the latter, and could thus also contribute to the objectives of productive transformation (López, 2017).

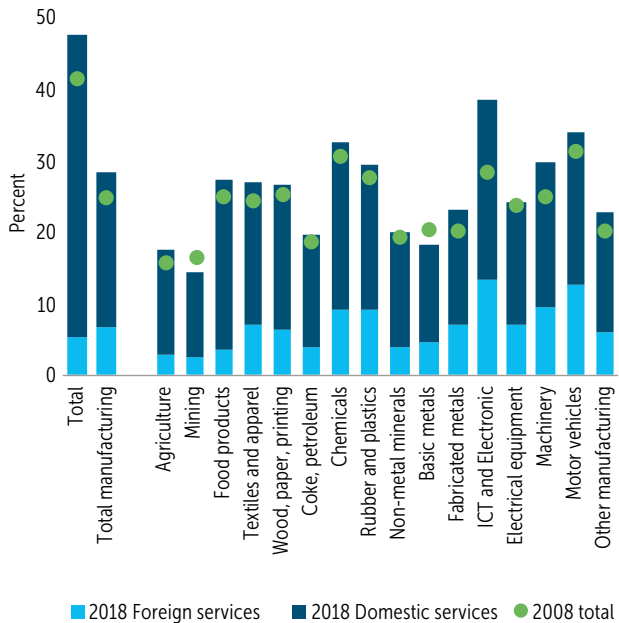
To seize these opportunities, Argentina needs to steadily reduce its macroeconomic imbalances.

In particular, foreign exchange market regulations represent the main obstacle to the growth of the sector (Lachman and López, 2022). Exchange

Figure 2.30

... and the share has increased

Services content as a % of gross exports by industry (2008 and 2018)



Source: OECD (TiVA database).

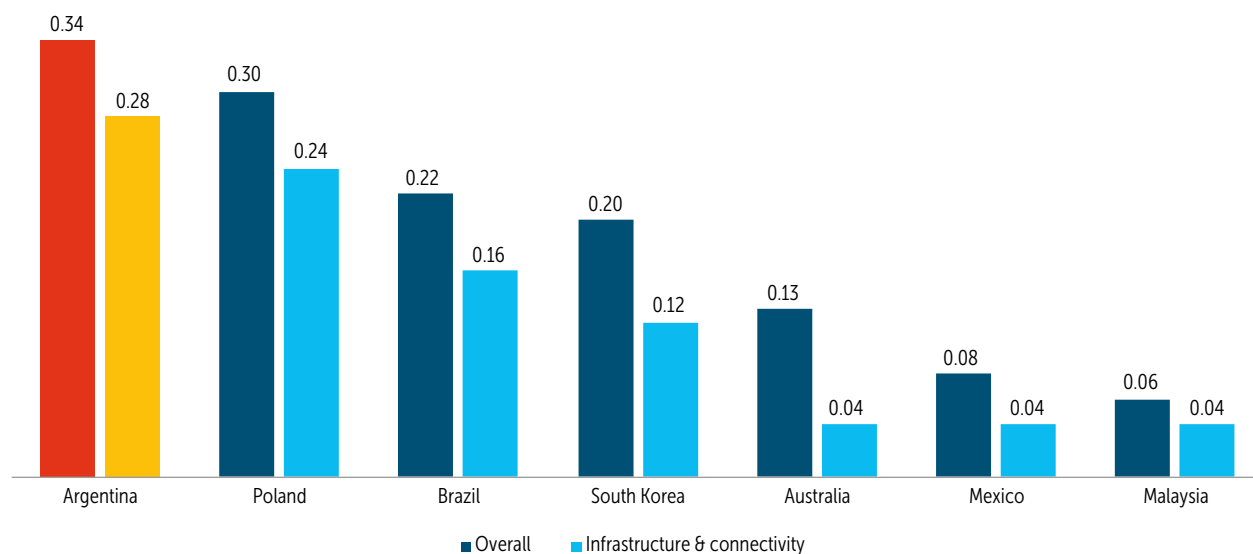
restrictions generate, among other consequences, an incentive for workers to work freelance (a pre-existing phenomenon that gained strong momentum worldwide since the COVID-19 pandemic), as this allows them to almost double labor compensation as they receive dollar payments at the parallel exchange rate. This situation leads to a growing “brain drain” which, unlike in the past, does not go through the physical emigration of workers, but does create distortions in the labor market. This is because companies installed in Argentina face increasing difficulties in hiring labor in the local market since they cannot compete with the dollarized salaries offered by the freelance market.

In the long term, the main challenge for Argentina is to upgrade its services exports towards more complex activities, since current international insertion relies on standardized services

Figure 2.31

Barriers to digital trade are high

Digital Services Trade Restrictive Index (STRI), 2022



Source: OECD Digital Services Trade Restrictiveness Index (DSTRI). **Note:** The index measures cross-cutting barriers that inhibit or completely prohibit firms' ability to supply services using electronic networks, regarding of the sector of where they operate. The index is a composite index that includes five measures: 1) infrastructure and connectivity, 2) electronic transactions, 3) e-payment systems, 4) intellectual property rights and 5) other barriers to trade in digitally enabled services. The index varies between 0 and 1, where 0 indicates an open regulatory environment for digitally enabled trade and 1 indicates a completely closed regime.⁴⁹

highly sensitive to costs. To that end, continued investment in human capital and highly skilled workers is indispensable. Sectoral level analysis in this Country Economic Memorandum on the biotechnology and the car sectors (Chapter 4) also highlights the strategic relevance of expanding human capital and upgrading skills so that Argentina boosts exports in these sectors. In particular, the car sector is experiencing a process of technological transformation towards increasing digitalization while adapting to a less carbon intensive economy. Human capital is a key determinant for the sector to successfully navigate these challenges. Raising skills to maintain current comparative advantages and expand into more complex and higher value-added activities is also a priority objective for external competitiveness. Chapter 3 of this Country Economic Memorandum focus on human capital

and makes recommendations for how to strengthen public policies to raise skills and increase their use in labor markets.

Easing restrictions on trade in digital services and integrating services in trade negotiations would also benefit trade in services.

Argentina imposes more restrictions on digital services trade than both its aspirational and regional peers, according to the digital services trade restrictiveness index (DGSTRI) developed by the OECD (Figure 2.31). Most restrictions on digital services trade are related to infrastructure and electronic transactions. In fact, in terms of infrastructure and connectivity restrictions, Argentina is the eighth most restrictive country among all 82 countries included in the DGSTRI in 2022. Beyond investments to improve digital infrastructure, Argentina should step up

⁴⁹ See Ferencz, J. (2019).

efforts to reduce regulatory barriers in digital services trade. It has several restrictions on foreign entry, competition, and regulatory transparency. For instance, the cross-border supply of services, including computer services, requires a local presence; most board directors in Argentinean entities must have their residence in Argentina, and firms can only sell computer engineering services from Buenos Aires if they are part of the Buenos Aires Engineers professional association (Loria Obando, Mulder & Ferencz, 2022).

2.4. Policy recommendations

Argentina has significant untapped potential for integration into the world economy, but good macroeconomic fundamentals should underpin any reform to open the economy. While economic fundamentals such as geography, institutions, market size, and factor endowments are all important determinants of trade performance, national policies also matter for preparing the local sector to compete and benefit from trade integration. Addressing lingering macroeconomic imbalances is a necessary condition to enact policies that support a gradual reinsertion of Argentina to the global economy. As many existing market distortions are the result of fiscal (export taxes) and international reserves (import licenses) considerations, returning to a macroeconomic sustainable path is paramount for trade reforms. A predictable, stable, and credible exchange rate policy along with a return to fiscal sustainability should underpin any policy reform aimed at reconnecting Argentina to the global economy.

The following policy recommendations would support Argentina reintegration to the global economy:

Recommendation 1: Enhance the provision of public goods to help local firms become more competitive

Improving public policies to prepare the private sector to compete and benefit from the opportunities of a greater trade openness is fundamental to the success of the opening process. Public policies could be enacted to support Argentinean firms at three levels. First, on solving informational asymmetries regarding export and investment opportunities in international markets. Second, by easing access to finance to the private sector, which is a binding constraint to improve their competitiveness. Third, by implementing targeted programs to improve the productivity of firms with potential to compete in international markets. Such programs could include interventions to support innovation at the firm, improve firms' capabilities, development supplier development programs, among others.

Recommendation 2: Reduce trade costs both for exporters and importers

Reforming barriers to trade to expand input sources, GVC integration, and integration into global markets can be pursued both unilaterally and via trade agreements, including jointly with other MERCOSUR parties. This involves immediate and sustained actions to reduce the CET, rationalize the use of non-automatic import licenses, streamline other non-tariff measures hindering trade, reduce export restraints, and expand the country's participation in deep FTAs with principal partners.

Recommendation 3: Improve trade facilitation to reduce time and costs of cross-border trade

Measures to reduce procedural obstacles to trade include accelerating trade facilitating initiatives in which Argentina is lagging behind regional peers. For example, although Argentina has initiated a national single trade window (VUCE), a customs processing program for accredited traders (Authorized Economic Operators), and simplified

export regime for SMEs (Exporta Simple), their implementation and utilization remain limited in practice.

Lack of investment in infrastructure has harmed Argentina's logistic competitiveness. Priority actions include improving waterway transportation

in the Plata and lower Parana (including increased vessel draft and new anchorage area), implementing open access for railways, developing intermodal connectivity with railway access, and expanding the digital network infrastructure along important trade corridors and rural areas, particularly outside the Pampas region.

Tabla 2.3
Policy recommendations

1. Enhance the provision of public goods to help local firms become more competitive
<ul style="list-style-type: none">➤ Make export promotion activities, including market intelligence, more visible to the private sector➤ Evaluate the impact of ongoing export promotion efforts and relate them to the survival of firms in export markets to prioritize actions and selection criteria➤ Expand skills, including digital, to harness services trade➤ Facilitate access to credit➤ Strengthen the national productive development plan➤ Strengthen the investment promotion agency
2. Reduce trade costs
<ul style="list-style-type: none">➤ Implement the revision of the MERCOSUR Common External Tariff (2022)➤ Expand the scope of products subject to a 10 percent cut for Argentina;➤ Reduce tariffs through Mercosur flexibilities for ICT and capital goods➤ Further reduce the CET in coordination with rest of Mercosur to levels more in line with regional averages➤ Eliminate the minimum tariff lines subject to non-automatic licenses (currently over 25 percent of imports)➤ Evaluate regulations that can affect trade, including registration, authorization, and technical requirements, to streamline possible trade-distorting measures➤ Continue to streamline regulations and administrative barriers to trade as part of the trade facilitation agenda in Argentina (single window) and the efforts to harmonize technical barriers within Mercosur➤ Ratify and enter into force the FTAs with the EU and EFTA➤ Conclude deep FTAs with other trading partners (Korea, Canada, and Singapore)➤ As macro imbalances are brought down, progressively reduce export taxes to boost export competitiveness

Tabla 2.3

Policy recommendations (cont.)

3. Improve trade facilitation

- Enhance the number of accredited AEO
- Accelerate the implementation of VUCE and Exporta Simple
- Implement in practice regimes for temporary entry (ATA Carnet, TRI)
- Mobilize high-level political support for the NTFC and advance on its work plan
- Expand digital networks along corridor and rural areas
- Prioritize the implementation of the open access mechanism for railways
- Improve infrastructure and operating conditions in the Plata and lower Parana waterways
- Develop a vision for container ports in Buenos Aires beyond "Puerto Nuevo terminal" to deal with projected capacity bottlenecks
- Develop intermodal facilities with railway access

Source: World Bank.

References

- Arvis, Jean-François, Lauri Ojala, Christina Wiederer, Ben Shepherd, Anasuya Raj, Karlygash Dairabayeva and Tuomas Kiiski. 2018. *Connecting to Compete 2018: Trade Logistics in the Global Economy*. World Bank Group, Washington, DC.
- Beccaria, Luis, and Roxana Maurizio. 2018. "Labor turnover in Latin America: How intensive is it and how different does it behave across countries?" *International Labour Review* 159(2).
- Beng, Sebastian and Alexander Jaax. 2020. "The costs of regulatory barriers to trade in services: New estimates of ad valorem tariff equivalents", *OECD Trade Policy Papers*, No. 238, OECD Publishing, Paris.
- Bernini, Federico, Julia González, Juan Carlos Hallak and Alejandro Vicondoa. 2018. "The Micro-D classification: a new approach to identifying differentiated exports". *Economía*, 18(2), 59-85.
- Bourguignon, François, and Maurizio Bussolo. 2013. "Income distribution in computable general equilibrium modeling." In: Peter B. Dixon and Dale Jorgenson (eds) *Handbook of Computable General Equilibrium Modeling*, 1:1383-1437. Elsevier.
- Bussolo, Maurizio, Rafael E de Hoyos, and Denis Medvedev. 2010. "Economic growth and income distribution: linking macro-economic models with household survey data at the global level." *International Journal of Microsimulation* 3 (1): 92-103.
- Cadot, Olivier, Michael J. Ferrantino, Julien Gourdon, and José-Daniel Reyes. *Reforming non-tariff measures: from evidence to policy advice*. World Bank Publications, 2018.
- Carrico, Caitlyn, Siemen van Berkum, Andrzej Tabeau, Jakob Jager and Nora Plaisier. 2020. *Impacts of the EU-Mercosur trade agreement on the Dutch economy*. Wageningen Economic Research, Report 2020-065. Wageningen University and Research.
- Deaton, Angus, and Olivier Dupriez. 2011. "Purchasing power parity exchange rates for the global poor." *American Economic Journal: Applied Economics* 3 (2): 137-66.
- Desmarchelier, Benoît, Faridah Djellal and Faïz Gallouj. 2013. "Knowledge intensive business services and long term growth", *Structural Change and Economic Dynamics*, 25: 188-205.
- Disdier, Anne Célia, Charlotte Emlinger and Jean Fouré. 2016. "Interdependencies between Atlantic and Pacific agreements: Evidence from agri-food sectors". *Economic Modelling*, 55: 241-253.
- Ferencz, Janos. 2019. "The OECD Digital Services Trade Restrictiveness Index", *OECD Trade Policy Papers*, No. 221, OECD Publishing, Paris.
- González, Anabel. 2021. "Can customs union members negotiate bilateral free trade agreements? Yes, with caution." Blog, 15 April 2021. Peterson Institute for International Economics.
- Hallak, Juan Carlos and Sonia Araujo. 2021. "A bird's eye view of Argentina's recent export performance". CEM Technical Background Document. Unpublished
- Hofmann, Claudia, Alberto Osnago and Michele Ruta. 2017. "Horizontal depth: a new database on the content of preferential trade agreements". *Policy Research working paper* WPS 7981. Washington, D.C.: World Bank Group.
- IMF (2022). *Argentina Public Investment Management Assessment (PIMA)*. International Monetary Fund. Unpublished.
- Jensen, J. Bradford. 2013. "Overlooked opportunity: tradable business services, developing Asia, and growth". *ADB Economics Working Paper* No. 326. Asian Development Bank.
- Laborde, David, Carmen Estrades, and Antoine Bouët. 2013. "A global assessment of the economic effects of export taxes." *The World Economy* 36(1): 1333-1354.
- Lachman, Jeremías and Andrés López. 2022. *Los servicios basados en conocimiento en Argentina: Tendencias, oportunidades y desafíos*. Ministerio de Desarrollo Productivo de Argentina.
- Lee, Woori, Nadia Patriçia Rocha Gafurri and Michele Ruta. 2021. "Trade facilitation provisions in preferential trade agreements: impact on Peru's exporters". *Policy Research Working Paper* No. 9674. Washington, DC: World Bank Group.
- Licetti, Martha, Mariana Loopty, Tanja Goodwin, and José Signoret. 2018. *Strengthening Argentina's Integration into the Global Economy: Policy Proposals for Trade, Investment, and Competition*. Washington, DC: World Bank Group.

- López, Andrés. 2017. "Los servicios basados en el conocimiento: ¿una oportunidad para la transformación productiva de Argentina?". *Documento de Trabajo N3*. Ministerio de Producción de la Nación.
- López, Andrés and Adrián Ramos. 2018. *El sector de software y servicios informáticos en la Argentina. Evolución, competitividad y políticas públicas*. Fundación CECE.
- López, Andrés. Los servicios basados en conocimiento: ¿Una oportunidad para la transformación productiva en Argentina?. No. 2018-31. Universidad de Buenos Aires, Facultad de Ciencias Económicas, Instituto Interdisciplinario de Economía Política (IIEP-BAIRES), 2018.
- Loria Obando, Sofía, Nanno Mulder and Janos Ferencz. 2022. "The Latin American regulatory environment for digital trade", Project documents (LC.TS.2022/176), Economic Commission for Latin America and the Caribbean (ECLAC), Santiago de Chile.
- Maliszewska, Maryla, Israel Osorio-Rodarte, and Rakesh Gupta. 2020. "Ex ante evaluation of sub national labor market impacts of trade reforms." Policy Research Working Paper No. 9478. Washington D.C: The World Bank Group.
- Mensbrugge, Dominique van der. 2020. "The Environmental Impact and Sustainability Applied General Equilibrium (ENVISAGE) Model, Version 10.1." TP/19/01. GTAP Technical Paper. Global Trade Analysis Project.
- Nayyar, Gaurav, Mary Hallward-Driemeier, and Elwyn Davies. 2021. *At Your Service? The Promise of Services-Led Development*. Washington DC: World Bank Group.
- Park, Hyunju, Roberto Urmeneta and Nanno Mulder. 2019. "El desempeño de empresas exportadoras según su tamaño: una guía de indicadores y resultados". CEPAL, Documentos de Proyectos 44664.
- Pavcnik, Nina. 2002. "Trade liberalization, exit, and productivity improvement: evidence from Chilean plants." *Review of Economic Studies* 69: 245–76.
- Sorbe, Stéphane, Peter Gal and Valentine Millot. 2018. "Can productivity still grow in service-based economies?: Literature overview and preliminary evidence from OECD countries," *OECD Economics Department Working Papers* 1531, OECD Publishing.
- Stehrer, Robert, Sabine Biege, Martin Borowiecki, Bernhard Dachs, Joseph Francois, Doris Hangl-Weiss Johan Hauknes, Angela Jäger, Mark Knell and Gunter Lay. 2012. *Convergence of Knowledge-intensive Sectors and the EU's External Competitiveness*. wiiw Research Reports No. 377. Vienna: The Vienna Institute for International Economic Studies.
- UN DESA. 2019. *World Population Prospects 2019*. Department of Economic and Social Affairs, United Nations, New York.
- Veiga, Lorena and Joaquín González. 2021. *Estudio de factibilidad y brecha para promover la interoperabilidad de las Ventanillas Únicas de Comercio Exterior de los países del MERCOSUR y Alianza Pacífico*. Inter-American Development Bank.
- Volpe Martincus, Christian. 2016. *Out of the Border Labyrinth: An assessment of trade facilitation initiatives in Latin America and the Caribbean*. Washington, DC: Inter-American Development Bank.
- Walmsley, Terrie and Anna Strutt. 2021. "A comparison of approaches to modelling non-tariff measures". *Journal of Global Economic Analysis*, 6(1), pp.1-33.
- World Bank Group (2021). *Argentina Public Expenditure Review III*. (unpublished). Washington DC: World Bank Group.
- WTO, ITC, and UNCTAD. 2021. *World Tariff Profiles 2021*. Geneva: World Trade Organization.

Annex 2A. CGE modeling framework

FTA simulations

The effects of the EU-Mercosur Free Trade Agreement (FTA) are evaluated in a set of incremental policy scenarios. The net effect of each policy scenario is compared against a baseline scenario that projects a continuation of current trends. Four scenarios are considered:

NTM ad valorem equivalents are taken from Licetti et al. (2018), which estimates tariff equivalents for different regions and sectors (including goods and services) for modeling of FTAs involving Argentina and Mercosur, including a preliminary assessment of a potential EU-Mercosur FTA.

The empirical literature on FTAs has typically used NTM cuts in the range of 5 to 30 percent, recognizing that not all NTMs are actionable. However, there is some variation in the assumptions made about how much various FTAs would reduce

the trade restrictiveness of NTMs. Carrico et al. (2020) recommend following Disdier et al. (2016) and using 10 percent. The current analysis assumes that EU countries reduce their NTM barriers by 10 percent, while Mercosur countries, which would have to implement larger changes in face of their deepest agreement to date, would reduce theirs by 20 percent. Following Walmsley and Strutt (2021), NTM reductions are allocated between a reduction of “iceberg” trade costs (that result in pure deadweight losses) and of an NTM tariff equivalent (which hinder trade while generating rents). The NTM liberalization is split 50-50 between these two modalities.

Model structures

Production in the model is implemented as a series of nested constant-elasticity-of-substitution (CES) functions to capture the substitutability and complementarity across all inputs. Crops and livestock have a different production structure to the

Table 2.A.1
Description of policy scenarios

Scenario	Description
(S.0) Baseline	Contemplates a continuation of stable economic conditions, considering existing trade agreements but no implementation of EU-Mercosur. It incorporates ad-valorem equivalent of NTMs.
(S.1) Tariffs	On top of Baseline scenario, it incorporates the tariff schedule of the EU-Mercosur agreement
(S.2) Tariffs + NTMs	On top of Tariffs scenario, it reduces ad-valorem equivalent values for NTMs. It assumes that EU reduces their NTMs (on imports from Mercosur) by 10 percent, while Mercosur countries reduce theirs by 20 percent (on imports from either the EU or other Mercosur countries).
(S.3) Tariffs + NTMS + Export Taxes	On top of NTMs scenario, Argentina reduces its export taxes, which are predominantly in the soybean complex, by 30 percent.
(S.4) Tariffs + NTMS + Export Taxes All	On top of NTMs scenario, Argentina eliminates all exports taxes. In addition, a 2 percent increase in TFP for output generated with new capital in light manufacturing and motor vehicles and parts

Source: World Bank.

rest of the production goods. The model incorporates five types of production factors: labor (differentiated by skill and by gender); capital; land; a sector specific natural resource (such as fossil fuel energy reserves); and water.

Domestic production is allocated to the domestic market or exported, following a constant elasticity of transformation (CET) function. There are three domestic final demand agents: households (h), a government sector (gov) and an aggregate investment sector (inv). Income comes from payments to factors of production and is allocated to households (after taxes). The government sector accrues all net tax payments and purchases goods and services. Investment income is equated to the sum of domestic and foreign savings. A portion of capital income flows to a 'global' holder of equity that then portions out profits from the global fund. Remittances are also incorporated and are fully bilateral.

The model incorporates multiple utility functions for determining household demand. In this specification, a constant difference of elasticities (CDE) utility function is assumed. This function allows for more flexibility in terms of substitution effects across goods and for non-homotheticity.

The capital market assumes vintage capital. New capital is allocated across sectors to equalize rates of returns. Installed capital is imperfectly mobile across sectors. If all sectors are expanding, old (installed) capital is assumed to receive the economy-wide rate of return. In contracting sectors, old capital is sold on secondary markets using an upward sloping supply curve. This implies that capital is only partially mobile across sectors. Land and water are allocated across activities using a nested CET specification. Natural resources are supplied to each sector using an iso-elastic supply function with the possibility of differentiated elasticities depending on market conditions.

Trade is modeled using the so-called Armington specification that assumes that demand for goods is differentiated by region of origin. The model allows for domestic/import sourcing at the aggregate level (after aggregating domestic absorption across all agents), as well as at the agent level. Thus, a second Armington nest allocates aggregate import demand across all exporting regions using a representative agent specification. Exports are modeled in an analogous fashion using a nested constant-elasticity of-transformation (CET) specification. The domestic supply of each commodity is supplied to the domestic market and to an aggregate export bundle using a top-level CET function. The latter is allocated across regions of destination using a second-level CET function.

Microsimulations

The Argentina Income Distribution Dynamics model (ARG-IDD) is a single-country version of the World Bank Global Income Distribution Dynamics (GIDD) model. ARG-IDD is implemented as a top-down macro-microsimulation framework (Bourguignon and Bussolo 2013; Bussolo, de Hoyos, and Medvedev 2010; Maliszewska, Osorio-Rodarte, and Gupta 2020). On top of this, the recursive dynamic Environmental Impact and Sustainability Applied General Equilibrium (ENVISAGE) model (van der Mensbrugge 2020) provides a set of linkage aggregate variables that are used for the estimation of distributional analysis – namely changes in the structure of population, labor, wages, and consumption prices. Based on changes observed in the macroeconomic model, a microsimulation operates on Argentina's 2020 Permanent Household Survey (EPH, Encuesta Permanente de Hogares).

The ARG-IDD is a dynamic multi-sector macro-micro model. With respect to the workhorse GIDD model, the ARG-IDD incorporates a multi-sectoral reallocation of labor. With respect to sectoral split, in both the CGE and EPH household survey, the linkage

aggregate variable on volume of workers (paid employment in the working age population) was divided into 4 sectors: i) agriculture, ii) manufacturing, iii) public services and public sector, and iv) rest of services. A worker's skilled level is based on years of schooling, with a threshold of 10 or more years of schooling for skilled workers. In this setting, the microeconomic wages are differentiated for skilled and unskilled workers. One important aspect related to population growth is that the CGE model (above) follows national UN population projections. To maintain consistency between the CGE and the micro model, we assume that during the simulation period, the urban and rural population in Argentina would grow at the same rate as the national population. This would allow us to transmit the national shocks into the urban EPH. This assumption implies that the share of urban population in Argentina remains at 63% over the entire period. The results shown in this paper are representative for the urban population in Argentina.

The first step in the microsimulation exercise is to implement a set of changes in the household surveys' demographic structure. The population growth adjustment is particularly important in countries with rapid demographic changes. In practical terms, the adjustment for population growth allows the analysis to explicitly consider the changes in the size of the working-age population. We perform population and education projections during the first stage of the microsimulation model and in creating the baseline scenario for the CGE model. For each country, we construct the demographic profile in two steps. First, the age and gender composition are exogenously determined following medium variant estimates from the World Population Prospects (UN DESA 2019). In the second step, following (Bourguignon and Bussolo 2013), country-specific educational profiles are constructed using initial educational achievement levels observed in the household surveys with some conservative yet simple assumptions about educational progress. For

the case of Argentina, it is assumed that the share of urban population stays fixed.

The microsimulations' second step adjusts individual factor returns by skill and sector in accordance with the results of the CGE model. The ARG-GIDD imposes an entirely new vector of earnings on each worker, conditional on each worker's individual characteristics. Macro and micro models are linked with four sectors (agriculture, manufacturing, public, and other services) and two types of workers (skilled and unskilled). By type of worker, the ARG-IDD reallocates workers moving them out of shrinking into expanding sectors. The sectoral reallocation process can either estimate the probability of each worker to be reallocated into new sectors, based on individual characteristics, or they can be chosen randomly. Once workers are reallocated, a new vector of earnings is generated using estimates from a set of Mincer equations. To account for unobserved characteristics, each individual residual is brought into the new sectors and scaled accordingly.

The third step adjusts average wages between groups of workers and sectors. While the second step operates at the individual level, the third step operates at the group level scaling the average wages for each type of worker and sector. In practical terms, one group is selected as numeraire, i.e. unskilled agricultural, and average wages for each group are scaled relative to the numeraire. Within a group, all earnings are scaled with respect to the numeraire group. Operating through changes in relative wages guarantees internal consistency between macro and micro results. It is important to highlight that until this point the microsimulation has operated only in relative terms.

Lastly, GIDD adjusts the average income/consumption per capita to guarantee that it changes exactly in line with the CGE results. After creating new earnings for workers, a vector of per capita household income is constructed considering new

earnings and household size when information about the relationship between incomes and savings exists. If not, a one-to-one passthrough from per capita household income to consumption is assumed. In this regard, ARG-IDD constructs a household-specific deflator to adjust for changes in relative prices. The price deflator is constructed using initial and final price indexes of food versus non-food expenditure from the macro model and household-specific budget consumption shares for food and non-food expenditure observed in the micro data. Individual food shares were estimated following a global Lorenz's curve using standardized household surveys present in Deaton and Dupriez (2011).

CHAPTER

3

Upgrading and Using Human Capital for Inclusive Growth

3.1. The labor market is characterized by increasing levels of precariousness, low productivity, and modest skill levels

Argentina's labor productivity stagnated for the past 20 years. This weak performance reflects the limited productivity growth of relatively high-performing sectors, while the sectors with the lowest labor productivity – services, commerce, and construction – have experienced larger employment gains (Figure 3.1 and Figure 3.2). Decompositions of per capita income growth in Argentina for the period 2006 to 2019 show negative within-sector labor productivity growth in contrast to benchmark countries where within-sector labor productivity growth has been the largest contributor to growth (Figure 3.3). The lackluster performance of labor productivity in services is particularly worrisome given that this sector has steadily increased its employment share, representing nearly 80 percent of total employment in 2021, a trend that is expected to persist in the future (Beylis et al., 2020).

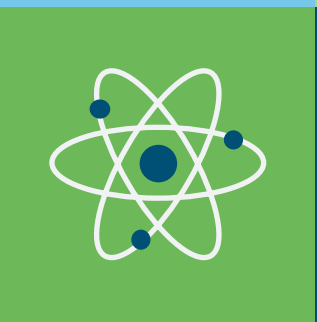
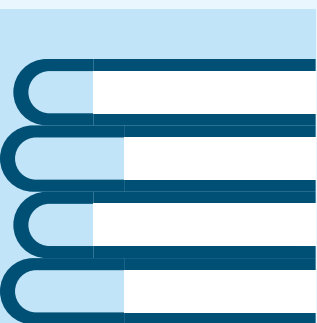
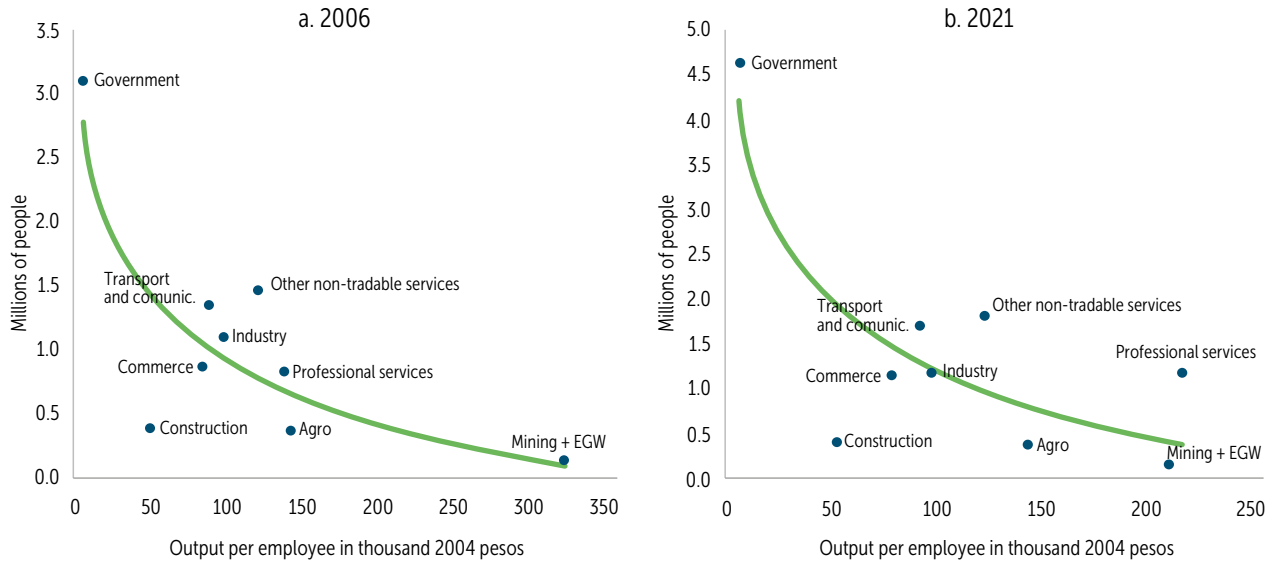


Figure 3.1

Labor productivity in Argentina has remained stagnant

Employment and value added per worker, by sector (2006 and 2021)

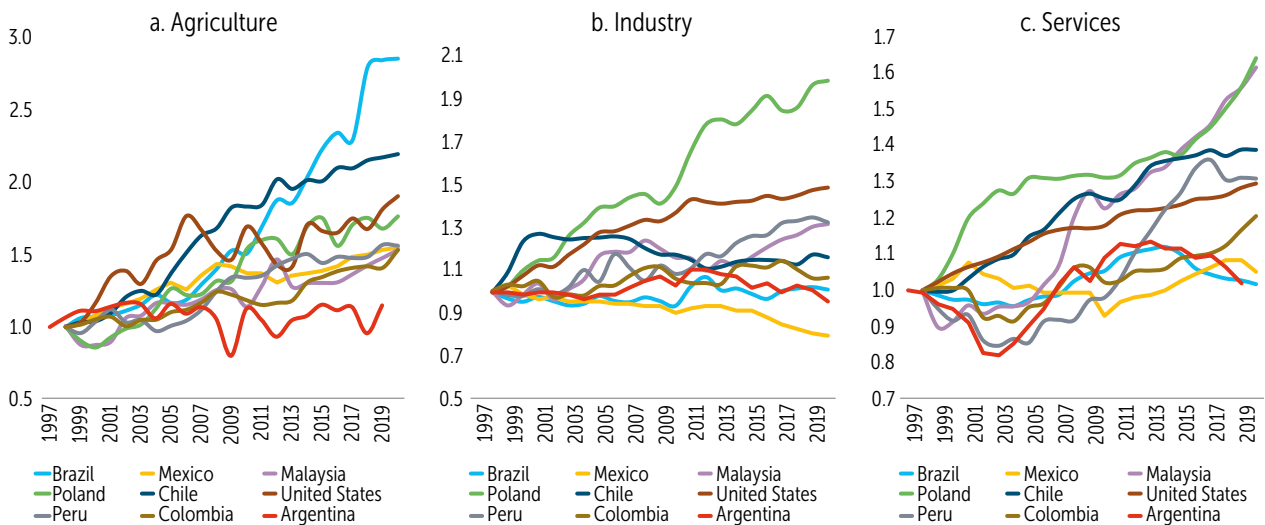


Source: World Bank based on INDEC and Ministry of Labor Ministry of Labor, Employment, and Social Security. **Note:** Private employment is estimated by combining formal private sector employment (data from Ministry of Labor, Employment, and Social Security) with the informality rate (from the permanent household survey – EPH). Public sector employment was taken directly from the EPH. Value added is measured as output per employee. EGW: Electricity, gas & water. Other non-tradable services: real estate, financial intermediation, education, social and health services. Other: community, social and personal service activities. A methodological break in INDEC employment series does not allow for comparisons with earlier dates.

Figure 3.2

Sectoral productivity growth is trailing peers

Labor productivity in Argentina and comparator countries by sector (1997-2019)
Annual percent change in output per worker, 1997=1

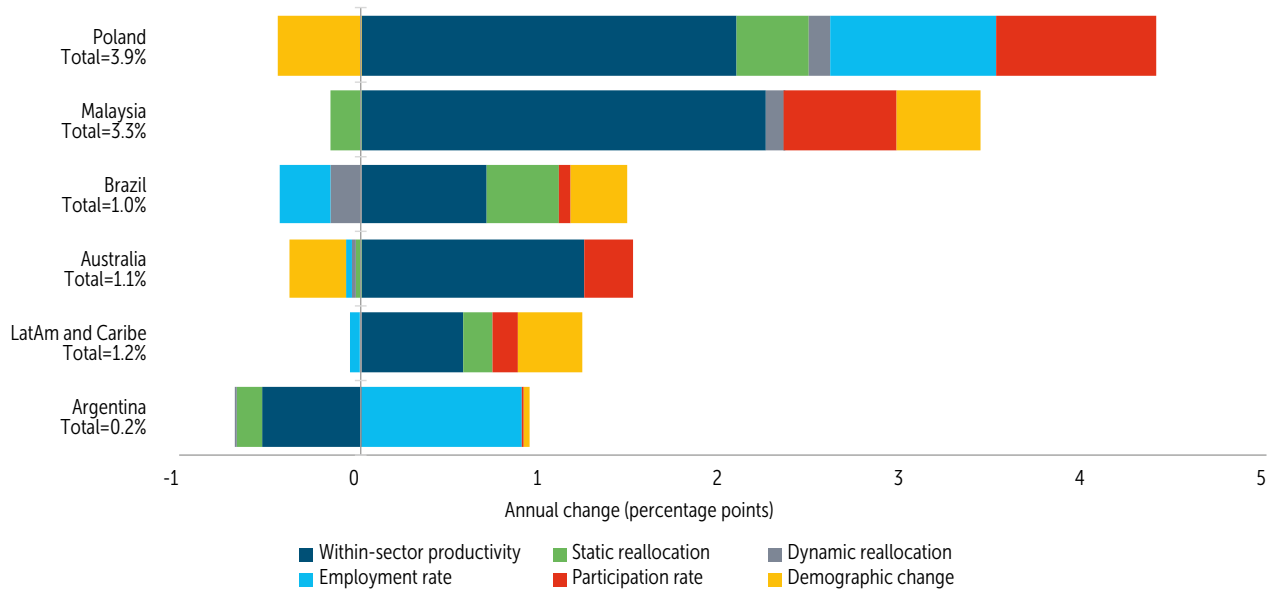


Source: WDI and EPH for Argentina. **Note:** Employment refers to total (both formal and informal) employment.

Figure 3.3

Within-sector reallocation has contributed negatively to growth

Decomposition of growth in per capita value added in Argentina and comparator countries, annual percentage point change (2006 to 2019)



Source: World Bank Job Structure Tool. Note: A methodological break in the INDEC employment series prevents comparison with earlier dates.

Argentina's labor market stagnated in the late 2000s and has deteriorated since 2016.

As the economy recovered from the 2001 economic crisis in the first half of the 2000s, the employment rate increased while unemployment and underemployment fell (Figure 3.4 and Figure 3.5). However, this progress stalled in the late 2000s before deteriorating from the mid-2010s as economic growth weakened (Moreno and Arakaki, 2020; World Bank, 2021a).

COVID-19 had a significant impact on Argentina's labor market, though many of the impacts have dissipated.

Unemployment increased slightly from 10 percent in 2019 to 11 percent in 2020 – reaching a high of 13 percent in the second quarter – but returned to pre-pandemic levels in 2021. Labor force participation deteriorated substantially, falling from 47 percent in 2019 to 43 percent in 2020 before

recovering to 46 percent in 2021. Young people were particularly badly affected. The unemployment rate of people between the ages of 15 and 24 spiked by 4 percentage points between 2019 and 2020, compared to an increase of only 1 percentage point for 25-to-59-year-olds. Still, unemployment among young people returned to pre-pandemic levels in 2021.

Informality is high, particularly among the poor.

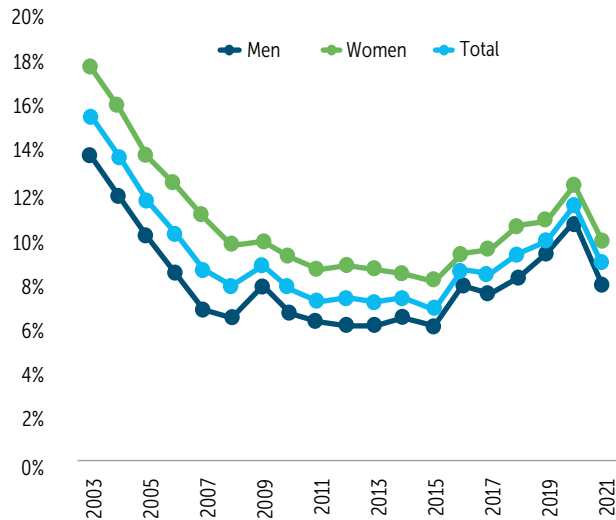
Sustained economic growth during the 2000s made formalization more attractive by favoring long-term contracts and by reducing the probability of layoffs (and so making the higher costs of firing associated with formality less likely) (Maurizio, 2014). As economic growth waned in the 2010s, the decline in informality also waned. Informal employment currently makes up around a third of salaried work (Figure 3.6).⁵⁰ This is much higher than in Brazil,

50 Informal workers are salaried workers who do not make contributions to social security.

Figure 3.4

Labor market improvements have stalled since 2010, reflected in unemployment rates...

Unemployment rate in Argentina, as % of labor force, 2003-2021



Source: INDEC via MTEySS.

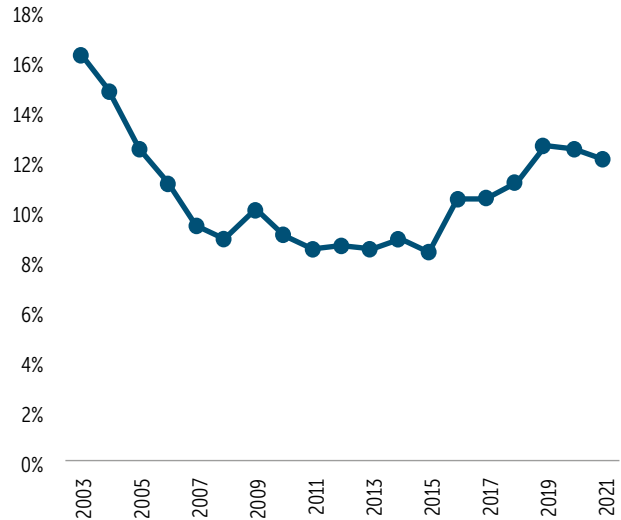
Chile, Australia, and Uruguay (Figure 3.7). Informality rates are particularly high in domestic services (75 percent) and construction (73 percent), with a high incidence among low educated workers and the poor.

The growth of own-account workers in recent years could be an indication of growing labor market precariousness. The share of non-salaried own-account workers grew from 19 percent of the workforce in 2015 to 23 percent in 2021. At the same time, the share of salaried workers declined from 77 percent of employment to 72 percent. Whether this represents a further deterioration in the quality of jobs (with own-account workers replacing the role of informality, which has remained constant in recent years), or is evidence of a shift in the organization of work – is not yet clear (Moreno and Arakaki, 2020; World Bank, 2021a).

Figure 3.5

...and underemployment rates

Underemployment rate in Argentina, as % of employment, 2003-2021



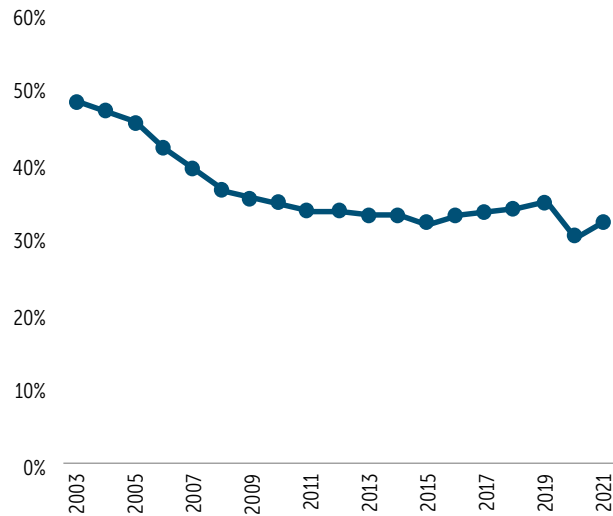
Source: INDEC via MTEySS. **Note:** Underemployed workers work less than 35 hours a week and are willing to work more.

Public employment has become increasingly important in the last decade as private job creation has stagnated. Private sector job growth was strong during the commodity boom in the 2000s, but slowed during the 2010s due to macroeconomic distortions, a distortive tax system, underinvestment in infrastructure, and credit constraints, among other factors (World Bank, 2022; World Bank, 2018). Instead, employment growth has been concentrated in the public sector. Between 2012 and 2019, the public sector was responsible for 95 percent of the 591,000 salaried jobs created (Figure 3.8). This role became stronger during the COVID-19 pandemic, when public employment increased even as private hiring declined. Public sector jobs represented 17 percent of jobs in Argentina in 2019, higher than in all comparator countries except for Australia, the Slovak Republic, and Poland (Figure 3.9).

Figure 3.6

Informality has stopped declining...

Informality rate in Argentina, as % of salaried employment, 2003-2021

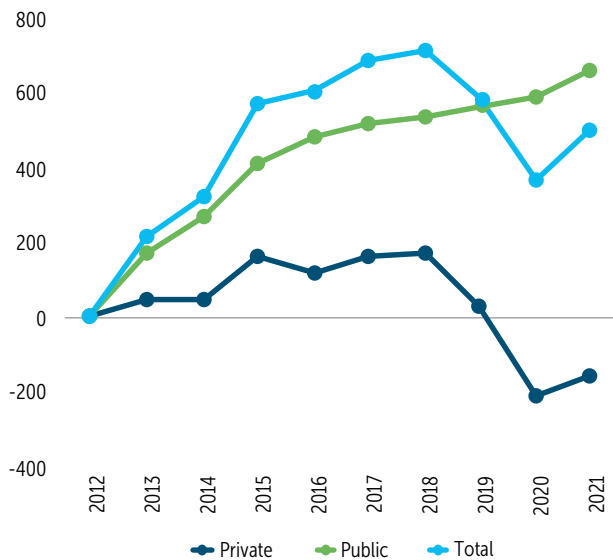


Source: INDEC via MTEySS.

Figure 3.8

Employment growth has been concentrated in the public sector...

Private and public salaried employment in Argentina 2012-2021, in thousands (2012=1)

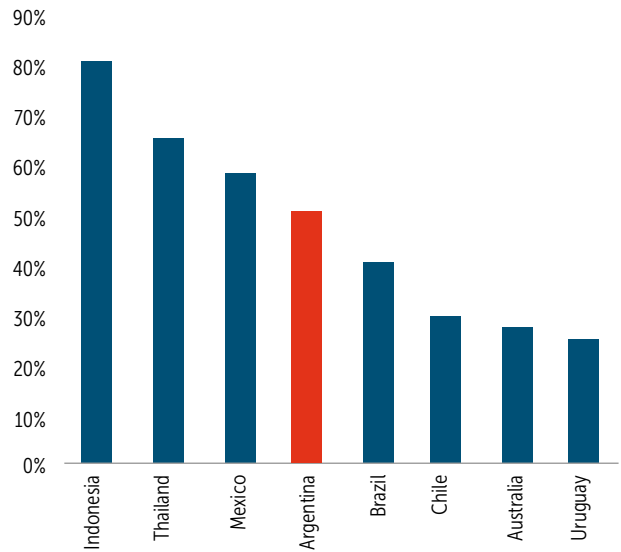


Source: AFIP via MTEySS.

Figure 3.7

...ranking Argentina mid-table among comparators

Informality rates, as % of employment, 2019

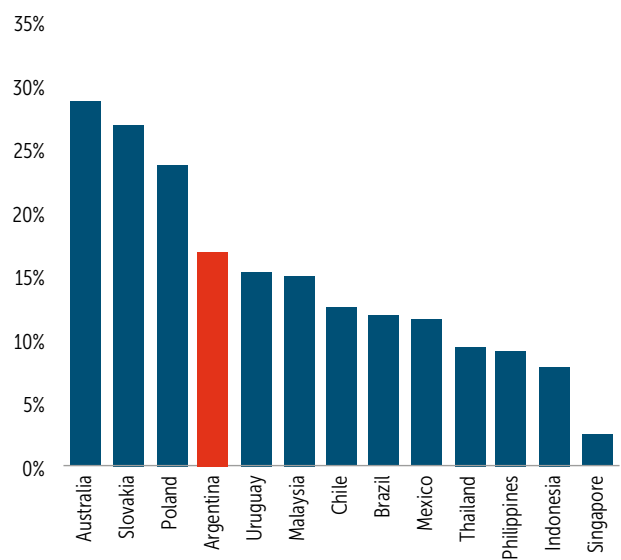


Source: ILO STAT. Note: Year is 2018 for Thailand.

Figure 3.9

...which is among the highest of comparator countries

Public sector employment, as % of employment, 2019

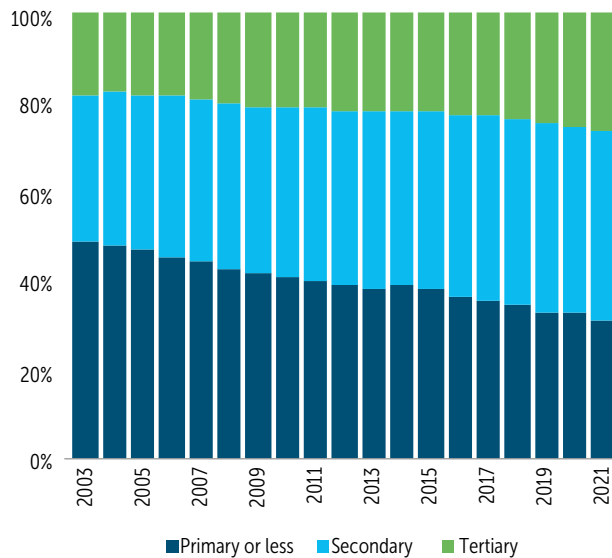


Source: ILO STAT. Note: The year for Singapore is 2021.

Figure 3.10

The education levels of Argentina's workforce have increased...

Education level, as % of employment (2003-2021)



Source: INDEC via MTEySS.

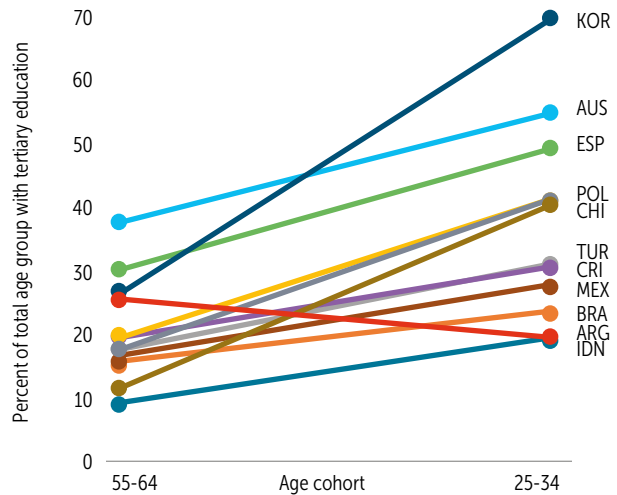
Real wage growth has been negative for formal salaried workers since 2018 (World Bank 2022). Labor earnings measured as a multiple of the number of poverty baskets that can be purchased have declined across occupational types, with own-account workers and private informal workers earning just around the poverty line. Recent increases in poverty have been a result of the decline in labor income. In the two years prior to the pandemic, declines in both formal and informal incomes explain about 60 percent of the increase in the poverty rate (World Bank 2022).

Though the skills level of Argentina's workforce has increased, it continues to lag peers. Between 2003 and 2021, the share of workers with primary education or less fell 18 percentage points, while the share with secondary and tertiary education increased 10 and 8 percentage points, respectively (Figure 3.10). However, the tertiary education

Figure 3.11

...but tertiary rates are declining among younger people

Tertiary education attainment, as % of total age cohort population (2021 or latest available)



Source: INDEC via MTEySS.

attainment rate among younger cohorts is declining in contrast to the increases observed in comparison countries (Figure 3.11). Argentina also trails all of its aspirational comparators on the share of the workforce with tertiary education (Figure 3.12) and the share of high-skilled workers (Figure 3.14).

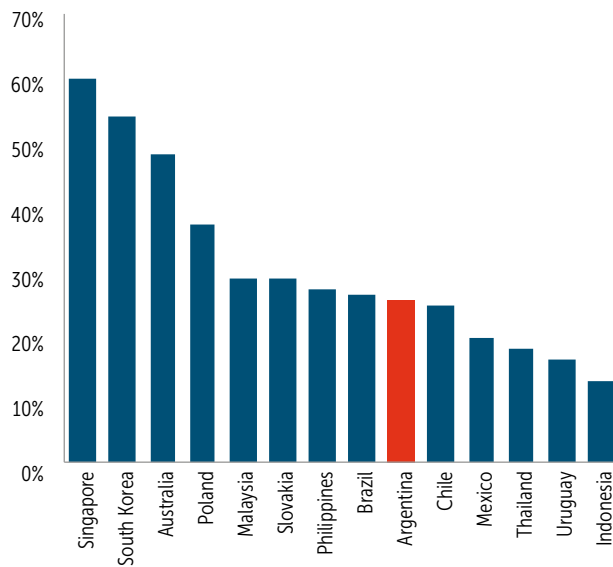
3.2. The future of work is changing the demand for skills

The nature of work is changing. The services sector, as well as services jobs across all sectors, are becoming more important (Beylis et al., 2020). Technological progress and the rise of the knowledge economy are increasing demand for both cognitive and socioemotional skills, while the need for workers to perform routine tasks is declining. At the same time, digital skills are increasingly a prerequisite for jobs across skill levels. How people work is also changing. Digitization is creating opportunities

Figure 3.12

Argentina's workforce is less educated than its aspirational peers

Percent of employees with tertiary education (2020)



Source: ILOSTAT.

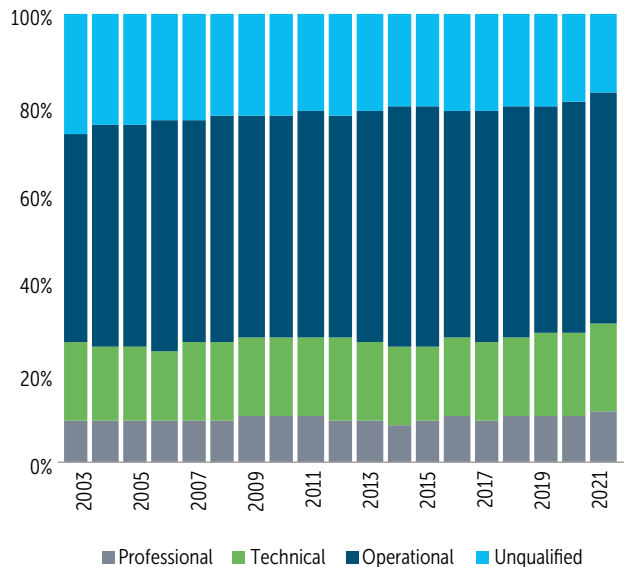
for employment via platforms that typically have lower barriers to entry and allow for more flexibility. But these jobs often have a murky place in labor regulations and lack benefits and access to social protection.

These changes are apparent in Argentina's labor market. At the sectoral level, private sector employment has shifted away from industry and towards services. Occupations are also evolving significantly, particularly in the direction of digitally intensive jobs. The top emerging occupations identified by LinkedIn from its users between 2015 and 2019 are strongly linked to technologies, digital skills, and IT industries (LinkedIn, 2021). These include data engineers, data scientists, and JavaScript developers. This is consistent with qualitative evidence collected from the World Economic Forum's Future of Jobs survey. Nearly all of the top 10

Figure 3.13

Argentina is also behind most of its aspirational peers for workforce skills

Percent of highly-skilled employees (2019)



Source: INDEC via MTEySS.

emerging roles identified by the senior executives surveyed are related to digital technologies and IT, while the most redundant roles relate primarily to occupations involving manual and repetitive tasks (Figure 3.18).

Jobs in Argentina increasingly involve analytical and interpersonal skills. Between 1998 and 2015, non-routine cognitive analytical skills, non-routine cognitive interpersonal skills, and routine cognitive skills all increased in importance in Argentina (Apella and Zunino, 2017). At the same time, routine and non-routine manual skills have declined in importance. The transition to cognitive tasks and away from manual ones has been stronger in other countries, though Argentina does appear to have fewer routine-intensive jobs (Apella and Zunino, 2022; Gasparini et al., 2021).

Figure 3.14

Emerging jobs are in digital technologies while manual tasks are becoming redundant

Principales empleos emergentes y redundantes citados por los altos ejecutivos en orden descendente de importancia

Emerging	Redundant
AI & Machine Learning Specialists	Data Entry Clerks
Robotics Engineers	Accounting, Bookkeeping and Payroll Clerks
Digital Transformation Specialists	Electronics and Telecomm Installers & Repairers
Software and Applications Developers	Assembly & Factory Workers
Internet of Things Specialists	Administrative & Executive Secretaries
FinTech Engineers	Shop Salespersons
Data Analysts and Scientists	Sales & Marketing Professionals
Business Services & Administration Managers	Relationship Managers
Renewable Energy Engineers	Material-Recording & Stock-Keeping Clerks
Digital Marketing & Strategy Specialists	Bank Tellers & Related Clerks

Source: WEF (2020).

Automation, and its potential displacement effects, are a concern for policymakers but large-scale automation-linked employment losses are unlikely. The development of new technologies like artificial intelligence and mobile robotics has raised concerns that even jobs that involve non-routine tasks may be automated out of existence. Recent World Bank research evaluated the two primary approaches for estimating the technical potential for automation in Latin America and the Caribbean (Beylis et al., 2020). Under both approaches, and various robustness tests, Argentina has one of the lowest estimated shares of jobs at risk from automation in the region (Figure 3.19). This in part reflects the relative scarcity of routine work in Argentina, in turn partly explained by the predominance of service sector jobs that generally involve harder-to-automate interpersonal tasks.⁵¹

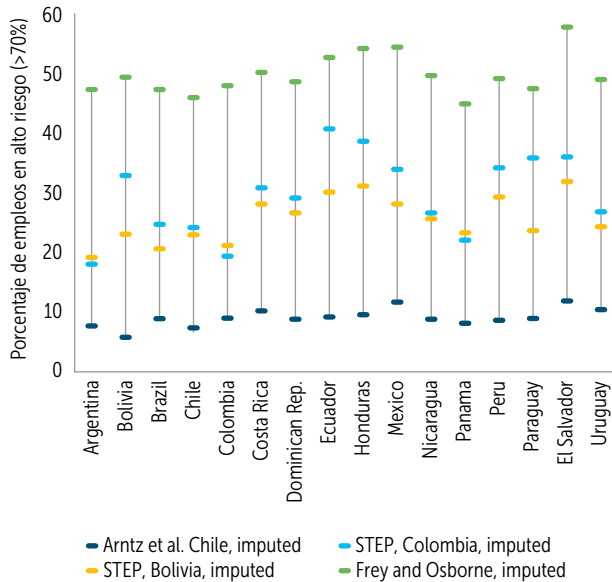
Automation's positive productivity effects may help generate new employment and mitigate the potential negative effects of population aging. The introduction of new technologies can increase productivity, which not only leads to the replacement or alteration of certain types of tasks or jobs, but also to the creation of new jobs and tasks (Beylis et al., 2020). Higher productivity can raise the demand for goods in the industry in which a technology is introduced by lowering marginal costs and resulting in lower prices. It can also generate additional demand in interconnected industries, and even create entirely new industries. Automation-linked productivity gains could also play a role in mitigating the potential negative effects of population aging as Argentina's working age population shrinks in the near future. Indeed, robots may be an important part of the explanation

⁵¹ These methodologies also do not take into account important factors beyond technical potential that could affect the pace of automation. These include the economic costs and benefits for firms, particularly smaller ones, of adopting automation technologies and the stage they are at in adopting digital technologies; the fact that many workers in the LAC region work in subsistence jobs; and the legal, ethical, and cultural factors that may shape how quickly automation technologies are adopted (Arntz, Gregory, and Zierahn, 2016; Weller, Gontero, and Campbell, 2019; Dini and Rueda, 2020).

Figure 3.15

Argentina has lower shares of jobs at risk from automation in the region

Percent of jobs at high risk of automation in Latin America and the Caribbean



Source: Beylis et al. (2020). **Note:** numbers indicate the percentage of jobs at high risk of being automated. Estimates based on the methodology of Frey and Osborne (2017) and Arntz, Gregory, and Zierahn (2016).

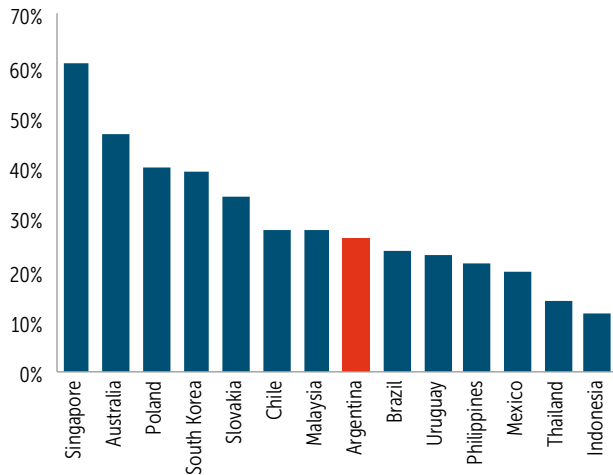
for why a negative relationship between population aging and economic growth has not been observed (Acemoglu and Restrepo, 2017).

However, automation is likely to affect certain types of workers more. World Bank research on automation in Latin America and the Caribbean finds that less education and lower earnings are associated with work in occupations with the types of manual and routine tasks that are likely to be automated (Beylis et al., 2020). More education and higher earnings, in contrast, are linked to occupations requiring the use of cognitive, analytical, and social skills.

Figure 3.16

Argentina has fewer digital skills than comparators

Sufficiency of digital skills as % of the best performer



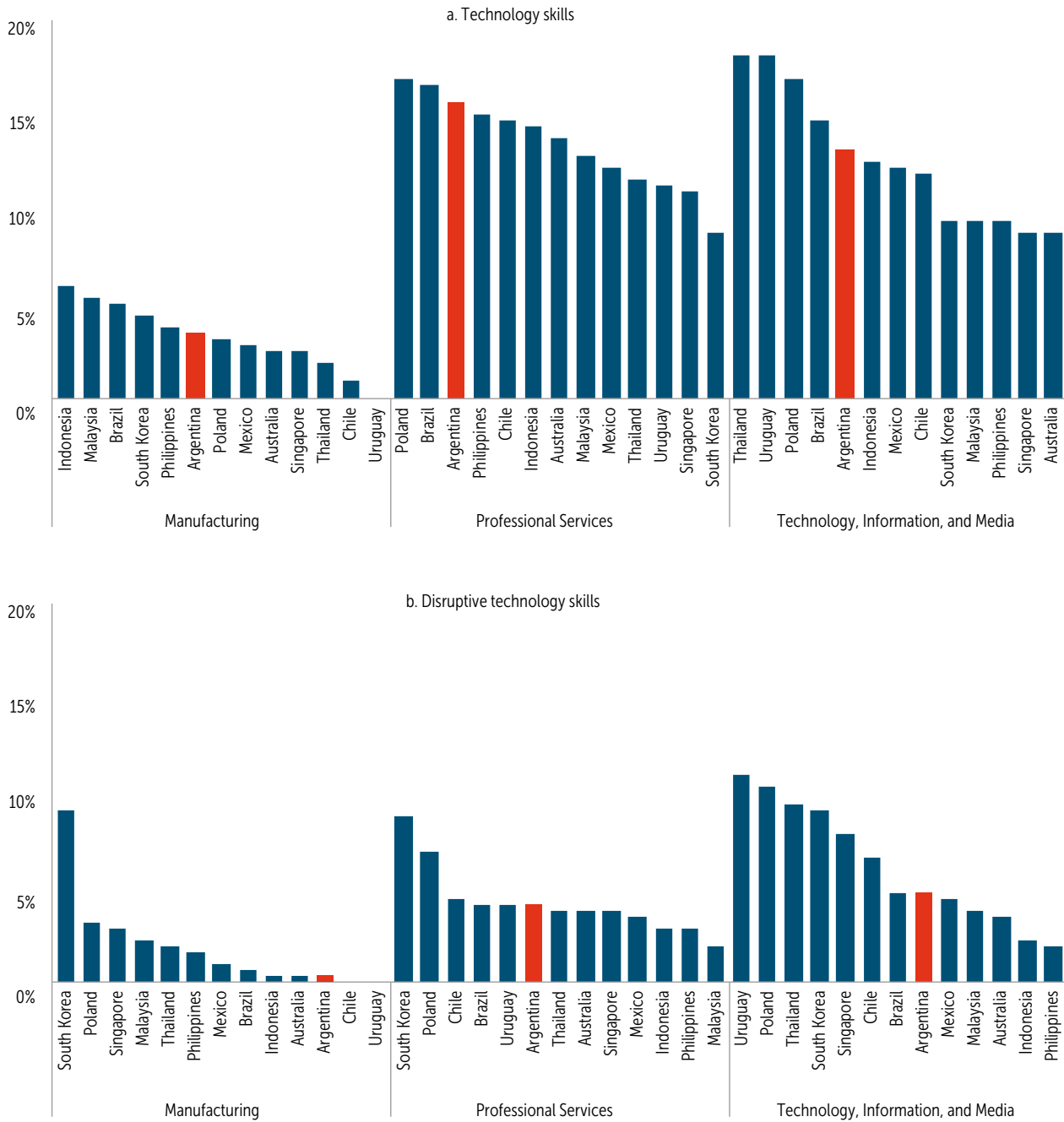
Source: WEF (2020).

The expansion of digital technologies and automation is affecting the skill types sought by employers in Argentina. Demand is evolving towards digital, critical thinking, and socioemotional skills (Herrera et al., 2019; Cunningham, Acosta, and Muller, 2016; Busso et al., 2012). In Argentina, for example, the socioemotional skill self-efficacy – being inclined to perceive oneself as a good student or worker – is positively associated with employment and higher wages (Bassi et al., 2012). Qualitative evidence collected by the World Economic Forum from senior executives in Argentina shows that a combination of technical (digital) skills and socioemotional skills is increasingly important for organizations (WEF 2020).

Figure 3.17

Technology skills are strong in Argentina, but adoption of disruptive technology skills is behind

Percent of industry's top 50 skills in each skill group by country, 2021



Source: LinkedIn.

Argentina lags peers in the disruptive technology skills most closely associated with the future of work. Evidence from the WEF survey cited above shows that Argentina is lagging comparators on (basic) digital skills (Figure 3.22). Relative to comparators, data from LinkedIn shows that technology skills such as the use of digital devices, communications applications, and networks are fairly common in Argentina's manufacturing, professional services, and ICT sectors (Figure 3.23 Panel A). However, Argentina underperforms on the disruptive technology skills most closely associated with the future of work, such as artificial intelligence (Figure 3.23 Panel B). In the manufacturing and ICT sectors in particular disruptive technology skills are much less common than in peer countries.

As in many countries, platform work has emerged as a new type of working arrangement in Argentina. Platform work is on-demand work typically paid on a piece-rate basis and performed either online and remotely (such as Upwork and Clickworker) or at a physical location (such as Uber and PedidosYa) (ILO 2021). Platform work has become more common in Argentina, particularly in recent years as the COVID-19 pandemic increased demand for services provided through apps (e.g. delivery) and for jobs that could be done remotely (Beccaria et al. 2020). Still, only about 1 percent of the workforce has generated income from platform work in the last year, about the same as Colombia's 0.9 percent (Madariaga et al., 2019; Fernandez and Benavides, 2020). In general, platform workers in Argentina tend to be young, male, and more highly educated, which seems to be the case in other countries in Latin America and the Caribbean (Madariaga et al., 2019; Mourelo, 2020). A substantial portion (around 20 percent) are migrants.

Platform work offers significant potential for workers and firms, but also has downsides. Platform workers typically seek out this type of work for the flexibility it offers and to earn additional income. Flexibility in the time and location of work

can allow women, young people, and people with restricted mobility improved access to employment. Barriers to entry tend to be lower – an internet connection and smartphone may be all that is required – allowing individuals with lower skills and less access to capital to obtain employment. However, platform work has downsides. Competition is strong and global in the case of online-based platform work, platform jobs can involve long periods looking for tasks and performing other unpaid administrative tasks, and most platform workers lack access to the benefits of standard employment like social protection, workplace protections, and training (Brinatti et al., 2021; ILO, 2021; Oyer, 2020; Wood, 2019). In Argentina, for example, around 45 percent of platform workers do not make pension contributions, implying a slightly higher informality rate than in the country at large (Madariaga et al., 2019).

The COVID-19 pandemic has led more firms and workers to consider remote forms of work. In Argentina, the incidence of working from home increased from around 6 percent of jobs just before the pandemic, to above 20 percent in the final three-quarters of 2020, similar to the average of 25 percent in high-income countries (Maurizio, 2021). While it seems plausible that levels of remote work will remain higher than they were prior to the pandemic, there are likely to be limits to how many jobs can be done remotely. One estimate for Argentina suggests that 40 percent of jobs require some kind of physical interaction (Albrieu, 2020). Access to the internet and computers is another constraint, particularly for disadvantaged workers.

3.3. Argentina's human capital needs to adapt to the changing world of work

Firms in Argentina are struggling to find workers with the right skills. Approximately 40 percent of firms surveyed in the World Bank's 2017 Enterprise Survey reported an inadequately educated workforce

as a major constraint. This compares to a LAC average of 29 percent. Indeed, firms seem unable to find workers with the skills they need. A 2016 survey found that 59 percent of firms had difficulty finding workers with the right skills (OECD, 2017). Argentina's unmet labor demand survey (*Encuesta de Demanda Laboral Insatisfecha*) shows persistent skills gaps, especially for operational and professional workers (World Bank, 2018). Challenges include both under- and over-qualified workers. Argentina has the third-highest rate of "qualification mismatch" among G-20 countries (OECD and ILO, 2018; OECD, 2021b). While skills shortages are modest compared to other G-20 members, Argentina is still experiencing these shortages for many high-level cognitive and social skills, such as reasoning abilities and complex problem solving, and for digital economy skills such as computers and electronics.

Argentina will need to invest in its human capital to meet the evolving demands of a technology-driven, knowledge-based global economy.

Strengthening the skills development systems available to young people prior to their entry into the labor market would improve Argentina's ability to take advantage of ongoing changes in the nature of work. Challenges are particularly severe for several groups whose human capital is underutilized in the labor market. These include women and young people – both groups have relatively low labor force participation rates and high unemployment rates, as well as often lower quality jobs. Incorporating underutilized human capital into the labor market has the potential to boost growth as an aging population, and the ensuing shrinkage of the working age population, begins to take hold in the coming years.

3.3.1 Challenges in developing human capital

Argentina will need to strengthen the pathways that lead to the accumulation of human capital.

Most students in the education system are not

learning the foundational cognitive skills that are necessary to acquire intellectual, methodological, or specialized knowledge in later stages in life (for instance, reading and early mathematical skills, memory, attention, and solving increasingly complex problems). Dropout rates among secondary and tertiary school students are high, and are in part a consequence of cumulative basic skills deficits that start early in students' trajectories. Students do not access science and technology degrees and technical schools to the extent demanded by the country's changing skill needs. Further, as the demands of the labor market shift with evolving technologies, educational institutions will need to be flexible and adapt to constantly shifting needs that increasingly include not just specific technical skills but also higher-order cognitive and socioemotional skills.

While access to education has expanded over the last decades, the quality of education, measured by acquired learning, lags in Argentina.

Pre-pandemic results of the Human Capital Index (HCI), which measures the potential productivity of the next generation of workers, revealed that a child born in Argentina would be only 60 percent as productive when she grows up as she could be if she enjoyed complete education and full health. These results are driven largely by the education outcomes: despite an expected schooling attainment of 12.9 years, children in Argentina attained only 8.4 learning-adjusted years of schooling—a learning gap of 4.5 years. The low quality of education remains a challenge if students are to acquire the skills they need to benefit from education.

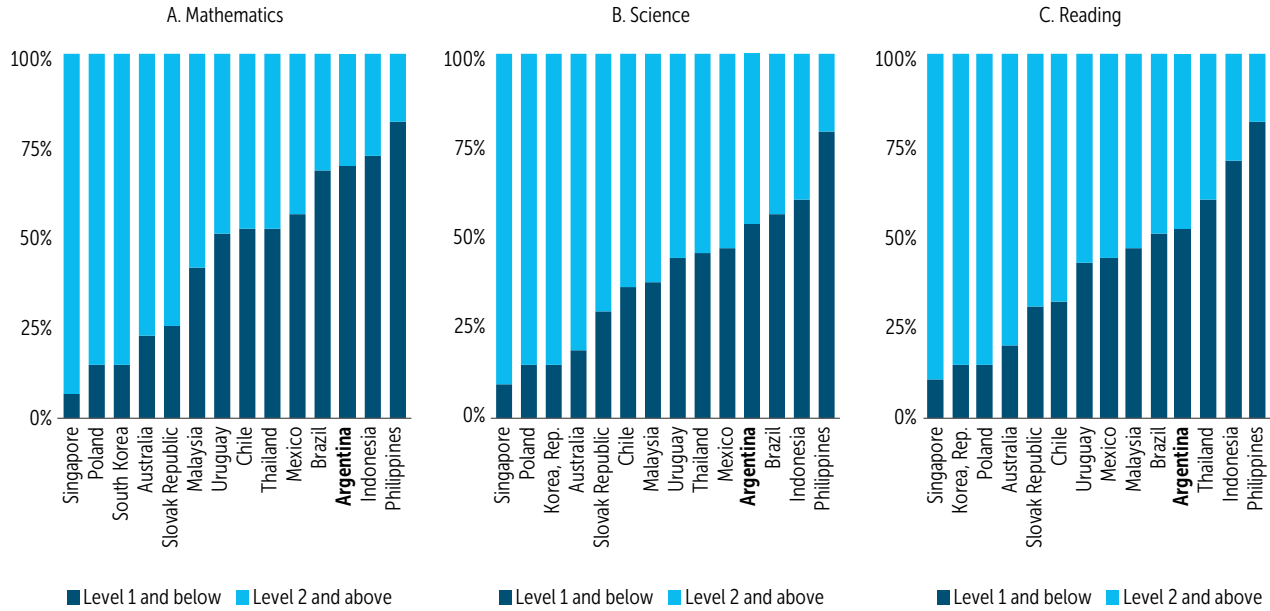
Students in Argentina are not learning foundational cognitive skills.

Data from regional learning assessments show that in 2019, around 46 percent of third grade students in Argentina did not reach minimum levels of proficiency in reading and 68 percent of them underachieved in math (UNESCO, 2021). This means that a large share of primary school students are not able to read and understand a simple text or solve a basic math

Figure 3.18

Argentina's 15-year-olds score below most comparators for all subjects

PISA scores for 15-year-olds, as % of students (2018)



Source: OECD (2019). PISA 2018 Results (Volume I): What Students Know and Can Do. **Note:** Level 1 is the lowest PISA proficiency level.

problem. Moreover, Argentina was the only country in the region that saw learning losses between 2013 and 2019 for all grades and subjects assessed.

Secondary students in Argentina also perform poorly on standardized tests. More than two-thirds lack basic proficiency in mathematics and more than half in science and reading (Figure 3.26). This means that these students are likely to face significant challenges transitioning to the labor market (OECD, 2016c). Additionally, very few students in Argentina perform at the highest levels of achievement. Close to zero percent of students score at the highest or second-highest PISA levels across all subjects (Figure 3.27). This combination of a surfeit of students lacking basic proficiency and a deficit of high-performing students bodes poorly for a world of work that increasingly requires a workforce with a combination of baseline skills along with exceptional

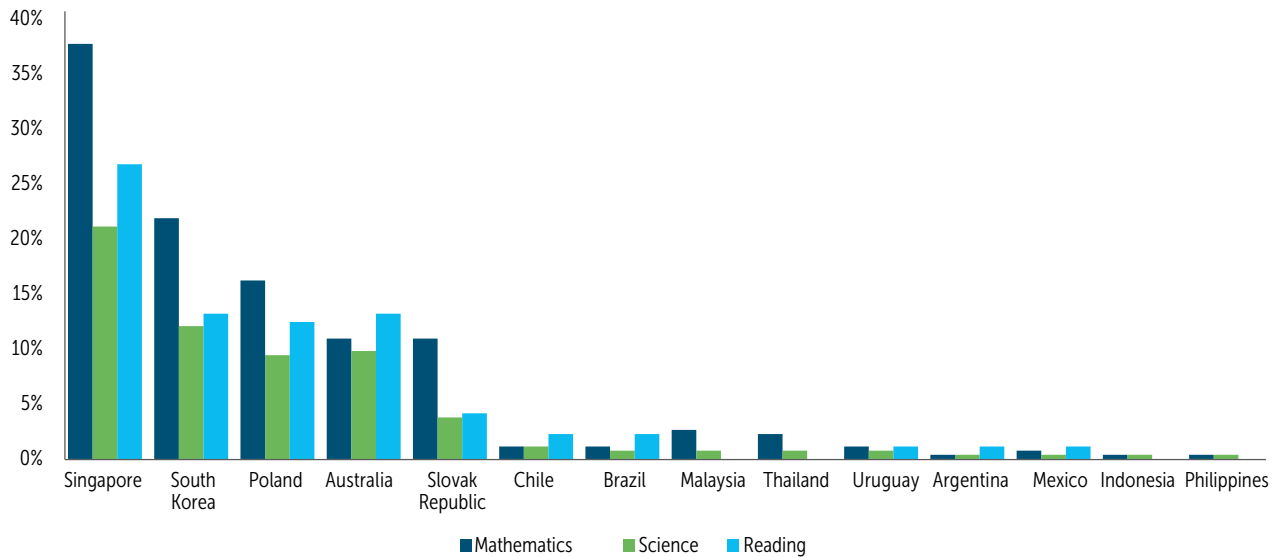
performers that drive knowledge creation (OECD, 2016c).

The COVID-19 pandemic has deepened these challenges. In Argentina, attendance rates dropped 2.3 percent between February 2020 and May/July 2021 for students aged between 6 and 14, and by 14 percent for those aged between 15 and 17 (World Bank, 2022). Losses in learning-adjusted years of schooling were 1.7 years in Argentina. This is above the regional average of 1.5 years, but below losses in Brazil (1.8 years), Mexico (2 years) and Chile (2 years) (World Bank, UNICEF and UNESCO, 2022). The effects of the pandemic are expected to be long-lasting. Many students, especially from the most vulnerable backgrounds, will likely see a decline in their level of content knowledge and socioemotional well-being due to the prolonged school closures and adverse economic impacts.

Figure 3.19

Argentina's 15-year-olds are rarely high-scoring

Percent of students scoring at Level 5 or Level 6 (2018)



Source: OECD (2019). PISA 2018 Results (Volume I): What Students Know and Can Do. **Note:** Level 5 and Level 6 are the highest PISA proficiency levels.

Learning outcomes for basic skills have significantly worsened, especially for the poorest.

The results of the national learning assessment (APRENDER) in 2021 shows that between 2018 and 2021, the share of students in the last year of primary school who did not reach minimum proficiency levels in reading tripled (Figure 3.28). Moreover, students with the lowest socioeconomic status (SES) experienced the highest losses, widening the gap with the richest from 91 points in 2016 to 109 points in 2021 (Figure 3.29)

Even before the pandemic, Argentina was struggling with high dropout rates, meaning that many students enter the labor market lacking key skills.

Net enrollment in secondary school is nearly universal in Argentina, at 92 percent in the second quarter of 2019 prior to the pandemic (CEDLAS and World Bank, 2022). Rates were slightly higher for women (93 percent) than for men (90 percent). However, school dropout is common: about half of students that begin secondary education do not

finish on time. This rate drops to one third for those from the poorest families. This means that many students enter the world of work without developing key skills. Indeed, learning deficits relative to OECD countries have already developed by secondary school, implying that skills gaps are even greater.

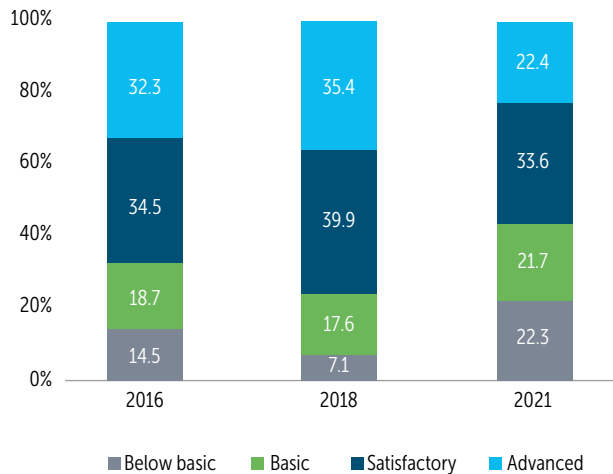
Dropout has a range of different causes, though economic factors are at the root of school dropout in many cases.

Dropout is more common among students from disadvantaged households and those who have already entered the labor market (Bertranou, Jiménez, and Jiménez, 2017). But a multitude of additional factors can play a role. These include pregnancy, the top reason cited in the 2014 National Youth Survey (INDEC 2015) for girls dropping out; care responsibilities, which are more often undertaken by young women than young men; and a lack of or poor information about school and the effort required and outcomes that can be expected (Bertranou, Jiménez, and Jiménez, 2017; Lopez, 2022).

Figure 3.20

Proficiency levels of Grade 6 students in reading, % of total

Proficiency levels of Grade 6 students in reading, % of total



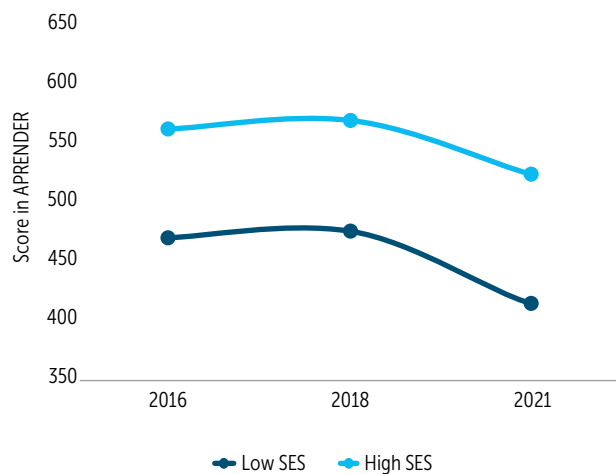
Source: APRENDER 2021.

Similar to secondary school, enrolment in tertiary education is high but completion is low. Net enrollment in tertiary education has increased in recent years, rising about 5 percentage points since 2010 to 39.2 percent in the second quarter of 2019 (CEDLAS and World Bank, 2022). This is higher than Brazil's 24 percent, Uruguay's 28 percent, and Mexico's 34 percent, but below Chile's 47 percent. As for secondary education, however, enrolment does not translate into quality outcomes, in part because of low graduation rates and high time-to-degree ratios (Figure 3.30). Low graduation rates are a particular issue for students from more disadvantaged socioeconomic backgrounds. High opportunity costs, lack of information to make career decisions, and weaknesses in socioemotional skills all contribute to low graduation rates. The low graduation rates contrast with qualitative evidence that tertiary education provides business-relevant skills. Argentina ranks third among comparator countries (with a score quite similar to Australia) on

Figure 3.21

...mostly affecting students of lowest socioeconomic status

Average score for Grade 6 reading by socioeconomic status



Source: APRENDER 2021.

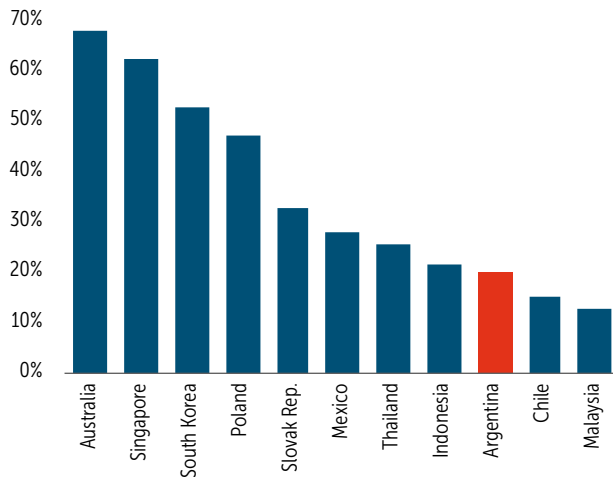
the World Economic Forum's qualitative measure of the business-relevance of tertiary education (Figure 3.31).

Tertiary students' educational choices raise concerns about their preparation for the future of work. Technical and vocational education and training (TVET) will likely be a key component in responding to the new types of skills demanded by jobs of the future, given TVET's objective of providing technical skills and its potentially closer links to labor market demand. However, a bias towards university degrees means that only around 20 percent of tertiary students are enrolled in TVET in Argentina, a lower share than for comparators (Figure 3.32). This is despite the fact that non-university degrees tend to have higher economic returns than university degrees. Fields of study are also skewed towards the humanities at the expense of the science, technology, engineering, and mathematics (STEM) and digital skills that are growing in demand and likely to

Figure 3.22

Completion of tertiary education is lower than peers'

Gross graduation ratio from tertiary education, percent of population at theoretical graduate age, 2019

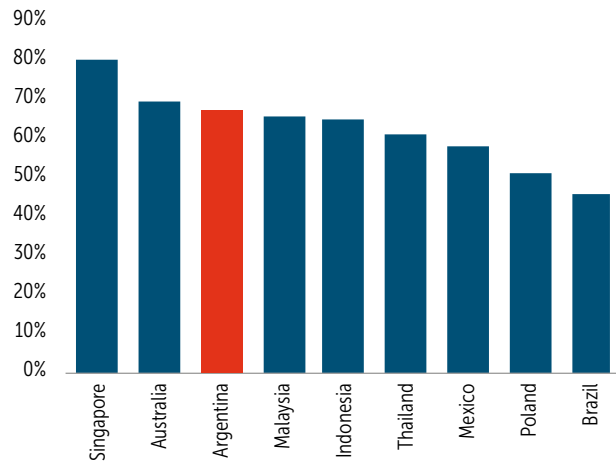


Source: UNESCO Institute for Statistics. **Note:** Data is from 2017 for Mexico, 2015 for Thailand, 2018 for Indonesia, and 2020 for Malaysia.

Figure 3.23

Argentina's tertiary education performs well for business-relevant skills

Business relevance of tertiary education, as % of the best-performing country, 2020



Source: WEF (2020).

have higher returns (Bustelo, Flabbi, and Violla, 2019). Argentina comes last among comparator countries for the proportion of students studying in STEM programs (Figure 3.33). The bias against STEM programs is more severe for women: despite making up 59 percent of the university population, women make up just 33 percent of STEM students (Cortezzi, 2021). This is ultimately translated into the world of work, for example, in the lack of women in IT professions (Aramburu and Goicoechea, 2021).

Finally, Argentina faces challenges in assuring quality teaching. Evidence for teacher quality is scarce in Argentina as no teacher evaluations exist. However, the *Enseñar* evaluation⁵² of prospective teachers found that over 40 percent struggled with extracting and interpreting information, producing

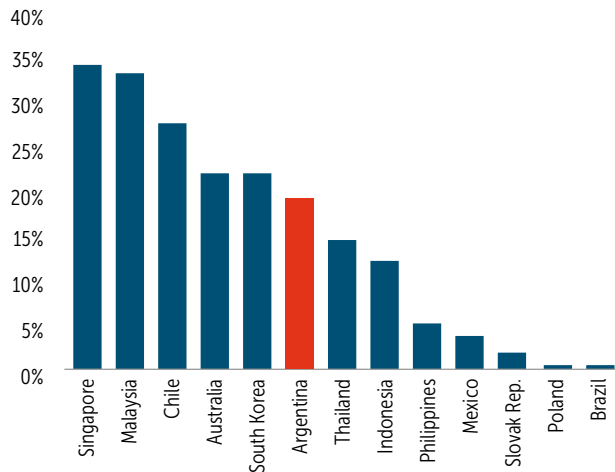
written text, and undertaking core pedagogical practices like planning a lesson and evaluating student learning. Challenges with teacher quality are related to the low selectivity of teaching education programs, low-quality teacher training institutes, little to no practical training on teaching in a classroom, and poor quality assurance and teacher evaluation mechanisms (Aguerrondo and Vezub, 2011; Elacqua et al., 2018; Narodowski et al., 2018). The ability of teachers to provide skills of the future – like digital skills – is also in question. Only 41 percent of school principals agreed with the statement that “Teachers have the necessary technical and pedagogical skills to integrate digital devices in instruction.” This is the lowest in Latin America and the Caribbean and far below the 65 percent OECD average (World Bank, 2022).

⁵² <https://www.argentina.gob.ar/educacion/evaluacion-informacion-educativa/ensenar>

Figure 3.24

Argentina has lower TVET enrolment than some peers...

Enrolment in TVET programs, as % of students enrolled in tertiary education, 2019

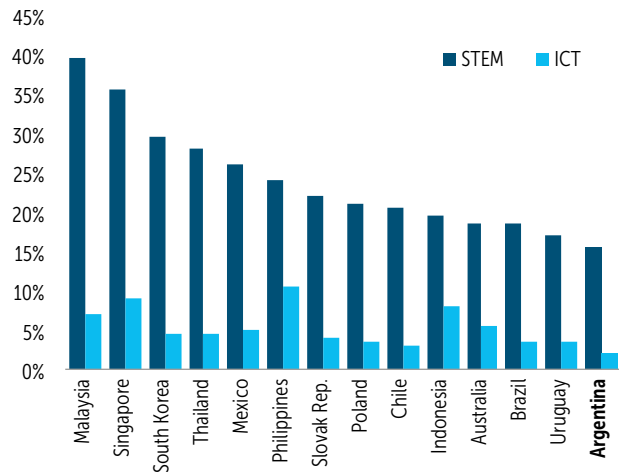


Source: UNESCO Institute for Statistics. Note: Data is from 2016 for Thailand, 2018 for Indonesia, and 2017 for the Philippines.

Figure 3.25

...and comes last for the share of STEM and ICT graduates

Field of study of graduates of tertiary education, as % of tertiary graduates, 2019



Source: UNESCO Institute for Statistics. Note: Data is from 2016 for Thailand and 2018 for Indonesia.

3.3.2 Challenges in the utilization of human capital

On top of the challenges facing human capital accumulation, human capital is also significantly underutilized in Argentina. The World Bank's Human Capital Index (HCI) measures the human capital that a child born today could expect to acquire at age 18 based on their health and education. The utilization-adjusted HCI (UHCI) incorporates information about (non-agricultural) employment to assess how inefficiencies disrupt the deployment of human capital in labor markets (Pennings, 2020).⁵³ While the UHCI reduces the HCI across countries, it is particularly stark in Argentina where the total UHCI is nearly 40 percent lower than

the HCI (Figure 3.34). This is the greatest gap among comparator countries. While the female HCI is higher than the male HCI in Argentina, the female UHCI is lower than the male UHCI, indicating that women face more significant barriers than men in deploying their human capital.

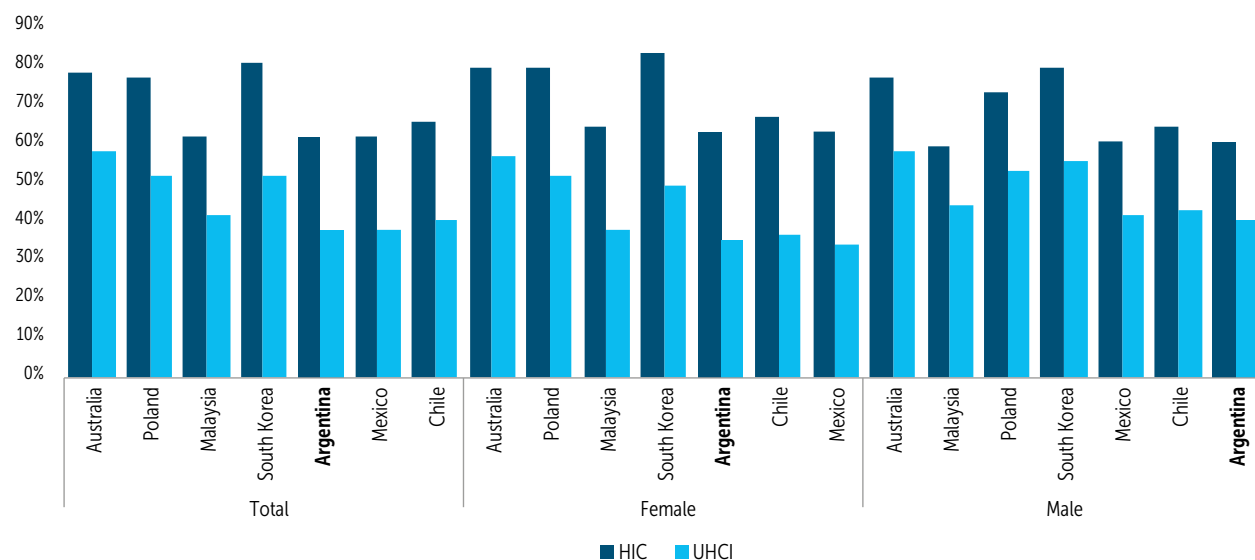
Women's labor force participation is much lower than in other countries. The female labor force participation rate prior to the COVID-19 outbreak was 40 percent, 15 percentage points lower than the male rate of 55 percent (Figure 3.35). This gap puts Argentina below most comparator countries (Figure 3.36). Household and care responsibilities are a common reason for women, particularly young women, remaining out of the labor market. In 2019,

53 The utilization-adjusted human capital index (UHCI) deploys the share of the working age population that is employed as a proxy to measure how well accumulated human capital (as expressed in the Human Capital Index) is used. An alternative measure uses the share of workers who are non-agricultural employees or employers to incorporate job quality into the measure. The indicators show the long-run income gains of moving to full human capital and full utilization of human capital. Thus, a UHCI score of 0.3 means that a child born today will only be 30 percent as productive as they would be with full education and health and with full utilization of their labor.

Figure 3.26

Human capital is also significantly underutilized

Percent gap between HCI and Utilization-adjusted Human Capital Index (UHCI) overall, and by gender, in Argentina and comparator countries



Source: World Bank, updating Pennings (2020).

the labor force participation rate was just 33 percent for women with children younger than 10 in their households, and there were substantial differences in participation rates for women from around age 25 into older age (Figure 3.37). Indeed, most inactive young women in Argentina report not working because of household duties (Golman, 2020). Female unemployment is also slightly higher than male unemployment.

Women’s employment tends to be more precarious.

Fourteen percent of women employed in 2021 were underemployed, meaning that they are able and willing to take on more work. This is 4 percentage points more than men. Women are also somewhat more likely than men to be informally employed, with an informality rate of 34 percent in 2021 compared to 30 percent for men. This gap has narrowed, however, from double digits in the 2000s to single

digits today. Education is an important determinant of women’s labor market outcomes. In 2019, the labor force participation rate for women between the ages of 25 and 64 without secondary education was 57 percent, compared to 71 percent for women with secondary education and 89 percent for women with tertiary education. The gender gap in labor force participation has a similar educational component. The participation gap between women and men is substantially larger among the less educated (29 percentage points) than among those who acquire university degrees (10 percentage points).⁵⁴

Women work fewer hours of paid work than men and undertake substantially more unpaid work.

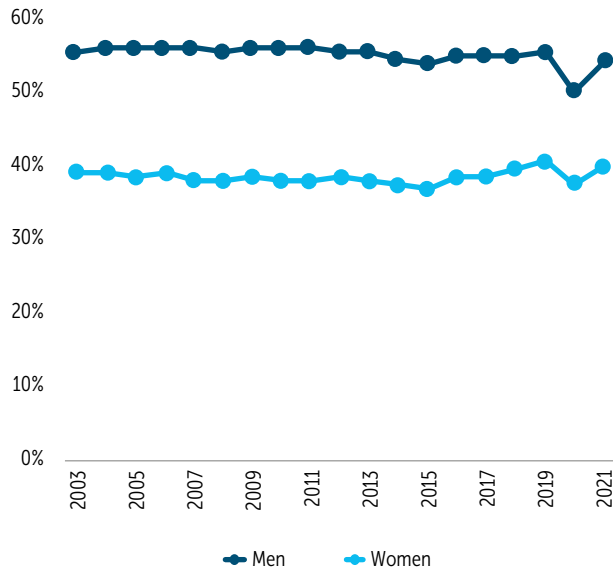
Between 2016 and 2019, women worked for pay an average of 30 hours per week compared to 40 hours per week for men (Trombetta and Cruz, 2020). This in large part reflects women’s dominant

⁵⁴ Data from EPH-INDEC.

Figure 3.27

Female labor participation is lower than male

Labor force participation rate in Argentina by gender, % of population, 2004-2021



Source: INDEC via MTEySS.

role in unpaid care work at home, particularly among younger women. Women take on a larger share of unpaid domestic and care work: they represent two-thirds of all people with unpaid work and spend 50 percent more time – or 7 hours a week more – than men on unpaid work (Micha, Trombetta and Pereyra, 2021). This is particularly true in households with small children and with lower incomes.

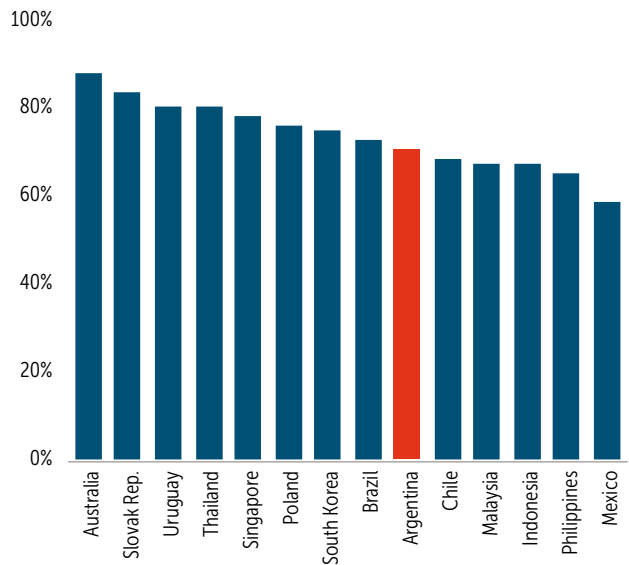
Women are underrepresented in high-level jobs.

Women workers tend to be more educated, but this is not reflected in the jobs they obtain in the labor market (Figure 3.38). Women are overrepresented in low-skilled jobs like domestic work where they represent 99 percent of employment (Trombetta and Cruz, 2020). Women are also underrepresented

Figure 3.28

The female/male labor participation gap is larger than many comparators

Ratio of female to male labor force participation rate, 2021



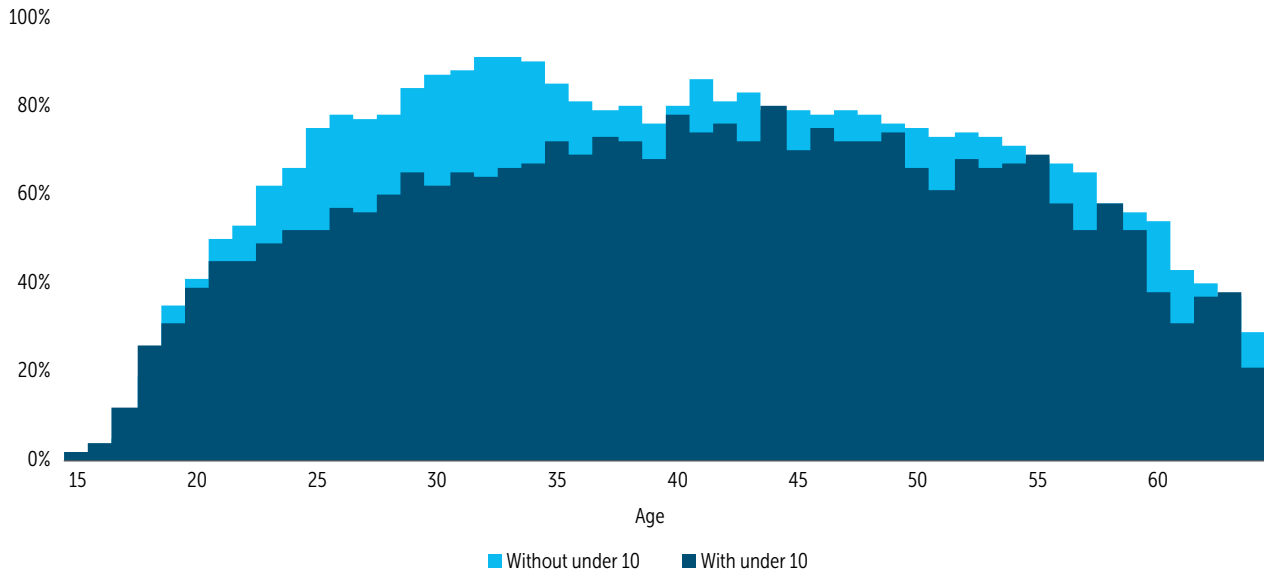
Source: ILOSTAT. Note: The ratio is the ILO modeled estimate.

in better-paid jobs. Data from LinkedIn shows that the share of women declines as seniority increases until only 21 percent of C-Suite roles (top senior executives) are occupied by women (Figure 3.39). Men make up 96 percent of employment in construction, 89 percent in transport, and 71 percent in manufacturing (Figure 3.40). Women make up just 22 percent of professionals in the high-paying information technology (IT) sector (Aramburu and Goicoechea, 2021). Data from LinkedIn also shows that women who work in the ICT sector have different skills from men, perhaps indicating that they work in different roles. (Table 3.2). As the world of work becomes more digitized, this educational and occupational segregation could create further disadvantages for women.

Figure 3.29

Women with young children are less likely to participate in the labor market than those without

Labor force participation rate of women with and without children younger than 10 in their households, as % of population (2019)

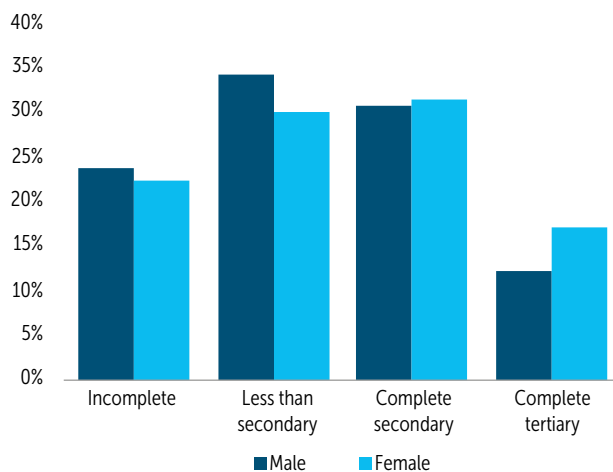


Source: EPH, INDEC.

Figure 3.30

Women workers tend to be more educated...

Education levels in Argentina by gender, as % of employed population, 2021

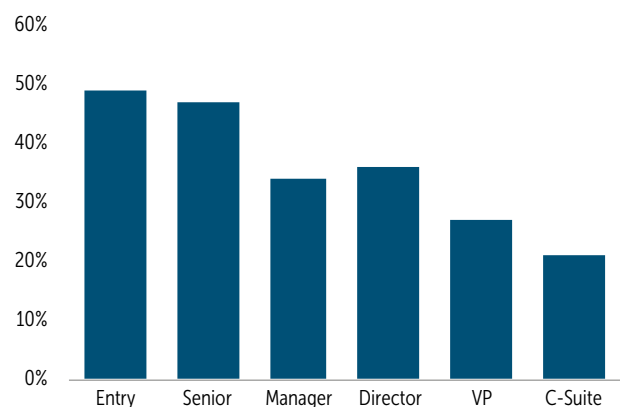


Source: EPH, INDEC.

Figure 3.31

...but they are underrepresented in high level jobs

Share of women by job seniority in Argentina, as % of employment, 2021

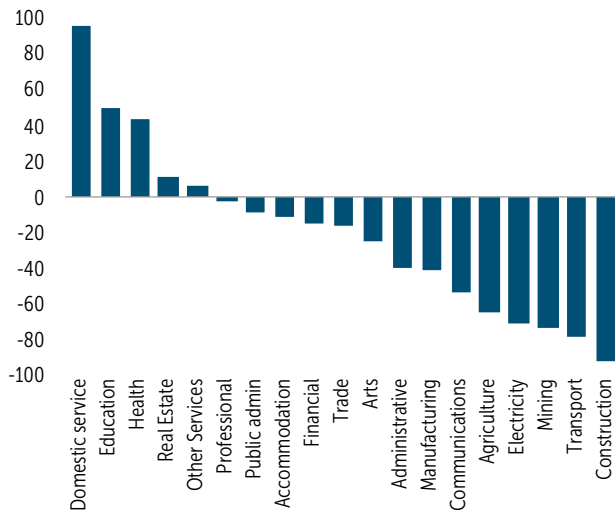


Source: LinkedIn. Note: C-Suite designates titles of top senior executives, such as CEOs.

Figure 3.32

Women dominate in domestic service, education and health jobs

Difference between male and female share of employment in Argentina by sector, in percentage points, 2021



Source: EPH, INDEC. **Note:** A positive difference means more women in the sector while a negative one means fewer women.

Women in Argentina earn less than men, linked to working hours and a potential motherhood penalty, among other factors. Men and women in Argentina earn similar hourly wages (around 250 pesos an hour in 2021). However, this measure hides several important factors. First, as described above, women tend to work fewer paid hours. Indeed, the gender wage gap in 2021 was 0 percent when using hourly wages – that is, women and men made the same amount – but widened substantially to 33 percent when looking at monthly wages.⁵⁵ Second, this overall measure does not consider individual characteristics, notably education level, which is higher on average for women in Argentina. Once these characteristics are controlled for, women’s hourly wages were around 14 percent less than men between 2016 and 2019 (Trombetta and Cruz, 2020). The remaining “unexplained” gap could be the result

⁵⁵ ILO (2018a) found similar results in cross-country research on the gender wage gap.

Table 3.1

Women in the ICT sector have more non-technology skills than men

Top 10 most characteristic skills in Argentina’s ICT sector, 2021

Women	Men
Spanish	Scrum*
Scrum*	SQL*
Agile Methodologies*	Git*
Jira*	JavaScript*
SQL*	MySQL*
Can-do approach	Microsoft SQL Server*
Interpersonal relationships	Node.js*
Portuguese	Agile Methodologies*
Liability	React.js*
Microsoft SQL Server*	Spanish

Source: LinkedIn. **Note:** The “*” indicates a technology skill.

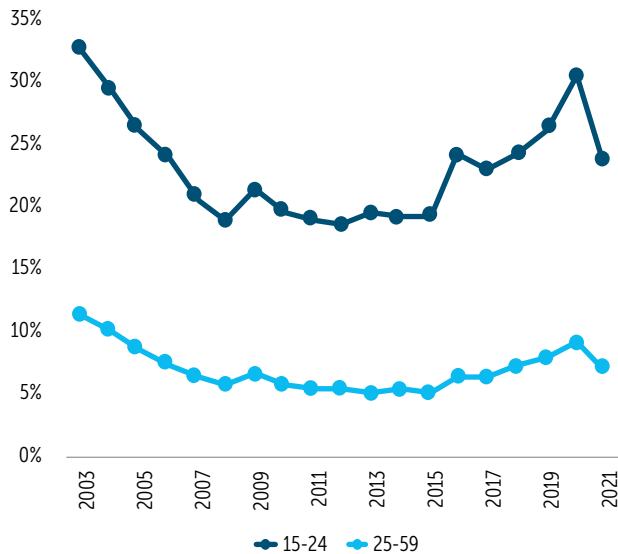
of discrimination or other unobservable factors that are difficult to analyze. Recent research has also found a pay gap between mothers and non-mothers, a so-called motherhood penalty (Casal and Barham, 2013).

Young people, especially the more educated, face challenges in accessing jobs. The unemployment rate for young people was increasing steadily in the years leading up to the COVID-19 outbreak (Figure 3.43). As the pandemic waned in 2021, young people (those aged up to 24) had an unemployment rate of 23 percent, more than three times the 7 percent rate for people between the ages of 25 and 64. Youth unemployment is substantially higher in Argentina than in comparator countries (Figure 3.44). High youth unemployment – and the spike in youth unemployment during the COVID-19 outbreak – is

Figure 3.33

Young people find it harder to access the labor market

Unemployment rate in Argentina by age group, as % of labor force (2003-2021)



Source: INDEC via MTEySS.

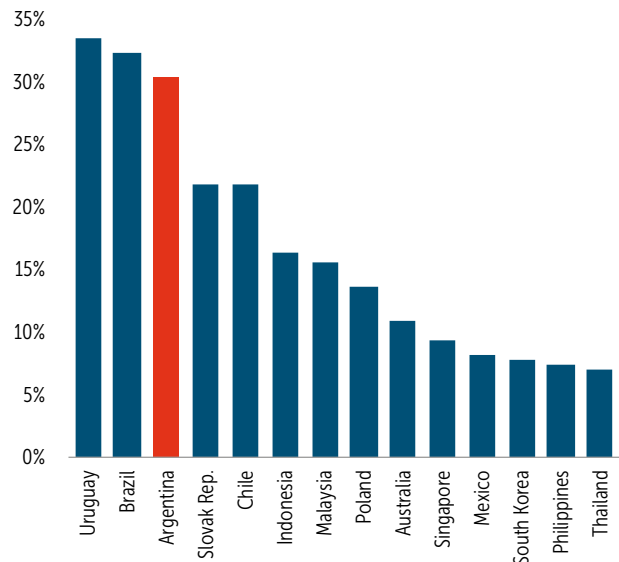
particularly concerning because of the possibility for longer-term scarring caused by lower employment rates and wages (Filomena, Picchio, and Giorgetti, 2022; Schmillen and Umkehrer, 2017; Eliason and Storrie, 2006).

A relatively large proportion of young people are not employed or in school. Nineteen percent of young Argentineans (between 15 and 24 years old) were not in employment, education or training (NEET) in 2019. Argentina's NEET rate is the third highest of comparator countries, behind only Brazil and Indonesia (Figure 3.45). Care responsibilities are a factor in disengaging from school and work, and gender differences in the NEET rate (which is 5 percentage points higher for women than for men) are also related in part to care responsibilities. For instance, women between the ages of 20 and 24 who do not work and do not study dedicate more than 90

Figure 3.34

Youth unemployment is higher than in most comparator countries

Unemployment rate for 15-24 age group, as % of labor force of same age (2021)



Source: ILOSTAT. Note: The unemployment rate is the ILO modeled estimate.

hours a week to child care, while those who work or study dedicate just over 50 (Bertranou, Jiménez, and Jiménez, 2017).

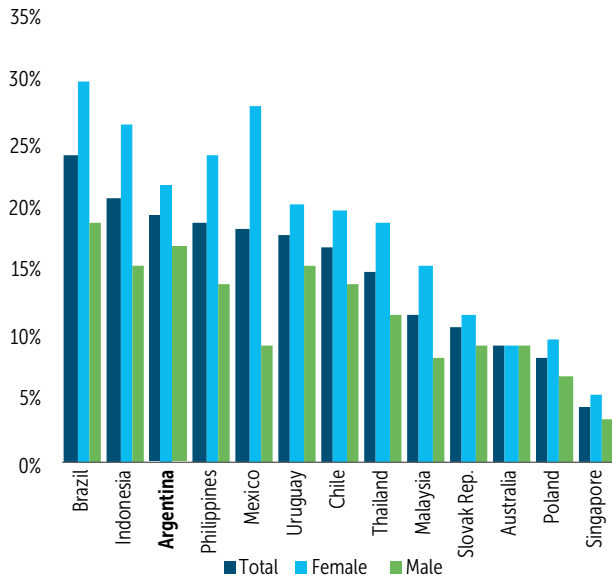
When they do find employment, lack of education and insufficient skills can mean that young people typically end up in more precarious jobs.

Nearly two-thirds of young people were employed informally in 2021, compared to 38 percent of workers between the ages of 25 and 34 (Figure 3.46). Informality rates decline substantially among higher education levels. Because many young people drop out of school before finishing upper secondary levels, they lack the necessary skills to secure a formal, stable job and settle instead for informal or part-time employment (de Hoyos, Rogers, and Székely, 2016). Indeed, for young people who were previously NEET, the informality rate is more than 80 percent (Golman, 2020). Young people are also more likely

Figure 3.35

A large share of young people are not in employment, education or training

NEET rate, as % of youth population (2019)



Source: ILOSTAT.

to be underemployed and to work on fixed-term contracts than older people. This explains in part the worse labor market outcomes that young people experience during economic downturns, as their jobs are more easily terminated (Bertranou, Jiménez, and Jiménez, 2017).

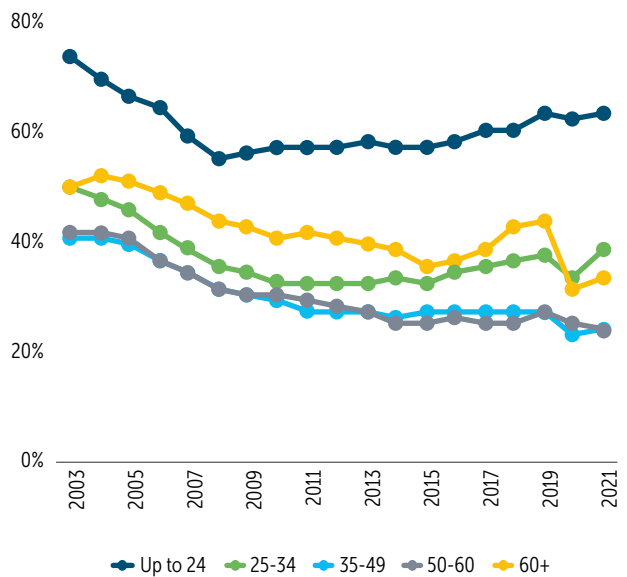
3.4. Policy recommendations

Stronger policies to build and use human capital could unlock growth opportunities. Argentina's labor market faces significant challenges in generating quality jobs. These challenges are exacerbated by the changing skills and tasks required at work, and the way in which work is arranged. To respond to and take advantage of these changes, Argentina needs reforms that promote skills development from early education onwards, while also helping workers to use newly acquired skills in the labor market. This

Figure 3.36

Youth are more likely to be in precarious jobs

Informality rate by age group, as % of salaried employment (2003-2021)



Source: INDEC via MTEySS.

section makes 5 recommendations for reforms in these areas, also summarized in Table 3.3.

Recommendation 1: Foster human capital development

Quality education is a key part of keeping students in school. Section 3.3.1 identified dropout as a key challenge facing human capital development in Argentina. The decision to drop out of school is often the outcome of a cumulative process of frustration and disengagement that begins in the initial grades of basic schooling. When children experience difficulties in learning foundational cognitive skills during their early years, these difficulties can become more pronounced and more challenging to overcome as they progress through education levels, particularly for more disadvantaged children.

Improvements in instruction can help improve education quality. International evidence shows that teachers and their professional skills are the most important input for education quality and that the most effective interventions to improve learning are delivered by teachers. Moving from a low-performing teacher to a high-performing teacher increases student learning dramatically (by between 0.5 and 2 years of schooling). Importantly, good teachers and quality teaching can make a difference in schools with a disproportionate share of students from low socio-economic backgrounds (OECD, 2005; OECD, 2012). Several reforms can help improve instruction in Argentina:

- **Focus pre-service and in-service teacher training on the knowledge, pedagogical, and socioemotional skills that teachers need to be effective and provide children with the adequate skills and environment to learn.** Shift teacher training emphasis from theoretical content to the practical pedagogical skills that teachers need most in the classroom – for example, how to motivate children and how to check their understanding.
- **Formative assessment tools can be made available to teachers so they can diagnose students in real time and implement remedial measures where needed.** For teachers to be able to implement remedial measures, a supportive working environment with good working conditions is important. This goes beyond compensation packages to institutionalizing meritocratic recruitment and providing incentives for better and learning-aligned performance.
- **Intensify the use of education evaluation and information systems by school staff to identify early deficits, and design programs and interventions to take corrective actions.** Track students through their education trajectories both at the general system level and at the school level.

Recommendation 2: Refocus active labor market programs (ALMPs) to help the workforce meet evolving skills needs

Active labor market programs could help the existing workforce meet Argentina’s evolving skills needs while also addressing the labor market challenges of vulnerable groups like young people and women. Active labor market programs (ALMPs) seek to engage and reengage workers in the labor market through a variety of strategies including employment services like job matching and career and skills guidance; training like upskilling and reskilling; self-employment and entrepreneurship support; and employment subsidies. Recent successful ALMPs globally have targeted sectors in demand and combined training with complementary services like labor market intermediation, financial support, and program design that takes into account challenges faced by specific groups (Katz et al. 2022; Kluge et al. 2019; Stöterau 2019; Ferreyra et al. 2021).

The Ministerio de Trabajo, Empleo, y Seguridad Social (MTEySS) has worked to reform its ALMPs in recent years to align them more closely to employer demand. This includes a shift from direct provision of employment to an emphasis on labor market intermediation and training and a competency-based training and certification system. MTEySS has created several programs targeting disadvantaged jobseekers. This includes most recently *Fomentar Empleo* and *Jóvenes con Más y Mejor Trabajo* (JMyMT), which take an integrated approach to address multiple barriers facing jobseekers. Earlier programs including *Seguro de Capacitación y Empleo* and *Jóvenes* also took a more integrated approach. Evaluations show that these latter programs have achieved successful outcomes (Mourello and Escudero 2017; Salvador and Vežza 2020).

However, Argentina's ALMPs have faced challenges in recent years. Demand for ALMPs has been weak in recent years because of changes in administration, the creation of different programs targeting the same groups, and the COVID-19 pandemic. Despite a promising start, the development of occupational standards has stalled and the competency-based system is not used extensively. In part as a result, there are insufficient links between training and employers resulting in overly academic curricula. Underinvestment and an insufficient focus on employability also affect ALMPs. Public expenditures on training-based ALMPs are low relative to the OECD average (OECD 2019). A recent evaluation of ALMPs in Argentina finds that they are biased towards crisis response and income support and insufficiently focused on facilitating transitions of disadvantaged groups to employment (Salvador and Vezza 2020). Finally, ALMPs face problems with delivery. Overlapping target groups, a coverage-focused implementation culture, and heterogeneity in capacity and quality across the more than 600 local employment offices make program implementation difficult.

Several institutional improvements could enhance the effectiveness of Argentina's ALMPs. Argentina's ALMPs could be strengthened by improving coordination, including by relying more on profiling of beneficiaries to determine needed benefits; shifting ALMPs to focus more on skills development; professionalizing staff; and improving monitoring and evaluation (World Bank 2021). Overall, much of the reform needed is institutional rather than programmatic in nature and has more to do with improving delivery than adding new programs. This is consistent with recent research on the effectiveness of integrated approaches to employment support in developing countries, which highlights the importance of identification and participation of target groups, the quality of services and linkages between income support programs and

ALMPs, and institutional capacity and financing (Asenjo, Escudero, and Liepmann 2022).

Recommendation 3: Improve labor market opportunities for women

Improvements in care could help improve women's labor market outcomes. Women's lower labor force participation and lower quality of work are related to many, often interlinked, factors including educational and occupational segregation, lower wages, gender norms, and access to care. Lack of access to child and elder care and relatively short maternity and paternity leave help explain why household and care responsibilities have such a substantial impact on women's labor market outcomes (Gasparini and Marchionni, 2015; Bustelo et al., 2019; Berlinski and Galiani, 2007; Beccaria, Maurizio, and Vázquez, 2017). Expanding access to care services can therefore improve women's labor market participation. Large-scale construction of pre-primary school facilities in Argentina in the 1990s, which constituted an implicit childcare subsidy, increased maternal employment (Berlinski and Galiani, 2007). Research into the motherhood penalty in Argentina finds that it is only present in the informal sector which lacks maternity leave and dismissal protection (Casal and Barham, 2013).

Recommendation 4: Build workforce development pathways that support lifelong learning

Lifelong learning programs can help ensure that reskilling and upskilling opportunities are available throughout working lives as skills needs evolve. The changing world of work will require workers to shift their career paths during their lifetimes, implying the need for ongoing education. Training that takes a lifelong approach may require new financing and delivery mechanisms such as individual learning accounts and more reliance on digital delivery. Given

that increases in the demand for lifelong learning will likely be driven by changing skills demand, training programs will need to reflect these demands with regular skills assessments, up-to-date labor market information, and strong connections with employers (OECD, 2021b).

Ensuring that older workers are equipped to participate in the labor market could be particularly important as Argentina's population ages, leaving fewer prime age workers to generate growth. Evidence suggests that automation and digitalization affect workers of different ages differently in Argentina, with older workers facing greater challenges transitioning to the new types of jobs that are increasingly in demand (Apella and Zunino, 2017). Training programs for older adults will need to be adjusted to older peoples' learning styles.

Recommendation 5: Increase protection for workers who lose their jobs

Argentina struggles to support displaced workers through severance and unemployment insurance. Lack of a reliable safety net for unemployed workers is a key concern as changes in the nature of work create labor market disruptions that may involve people spending periods out the labor market looking for and upskilling and reskilling themselves for new jobs. Argentina offers both severance pay and unemployment insurance to protect unemployed workers. However, both suffer from weaknesses. In 2018 only a third of workers eligible for severance payments reported receiving them (World Bank 2021). Low maximum benefits have limited the support that unemployment insurance provides (Asenjo and Pignatti 2019). The benefit's replacement rate between 2007 and 2014 was 3 percent of the median salary of formal workers and 7 percent of the minimum wage (Bonari, Dborkin, and Starkman 2015). Overall, the share of the unemployed receiving benefits from any type of unemployment protection, including severance and unemployment insurance, is just 11 percent.

In order to expand support for displaced workers, severance reform can be complemented with stronger unemployment insurance, monitoring, and enforcement. This could increase labor market efficiency, and enhance workers' protections. Rationalizing the severance system has the potential to increase labor market efficiency somewhat, while also offering better protection to unemployed workers if complemented by a strengthened unemployment insurance system. Unemployment insurance is a more desirable form of protection against unemployment because of its wider risk pool, its ability to provide support even – or especially – in times of economic crisis, and its ability to protect workers rather than jobs. Simulations find that replacing the severance system with an unemployment insurance system combining individual savings accounts and insurance for long-term unemployment, which would lower employer contributions overall, would lead to less unemployment and more formal dependent employment (World Bank, 2021a).

Tabla 3.2

Policy recommendations

1. Foster human capital development

- Improve instruction, shifting teacher training from theoretical content to practical pedagogical skills.
- Provide a supportive working environment to allow teachers to be able to adjust to implement remedial measures.
- Intensify the use of evaluation and information systems to identify early deficits and design programs and interventions, at both general system level and school level.

2. Refocus active labor market programs to help the workforce meet evolving skills needs

- Refocus active labor market programs on employability and skills development.
- Invest more in efficient and effective delivery.
- Improve coordination, professionalize staff and improve monitoring and evaluation.
- Rely more on beneficiary profiling to determine needs.

3. Improve labor market opportunities for women

- Expand access to quality care services

4. Build workforce development pathways that support lifelong learning

- Offer lifelong learning programs to ensure reskilling and upskilling throughout working lives as skills needs evolve.
- Ensure that older workers are equipped to participate in the labor market.

5. Increase protection of workers

- Complement severance reform with stronger unemployment insurance, monitoring and enforcement.

References

- Abeliansky, Ana and Klaus Prettnner. 2017. "Automation and demographic change." CEGE Discussion Paper 310, Center for European, Governance, and Economic Development Research (CEGE), Göttingen.
- Acemoglu, Daron, and Pascual Restrepo. 2022. "Demographics and automation." *The Review of Economic Studies* 89(1):1-44.
- Acemoglu, Daron, and Pascual Restrepo. 2017. "Secular stagnation? The effect of aging on economic growth in the age of automation." *American Economic Review* 107 (5): 174-79.
- Aguerrondo, Inés and Lea Vežub. 2011. "Las instituciones terciarias de formación docente en Argentina. Condiciones institucionales para el liderazgo pedagógico." *Educar*, 47(2): 211-235.
- Albrieu, Ramiro. 2020. "Evaluando las oportunidades y los límites del teletrabajo en Argentina en tiempos del COVID-19." CIPPEC, Buenos Aires.
- Apella, Ignacio and Gonzalo Zunino. 2022. "El cambio tecnológico y las tendencias del mercado laboral en América Latina y el Caribe: un análisis basado en las tareas." *Revista de la CEPAL* 136: 65-88.
- Apella, Ignacio and Gonzalo Zunino. 2017. "Technological change and the labor market in Argentina and Uruguay." *Policy Research Working Paper* 8215. Washington, D.C: World Bank Group.
- Aprender 2021. "Educación Primaria: informe nacional de resultados : análisis sobre los logros de aprendizaje y sus condiciones.", Ciudad Autónoma de Buenos Aires: Ministerio de Educación de la Nación.
- Aramburu, Julian, and Ana Goiicoechea. 2021. *Coding Bootcamps for Female Digital Employment: Evidence from a Randomized Control Trial in Argentina and Colombia*. Washington, DC: World Bank Group.
- Arntz, Melanie, Terry Gregory, and Ulrich Zierahn. 2016. "The risk of automation for jobs in OECD Countries." *OECD Social, Employment and Migration Working Papers* No. 189, OECD, Paris.
- Asenjo, Antonia, Verónica Escudero, and Hannah Liepmann. 2022. "Why should we integrate income and employment support? A conceptual and empirical investigation." Discussion Paper 15401, IZA, Bonn.
- Asenjo, Antonia and Clemente Pignatti. 2019. "Unemployment insurance schemes around the world: evidence and policy options." Working Paper No. 49. Geneva: International Labor Organization.
- Autor, David. H. and David Dorn. 2013. "The growth of low-skill service jobs and the polarization of the US labor market." *American Economic Review* 103(5):1553-97.
- Beccaria, Luis Alberto, Roxana del Luján Maurizio, and Gustavo Vázquez. 2017. "El estancamiento de la tasa de participación económica femenina en Argentina en los 2000." *Desarrollo Económico* 57 :3-31.
- Beccaria, Luis, Elva López Mourelo, Raúl Mercer, and Pablo Vinocur. 2020. "Delivery en pandemia: el trabajo en las plataformas digitales de reparto en Argentina." Technical note. Geneva: International Labor Organization.
- Berlinski, Samuel, and Sebastian Galiani. 2007. "The effect of a large expansion of pre-primary school facilities on preschool attendance and maternal employment." *Labour Economics* 14(3): 665-80.
- Berlinski, Samuel, Sebastian Galiani, and Patrick J. McEwan. 2011. "Preschool and maternal labor market outcomes: Evidence from a regression discontinuity design." *Economic Development and Cultural Change* 59(2):313-44.
- Bertranou, Fabio, Mónica Jiménez, and Maribel Jiménez. 2017. "Trayectorias hacia la formalización y el trabajo decente de los jóvenes en Argentina: oportunidades y desafíos en el marco de la Agenda 2030 para el Desarrollo Sostenible." International Labour Office, Buenos Aires.
- Beylis, Guillermo, Roberto Fattal Jaef, Michael Morris, Ashwini Rekha Sebastian, and Rishabh Sinha. 2020. *Going Viral: COVID-19 and the Accelerated Transformation of Jobs in Latin America and the Caribbean*. Washington, D.C.: World Bank Group.
- Bonari, Damián, Daniela Dborokin, and Daniel Starkman. 2015. "Protección social para el desempleo." Working Paper 146. CIPPEC, Buenos Aires.
- Brinatti, Agostina, Alberto Cavallo, Javier Cravino, and Andres Drenik. 2021. "The international price of remote work." *Working Paper* 29437. Cambridge, MA: National Bureau of Economic Research.

- Burning Glass Technologies. 2019. *No Longer Optional: Employer Demand for Digital Skills*. Burning Glass Technologies, Boston, MA.
- Busso, Matías, Marina Bassi, Sergio Urzúa, and Jaime Vargas. 2012. *Disconnected: Skills, Education and Employment in Latin America*. Washington, D.C.: Inter-American Development Bank.
- Bustelo, Monserrat, Luca Flabbi, and Mariana Viollaz. 2019. "The gender labor market gap in the digital economy." *IDB Working Paper Series IDB-WP-01056*. Washington, D.C.: Inter-American Development Bank.
- Bustelo, Monserrat, Luca Flabbi, Claudia Piras, and Mauricio Tejada. 2019. "Female labor force participation, labor market dynamic, and growth." *IDB Working Paper Series IDB-WP-966*. Washington, D.C.: Inter-American Development Bank.
- Casal, María del Pilar and Bradford L. Barham. 2013. "Motherhood wage penalties and labor market segmentation: Evidence from Argentina." *CEPAL Review* 111: 57-78.
- CEDLAS and World Bank Group. 2022. *SEDLAC (Socio-Economic Database for Latin America and the Caribbean)*. Center of Distributive, Labor, and Social Studies and The World Bank Group.
- Cortezzi, María Ángela. 2021. "STEM en Argentina. Progresos y desafíos en el avance de la participación de las mujeres." Washington, D.C.: World Bank Group.
- Costoya, Victoria, Lucía Echeverría, Ana Rocha, and Agustina Thailinger. 2022. "Gender gaps within couples: Evidence of time re-allocations during COVID-19 in Argentina." *Journal of Family and Economic Issues* 43:312-26.
- Cruces, Guillermo, Sebastian Galiani, and Susana Kidyba. 2010. "Payroll taxes, wages and employment: Identification through policy changes." *Labour Economics* 17:743-49.
- Cunningham, Wendy, Pablo Acosta, and Noël Muller. 2016. *Minds and Behaviors at Work: Boosting Socioemotional Skills for Latin America's Workforce*. Washington, D.C.: World Bank Group.
- Davenport, Thomas H. and Keith J. Dreyer. 2018. "AI will change radiology, but it won't replace radiologists," *Harvard Business Review*, March 27, 2018.
- David, Antonio C., Frederic Lambert, and Frederik Toscani. 2021. "Informality and labor market dynamics in Latin America." In *The Global Informal Workforce: Priorities for Inclusive Growth*, edited by Corinne C. Deléchat and Leandro Medina, 145-66. Washington, D.C.: International Monetary Fund.
- David, Antonio C., Frederic Lambert, and Frederik Toscani. 2019. "More work to do? Taking Stock of Latin American labor markets." Working Paper WP/19/55, Washington, D.C.: International Monetary Fund.
- de Hoyos, Rafael, Halsey Rogers, and Miguel Székely. 2016. *Out of School and Out of Work: Risk and Opportunities for Latin America's Ninis*. Washington, DC: World Bank Group.
- Deming, David and Lisa B. Kahn. 2018. "Skill requirements across firms and labor markets: evidence from job postings for professionals." *Journal of Labor Economics* 36(S1):S337-69.
- Dini, Marco and Martin Rueda. 2020. "Avances y desafíos de las políticas de fomento de las mipymes." In *Mipymes en América Latina: Un frágil desempeño y nuevos desafíos para las políticas de fomento*, edited by Marco Dini and Giovanni Stumpo. Santiago: Economic Commission for Latin America and the Caribbean.
- ECLAC. 2021. *Economic Survey of Latin America and the Caribbean: Labour Dynamics and Employment Policies for Sustainable and Inclusive Recovery Beyond the COVID-19 Crisis*. Santiago: Economic Commission for Latin America and the Caribbean.
- ECLAC. 2018. *Employment Situation in Latin America and the Caribbean: Labour Market Participation of Older Persons: Needs and Options*. Santiago: Economic Commission for Latin America and the Caribbean.
- Elacqua Gregory, Diana Hincapié, Emiliana Vegas and Mariana Alfonso. 2018. *Profesión: profesor en América Latina ¿Por qué se perdió el prestigio docente y cómo recuperarlo?* Washington, D.C.: Inter-American Development Bank.
- EiFayoumi, Khalid, Anta Ndoye, Sanaa Nadeem, and Gregory Auclair. 2018. "Structural reforms and labor reallocation: A cross-country analysis." Working Paper WP/18/64. Washington, D.C.: IMF.
- Eliason, Marcus, and Donald Storrie. 2006. "Lasting or latent scars? Swedish evidence on the long-term effects of job displacement." *Journal of Labor Economics* 24 (4): 831-56.

- Fernandez, Cristina and Juan Benavides. 2020. "Las plataformas digitales, la productividad y el empleo en Colombia." Centro de Investigación Económica y Social, Bogotá.
- Ferreira, María Marta, Lelys Dinarte Díaz, Sergio Urzúa, Marina Bassi. 2021. *The Fast Track to New Skills: Short-Cycle Higher Education Programs in Latin America and the Caribbean*. Washington, D.C.: World Bank Group.
- Filipetto, Sonia, Ariela Micha, Francisca Pereyra, Cecilia Poggi, and Martín Trombetta. 2022. "Labour transitions that lead to platform work: Towards increased formality? Evidence from Argentina." Working Paper 233. Paris: Agence Française de Développement.
- Filomena, Mattia, Matteo Picchio, and Isabella Giorgetti. 2022. "Off to a bad start: Youth nonemployment and labor market outcomes later in life." Discussion Paper 15366. Bonn: IZA.
- Frey, Carl Benedikt and Michael A. Osborne. 2017. "The future of employment: How susceptible are jobs to computerisation?" *Technological Forecasting & Social Change* 114:254-80.
- Gasparini, Leonardo, Irene Brambilla, Guillermo Falcone, Carlo Lombardo, and Andrés César. 2021. "Routinization and employment: Evidence for Latin America." Working Paper 276. La Plata: CEDLAS.
- Gasparini, Leonardo, and Mariana Marchionni (eds). 2015. *Bridging Gender Gaps? The Rise and Deceleration of Female Labor Force Participation in Latin America*. La Plata: CEDLAS.
- Goldin, Adrián. 2020. "Los trabajadores de plataforma y su regulación en la Argentina." Santiago: Centro Editor de America Latina (CEPAL).
- Golman, Matías. 2020. "Transiciones del Mercado Laboral De Los NEETs: Una Encuesta Para Argentina." *Revista de Economía Política de Buenos Aires* 14 (21): 9-47.
- González-Rozada, Martín and Hernán Rufflo. 2022. "The welfare effects of unemployment insurance in Argentina: New estimates using changes in the schedule of transfers." Working Paper 2022 01. Buenos Aires: Universidad Torcuato Di Tella.
- Goos, Maarten, Alan Manning, and Anna Salomons. 2014. "Explaining job polarization: routine-biased technological change and offshoring." *American Economic Review* 104(8):2509-26.
- Grundke, Robert, Luca Marcolin, The Linh Bao Nguyen, and Mariagrazia Squicciarini. 2018. "Which skills for the digital era? Returns to skills analysis," *OECD Science, Technology and Industry Working Paper 2018/09*. Paris: OECD.
- Herrera, Oliver Açuara, Carmen Pagés, Graciana Rucci, Nicole Amaral, Carlos Ospino, Jessica Torres, and Stephanie González. 2019. *The Future of Work in Latin America and the Caribbean: What are the Most In-Demand Occupations and Emerging Skills in the Region?* Washington, D.C.: Inter-American Development Bank.
- INDEC (2015). 2014 National Youth Survey, Main Results. CABA: INDEC
- ILO. 2021. *World Employment and Social Outlook: The Role of Digital Labour Platforms in Transforming the World of Work*. Geneva: International Labour Organization.
- ILO. 2018a. *Global Wage Report 2018/19: What Lies Behind Gender Pay Gaps*. Geneva: International Labour Organization.
- ILO. 2018b. *What about Seniors? A Quick Analysis of the Situation of Older Persons in the Labour Market*. Geneva: International Labour Organization.
- IMF. 2017. "Argentina: Selected Issues." Country Report No. 17/410, Washington, D.C.: International Monetary Fund.
- IPC-IG and UNICEF. 2020. *Maternity and Paternity in the Workplace in Latin America and the Caribbean*. International Policy Centre for Inclusive Growth and United Nations Children's Fund, Brasilia and Panama City.
- Jiménez, Maribel and Mónica Jiménez. 2015. "Asistencia escolar y participación laboral de los adolescentes en Argentina: el impacto de la Asignación Universal por Hijo." Working Paper 11, Buenos Aires: International Labour Organization.
- Katz, Lawrence F., Jonathan Roth, Richard Hendra, and Kelsey Schaberg. 2022. "Why do sectoral employment programs work? Lessons from WorkAdvance." *Journal of Labor Economics* 40(S1):S249-91.
- Kluge, Jochen, Susana Puerto, David Robalino, Jose M. Romero, Friederike Rother, Jonathan Stöterau, Felix Weidenkaff, and Marc Witte. 2019. "Do youth employment programs improve labor market outcomes? A quantitative review." *World Development* 114 (February): 237-53.

- Kugler, Adriana D. 2019. "Impacts of labor market institutions and demographic factors on labor markets in Latin America." Working Paper WP/19/155. Washington, D.C.: International Monetary Fund.
- Lewandowski, Piotr, Albert Park, Wojciech Hardy, Yang Du, and Saier Wu. 2022. "Technology, skills, and globalization: Explaining international differences in routine and nonroutine work using survey data." *The World Bank Economic Review* 36(3):687-708.
- LinkedIn. 2021. "Informe Empleos Emergentes 2020." Washington, D.C.: LinkedIn.
- López, Carolina. 2022. "Tripping at the finish line: Experimental evidence of misperceptions on secondary school completion." Working Paper #2022/12. Caracas: Corporación Andina de Fomento.
- Madariaga, Javier, Cesar Buenadicha, Erika Molina, and Christoph Ernst. 2019. *Platform Economy and Employment: What Is It Like to Work for an App in Argentina*. Buenos Aires: CIPPEC, IDB, and ILO.
- Mason, Andrew D. and Sudhir Shetty. 2019. *A Resurgent East Asia: Navigating a Changing World*. Washington, D.C.: World Bank Group.
- Maurizio, Roxana. 2021. "Challenges and opportunities of teleworking in Latin America and the Caribbean." Technical Note, Labor Overview Series Latin America and the Caribbean 2021. Geneva: International Labour Organization.
- Maurizio, Roxana. 2014. "Labour formalization and declining inequality in Argentina and Brazil in the 2000s: A dynamic approach." Research Paper No. 9. Geneva: International Labour Organization.
- Messina, Julián and Joana Silva. 2018. *Wage Inequality in Latin America: Understanding the Past To Prepare for the Future*. Washington, D.C.: World Bank Group.
- Micha, Ariela, Martin Trombetta, and Francisca Pereyra. 2021. "Determinantes del tiempo de trabajo de cuidado y brechas de género." *Márgenes* 7: 9-19.
- Mondino, Guillermo and Silvia Montoya. 2004. "The effects of labor market regulations on employment decisions by firms: Empirical evidence for Argentina." In: *Law and Employment: Lessons from Latin American and the Caribbean*, edited by James J. Heckman and Carmen Pagés, 351-99. Chicago: University of Chicago Press.
- Moreno, Juan Martin and Gervasio Agustin Arakaki, 2020. "Diagnóstico del Mercado de Trabajo y las Reformas Laborales en Argentina." Technical Background Paper for the Argentina Labor and Social Protection Diagnostic. Buenos Aires: World Bank Group.
- Morož, Harry. 2020. "The role of social protection in building, protecting, and deploying human capital in the East Asia and Pacific Region." *Social Protection & Jobs Discussion Paper 2008*. Washington, D.C. World Bank Group.
- Mourelo, Elva López. 2020. *Work on Delivery Platforms in Argentina: Analysis and Policy Recommendations*. Geneva: International Labour Organization.
- Mourelo, Elva López, and Verónica Escudero. 2017. "Effectiveness of active labor market tools in conditional cash transfer programs: Evidence for Argentina." *World Development* 94: 422-47.
- Narodowski, M. (2018) *El colapso de la educación*. Buenos Aires: Planeta
- OECD 2021a. *Worker Security and the COVID-19 Crisis*. Paris: Organisation for Economic Co-operation and Development.
- OECD. 2021b. *Effective Adult Learning Policies: Challenges and Solutions for Latin American Countries*. Paris: OECD.
- OECD. 2020. *OECD Employment Outlook 2020: Worker Security and the COVID-19 Crisis*. Paris: OECD.
- OECD. 2019a. *Economic Surveys of Argentina: Overview*. Paris: OECD.
- OECD. 2019b. *OECD Skills Outlook 2019: Thriving in a Digital World*. Paris: OECD.
- OECD. 2017. *Argentina: Multi-dimensional Economic Survey*. Paris: OECD.
- OECD. 2016b. *Taxing Wages in Latin America and the Caribbean*. Paris: OECD.
- OECD. 2016c. "Skills for a Digital World: 2016 Ministerial Meeting on the Digital Economy Background Report." OECD Digital Economy Papers 250. Paris: OECD.
- OECD. 2014. *Latin American Outlook 2017: Youth, Skills and Entrepreneurship*. Paris: OECD.
- OECD. 2004. *Co-Financing Lifelong Learning: Towards a Systematic Approach*. Paris: OECD.

- OECD and ILO. 2018. *Global Skills Trends, Training Needs and Lifelong Learning Strategies for the Future of Work*. G-20 Employment Working Group, Geneva.
- Oyer, Paul. 2020. "The gig economy: Non-traditional employment is a great opportunity for many, but it won't replace traditional employment." *IZA World of Labor* 471.
- Packard, Truman, Ugo Gentilini, Margaret Grosh, Philip O'Keefe, Robert Palacios, David Robalino, and Indhira Santos. 2019. *Protecting All: Risk Sharing for a Diverse and Diversifying World of Work*. Washington, D.C.: World Bank Group.
- Pennings, Steven. 2020. "The Utilization-Adjusted Human Capital Index (UHCI)," Policy Research Working Paper 9375. Washington, D.C.: World Bank.
- Pereyra, Francisca. 2017. "Trabajadoras domésticas y protección social en Argentina: avances y desafíos pendientes." Working Paper 15. Buenos Aires: International Labour Organization.
- Rajan, Priya, Rana Hasan, and Erik Jan Eleazar. 2018. "Labor market regulation in the context of structural transformation." Working Paper No. 543. Manila: Asian Development Bank.
- Roldos, Jorge, Antonio David, Camila Perez, and Samuel Pienknagura. 2019. "Labor market dynamics and informality over the business cycle in LAC." In *Regional Economic Outlook Western Hemisphere: Stunted by Uncertainty*, Washington, D.C.: International Monetary Fund.
- Saget, Catherine, Adrien Vogt-Schilb, and Trang Luu. 2020. *Jobs in a Net-Zero Emissions Future in Latin America and the Caribbean*. Washington D.C. and Geneva: IDB and ILO.
- Salvador, Marcela and Evelyn Veçça. 2020. "Políticas Activas de Mercado de Trabajo en Argentina: transformando la experiencia en aprendizaje." Technical Background Paper for the Argentina Labor and Social Protection Diagnostic. Washington, D.C.: World Bank.
- Schmillen, Achim, and Matthias Umkehrer. 2017. "The scars of youth: Effects of early-career unemployment on future unemployment experience." *International Labour Review* 156 (3-4): 465-94.
- Stöterau, Jonathan. 2019. "Job training programs for youth in low income countries." PEGNet Policy Brief 15/2019. Kiel: Kiel Institute for the World Economy.
- TalentCorp, ILMIA and World Bank. 2018. *The Automatability of Occupations in Malaysia: Automatability Profiles of Occupations on the 2017/2018 Critical Occupations List*. TalentCorp: Petaling Jaya, Malaysia.
- Trombetta, Martin, and Julieta Cabezón Cruz. 2020. "Brecha Salarial de Género en la Estructura Productiva Argentina." Documento de Trabajo 2, Centro de Estudios para la Producción XXI, Ministerio de Desarrollo Productivo de la Nación, Buenos Aires.
- UNESCO (2021). *Los aprendizajes fundamentales en América Latina y el Caribe ERCE 2019*.
- WEF. 2020. *The Future of Jobs Report 2020*. Cologny: World Economic Forum.
- Weller, Jürgen, Sonia Gontero, and Susanna Campbell. 2019. "Cambio tecnológico y empleo: una perspectiva latinoamericana: Riesgos de la sustitución tecnológica del trabajo humano y desafíos de la generación de nuevos puestos de trabajo." Santiago: ECLAC.
- Wood, Alex J. 2019. *Good Gig, Bad Gig: Job Quality and New Sources of Insecurity in the Gig Economy*. Oxford Internet Institute, Oxford.
- World Bank Group. 2022. "Argentina Poverty and Equity Assessment: Solid Walls Built on Quicksand?" Washington, D.C.: World Bank Group.
- World Bank Group. 2021. "Argentina Labor Market and Social Protection Diagnostic: Synthesis Report of Findings and Policy Recommendations." Washington, D.C.: World Bank Group.
- World Bank Group. 2021b. *Aiming High: Navigating the Next Stage of Malaysia's Development*. Kuala Lumpur: World Bank Group.
- World Bank Group. 2021c. *Argentina: Public Expenditure Review*. Washington, D.C.: World Bank Group.
- World Bank Group. 2018. *Argentina: Escaping crises, sustaining growth, sharing prosperity*. Washington, D.C.: World Bank Group.
- World Bank Group. 2017. *Argentina - Enterprise Survey 2017*. Washington, D.C.: World Bank Group.
- World Bank Group. 2012. *World Development Report 2013: Jobs*. Washington, D.C.: World Bank Group.
- World Bank Group, UNICEF and UNESCO. 2022. *Two Years After: Saving a Generation*. Washington, D.C.: World Bank Group.

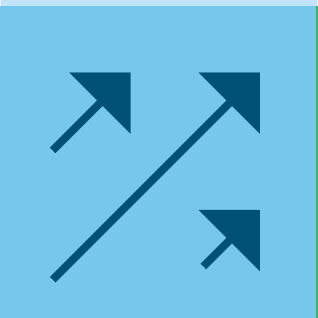
CHAPTER

4

Biotechnology and Automobiles: Two sectors with potential to contribute to growth

This CEM has outlined the major hurdles which Argentina must overcome if it is to regain its high-income status. It makes the case for diversifying its economy away from commodities, open up trade much more widely and deliver high-quality education and on-going training to ensure a highly skilled and relevant workforce that can keep up with the demands of a dynamic, technology-driven, knowledge-intensive global economy.

This chapter showcases two sectors where these issues dovetail – biotechnology and automobiles. With the right policies, both have the capacity to flourish. The ability to train human resources is essential for the development of a knowledge-intensive activity such as biotechnology, and proved crucial for the first advances in biotechnology in the 1980s and its subsequent growth. Maintaining the sector's comparative advantage will require a bold human resources policy to ensure the sustainability of the innovative ecosystem built to date. Meanwhile, Argentina's important automotive industry has seen a contraction over the last decade, both in consumption and production, and is highly challenged by the eruption of a global process of technological change. Increasing productive specialization and external competitiveness, and upgrading skills, will be crucial at this pivotal point in its history.



4.1. Biotechnology: Driven by scientific excellence but constrained by an emerging skill mismatch

Biotechnology's underpinning sciences have a long tradition in Argentina. The sector's origins date back to the 1950s when the first molecular biology laboratories were founded, virtually in lockstep with the emergence of this disciplinary field worldwide (Kriemer, 2010). The early ascent of biotechnology in the country is explained by two factors: first, the long tradition and scientific excellence in fields related to biotechnology, such as chemistry, medicine, biology, and agronomy. Second, the accumulation of productive and entrepreneurial capabilities in activities related to biotech's main applications, such as seeds, vaccines, pharmaceuticals, animal health, and products based on fermentation techniques.

The sector took off as an industry in the 1980s, in line with global trends. The emergence of the sector was the result of deliberate public policies that aimed to take advantage of Argentina's strengths – in human capital, research excellence, and institutional research capabilities. Private sector capabilities and assets in foundational fields such as agronomy and medicine were also key. Since the 1980s, the government has promoted a variety of programs focused on biotechnology, including the National Biotechnology Program (1982-1991), the National Priority Biotechnology Program (1992-1996), the Biotechnology Program of the Multi-year Science and Technology Plan (1998-2000) and the National Strategic Plan for Science, Technology and Innovation "Bicentennial" (2006-2010). These programs were

largely focused on reorienting previously publicly funded and disparate research strengths in related fields toward productive applications with high socioeconomic returns, and developing critical partnerships with the private sector.⁵⁶

Biotech activities concentrate policy interest in the country. Biotechnology was considered a priority in the last two Science, Technology and Innovation (STI) plans (*Plan Estratégico Bicentenario 2006-2010* and *Plan Argentina Innovadora 2020*). The context and conditions for the creation and survival of this type of industry, as well as its growth, have changed significantly since the emergence of the first biotechnology company in Argentina. The vertiginous expansion of the biotechnology knowledge base in recent decades has been accompanied by institutional, economic, financial, and production changes that are affecting business development and company strategies. Understanding and developing the capabilities to face these changes is central both to the survival and growth of Argentinean biotechnology firms.

4.1.1 The biotech sector comprises vertically integrated and innovative firms, with R&D start-ups emerging

Argentina's biotechnology sector consists of about 300 companies and 54 scientific institutions with research capacity.⁵⁷ The country ranks 12th in the world for its number of biotech companies, and is one of the leading biotech countries in the region, together with Mexico and Brazil.⁵⁸ The number of firms has grown eightfold in the last three decades.⁵⁹

⁵⁶ 1981 saw the first local private initiative in the field of biotechnology take place with the development of the protein "interferon" by the local pharmaceutical company Sidus. This came a year after Genentech, the first US biotech company, announced that they had succeeded in cloning and expressing human interferon in bacteria.

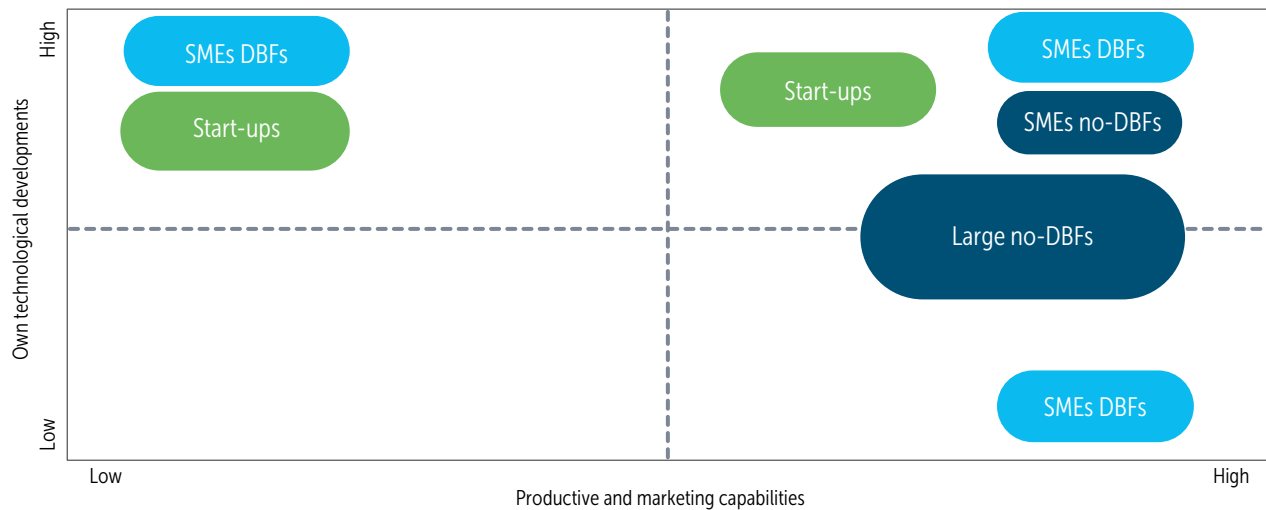
⁵⁷ According to the latest official survey, carried out in 2019, there are 139 biotechnology companies in Argentina (Ministry of Science, Technology and Innovation, 2021). This figure, however, significantly underestimates the number of biotech companies in Argentina since it does not include recently created biotech start-ups. According to the Argentinean Chamber of Biotech Start-ups (CB Start-up), in June 2022 there were 65 biotech start-ups in the country. Besides, due to a change in the methodology, it does not include biotech companies that use biotechnology techniques to provide services based on assisted reproductive techniques for human beings and animals. It also excludes most firms that produce microbial inoculants for agriculture (mainly for soybean production) and those that apply micropropagation techniques in plants. According to the last biotech survey these firms altogether accounted for 93 firms (Ministry of Science, Technology and Innovation, 2014).

⁵⁸ According to the OECD's Key Biotechnology Indicators: <https://www.oecd.org/innovation/inno/keybiotechnologyindicators.htm>

⁵⁹ In 1986, the first study on the biotech sector in Argentina found 32 local companies (Bercovich and Katz, 1990).

Figure 4.1

Most biotech companies in Argentina are innovative and vertically integrated, with a good number of start-ups



Source: World Bank. **Note:** DBF= Dedicated Biotechnology Firms; No-DBFs= no-Dedicated Biotechnology Firms; SMEs=Small and Medium Enterprises. Firms located righter in the x-axis show a higher degree of vertical integration (own productive and marketing capabilities). Those situated upwards on y-axis show a higher degree of technological capabilities.

The activity – though small compared with world industry leaders such as the US, Germany and Japan – has expanded significantly. Argentine companies’ sales increased from AR\$ 548 million in 2013 to AR\$ 1,103 million in 2019. Biotech products and services exports soared from AR\$ 29 million to AR\$ 329 million in the same period. According to official public data, Argentina’s biotech sector has an estimated turnover of US\$2.1 billion (0.5 percent of GDP) and employs around 50,000 workers.⁶⁰ This knowledge-intensive activity entails R&D efforts well above the average for the Argentinean manufacturing sector: R&D activities carried out by biotech enterprises represented 3.2 percent of biotech sales in 2019.

This compares to 1.35 percent for the average Argentinean manufacturing firm.⁶¹

Most biotech companies are vertically integrated (i.e., covering all stages, from R&D to manufacturing and product commercialization). Nonetheless, some start-ups and small or medium (SME) dedicated biotechnology firms (DBFs) focus on developing technologies only (R&D companies).⁶² Regarding the degree of technological capabilities of biotech companies, most can be classified as innovative. Only some large non-DBFs and some SMEs DBFs have little of their own technological development (Figure 4.1). These are firms that apply

60 Based on a presentation by the Undersecretary of Knowledge Economy in the first meeting of the Cluster of Biotechnology in Cordoba Province (May 11th, 2022).

61 Source: National Employment and Innovation Dynamics Survey.

62 According to OECD definitions, biotechnology firms can be classified into i) dedicated biotechnology firms (DBFs), whose predominant activity involves the application of biotechnology techniques in the production of goods or services and/or in the execution of biotechnology R&D; ii) biotechnology R&D firms (R&D DBFs), which perform R&D activities in the biotechnology area but neither develop nor sell biotechnology products; and iii) companies that carry out R&D or production activities involving biotechnology technologies, but not as their main activity (non-DBFs): typically companies of chemical or biological origin which devote part of their resources to the development or application of biotechnology, either as a separate business unit or as part of the firm’s activities.

Table 4.1

Most biotech companies are pharmaceuticals and providers of R&D services
Companies by sector (2019)

Sector	Number of firms, 2019	Share of total firms (%)
Pharmaceuticals	31	22.3
R&D services	25	18
Other business services	15	10.8
Other agricultural activities	14	10.1
Agricultural services	11	7.9
Chemical products	10	7.2
Food and beverages	9	6.5
Seed production	9	6.5
Electrical, radio and television equipment and medical instruments	15	11
Total	139	100

Source: Ministry of Science, Technology and Innovation (2021). R&D survey of the business sector. Biotechnology activities in Argentina. Years 2013-2019. Buenos Aires.

well-known biotechnology techniques (such as those used in animal or human assisted reproduction, or micropropagation of plants), but do not invest in their own innovative efforts to develop new technology or apply biotechnology techniques to create new products.

A distinctive feature of biotechnology activity globally is the predominance of small- and medium-sized companies⁶³ - a characteristic which also prevails in Argentina. Of the 139 biotechnology companies identified in the last official survey, 75 percent are small- and medium-sized companies (Ministry of Science, Technology and Innovation, 2021). When considering the growing number of start-ups and most of the biotech companies that were not included in the last survey, the share of small companies becomes even higher. It should be noted that most small companies are DBFs.

4.1.1 Pharmaceuticals and R&D services are the leading sectors

One of the core attributes of biotechnology is its cross-sectoral nature, given the wide range of potential applications for biotech technologies. In Argentina, the pharmaceutical sector accounts for the largest share of biotech firms, at 22 percent (Table 4.1). Next is the R&D services sector (at 18 percent) and the agricultural sector, whose producers and service companies, together with seed producers, together account for 25 percent. “Other services” also stand out, at 11 percent of all companies.

Most biotech-related projects carried out by Argentinean biotech firms are in the traditional areas of health and agriculture. Human health applications make up the largest share (38 percent), followed by agriculture (22 percent), animal health

63 OECD Key biotechnology indicators, <http://www.oecd.org/sti/inno/keybiotechnologyindicators.htm> OECD (2018).

Table 4.2

Biotech projects are dominated by the health sector
Projects by area of application (2019)

Area of application	Number of projects*	Share of total projects (%)
Human health	90	38.6
Agriculture	52	22.3
Animal health	30	12.9
Industrial production	19	8.1
Animal reproduction	16	6.9
Other	12	5.2
Environmental treatment	7	3
Aquaculture	4	1.7
Bioinformatics	2	0.9
Bioenergy	1	0.4
Total	233	100

Source: Ministry of Science, Technology and Innovation (2021). R&D survey of the business sector. Biotechnology activities in Argentina. Years 2013-2019. Buenos Aires. **Note:** *A single company may report one or more projects.

(12 percent), industrial production (8.1 percent) and animal reproduction (6.9 percent). However, there are also biotech projects in some emerging sectors or topics, such as environmental treatment (3 percent), aquaculture (1.7 percent), bioinformatics (0.9 percent) and bioenergy (0.4 percent) (Table 4.2).

4.1.2 The sector is innovation-led

The biotech sector can be characterized as an innovation-led ecosystem. The pharmaceutical sector accounted for 62 percent of total R&D investment in 2019, followed by the R&D services sector (10 percent) and the chemicals sector (9 percent). While large companies account for 61 percent of total R&D investment in biotech, small biotech companies make the greatest R&D effort, representing 45.4 percent of their total sales (Table 4.3). Data based on a survey of 30 companies carried out by the *Cámara Argentina de Biotecnología* (CAB) reveals that in 2021, 665 employees out of a total of

18,210 are dedicated to R&D activities (3.65 percent). The total number of employees in R&D rose from 525 to 665 in the period 2019-2021 (27 percent). In terms of innovation outputs, data for 2019 indicate that 47 percent of Argentine biotech companies reported having significantly improved an existing biotechnology product. In turn, 24 percent indicated having launched a new technological product on the domestic market, and 11 percent on the international market.

Patent statistics show that there are around 600 biotech patents applied in Argentina, though a smaller proportion of these are filed by residents.⁶⁴ Over 2005-2017, there were 112 patents filed by residents in biotechnology. This placed Argentina ahead of South American countries such as Chile (19) and Colombia (13), although well below Brazil (223). In the leading biotech countries – Japan, the United States and Germany – patents applied for by residents were far higher (49,965; 31,014

64 Ministry of Science, Technology and Innovation (2014).

Table 4.3**Small biotech companies make the greatest R&D effort**

R&D investment in biotechnology and sales of biotech goods and services, by firm size (2019)

	Company size		R&D investment in biotech (millions of current pesos)		R&D investment in biotech as a % of sales
	Total	%	Total	%	
Small	77	55.4	164	14	45.4
Medium	31	22.3	296	25.2	7.4
Large	31	22.3	713	60.8	2.2
Total	139	100	1,173	100	3.2

Source: Ministry of Science, Technology and Innovation (2021). R&D survey of the business sector. Biotechnology activities in Argentina. Years 2013-2019. Buenos Aires.

and 16,655; respectively).⁶⁵ Biosidus, Inis Biotech and Bioceres stand out among the resident firms that applied for biotechnology patents in 1990-2020 in Argentina. Amongst the public institutions, CONICET, *Universidad Nacional del Litoral* and INTA hold more than 15 patents over the period analyzed.

Articles published by Argentine researchers in international journals date back to the 1960s; since then, the number of publications has increased every decade. Over the period 2010-2019, there were 947 publications by Argentine researchers in international journals — 0.47 percent of the global total and 197 percent more than in the previous decade (with 369 publications in the period 2000-2009). However, from an international perspective, Argentina is far behind the leading countries. Looking at the indicator of publications per million inhabitants for 2000-2020, Argentina – with 32 publications per million inhabitants – is well below the United States (388 per million inhabitants), the United Kingdom (96 per million inhabitants) and Germany (73 per million inhabitants). However, Argentina is the regional leader, with lower rates for other Latin American countries such as Brazil (23), Colombia (10) and Peru (3).⁶⁶

⁶⁵ Authors' calculations based on OECD Stat.

⁶⁶ Source: Scopus

4.1.3 The innovation system involves interactions between biotech firms, public bodies, and foreign organizations

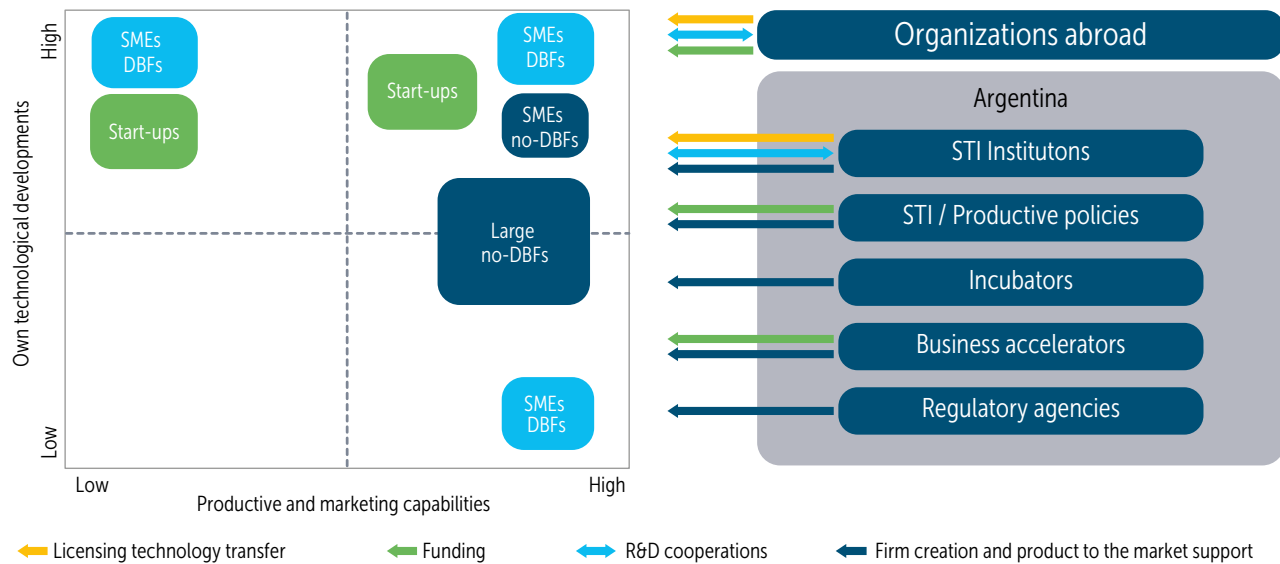
Argentine biotech firms are considered the central actors in the innovation biotech ecosystem, in terms of relating to other actors.

These interactions have a range of purposes, such as creating new biotech developments (R&D alliances), transferring or receiving knowledge (knowledge-licensing), receiving funding to develop technologies and innovate (funding flows), applying for support for firm creation (physical space to incubate the firm, creation of a business plan, etc.) and bringing a development to the market (product regulation) (Figure 4.2).

Biotech firms' R&D collaborations and licensing agreements mostly involve science, technology and innovation (STI) institutions. These institutions are mostly universities, institutions that belong to the Argentinean Science and Technology Council (CONICET), or the National Institute of Agricultural Technology (INTA). These organizations collaborate with the private sector over transferring technology, providing science and technology (S&T) services, and

Figure 4.2

Map of the Argentinean biotech ecosystem



Source: Stubrin (2022).

engaging in R&D collaborations. Estimates indicate that Argentina has about 3,000 researchers, 185 research groups and 1,050 biotechnology research projects carried out in universities, CONICET institutes and INTA experimental stations, mostly located in the provinces of Buenos Aires, Santa Fe and Córdoba (Ministry of Science, Technology and Innovation, 2016). Knowledge cooperation between Argentinean biotech firms and STI institutions has intensified in recent decades, largely explained by a process of institutional learning within STI institutions. This has seen them create and strengthen their own transfer-of-technology offices, accompanied by changes in the culture of public science and technology organizations toward a vision and practice more favorable for linkages with the private sector.

Biotech firms also engage in licensing agreements and R&D collaborations with organizations abroad. Between 2003 and 2008, biotech firms carried out 90 R&D agreements with organizations in other countries: 50 with foreign companies and 40 with science and technology organizations

(representing 40 percent of all R&D collaborations that firms engaged during the period 2003-2008; Stubrin, 2013). Linkages to foreign organizations have also increased in recent years. Biotech start-ups are born as network-organizations setting up alliances both locally and abroad.

Public policies have been central for providing funding to biotech firms' R&D activities and for the creation of science-based companies. Horizontal policy instruments for the promotion of scientific activity and innovation, as well as others of a vertical nature – specifically oriented towards the promotion of innovation in the sector – have helped to build local capabilities. The projects financed by the Argentine Sectoral Fund (FONARSEC), whose objective was to promote associative projects between the scientific-technological sector and the productive sector to help solve social and economic problems, was a catalyst for the emergence of new technological and productive platforms in biotechnology. Another important policy tool was the EMPRETECNO Program, which helped to give birth to new DBFs in the country. Since 2007, two new policies

have had significant impacts on the promotion of the biotech sector: (i) the Biotechnology Law (enacted in 2007), which provided fiscal benefits to biotech firms; and (ii) the enactment of the Entrepreneurial Capital Law 27,349, which created the National Fund for Entrepreneurial Capital (FONDCE). This fund works as a co-investment system for financing new ventures in which the Argentine State commits to invest twice the amount invested by the private sector (see Section 4.1.4).

Scientific accelerators, incubators and regulatory agencies are also key elements of the ecosystem for converting scientific developments into firms that deliver products to the market. Scientific accelerators do not only provide seed funding – they describe themselves as “company builders”. They assist start-ups to develop a business plan or give advice on intellectual property rights (IPR) regulations. Incubators are key for providing spaces to set up the newly created companies.⁶⁷ There are four incubators for biotech start-ups in the country. However, infrastructure is lacking to provide enough space to meet the demands of the growing number of biotech start-ups in the country. Regulatory agencies are also crucial for creating biosafety standards for new products. SENASA and ANMAT (National Administration of Medicines, Food and Medical Technology) are the two main regulatory agencies in the country.

4.1.4 Comparative advantages have contributed to sector growth and brought strategic opportunities

Education and training in biotech related areas have expanded

The ability to train human resources is essential for the development of a knowledge-intensive

activity such as biotechnology, and has proved crucial for the first advances in biotechnology in the 1980s and its subsequent growth. In recent decades, the academic offering of undergraduate and graduate courses with biotechnology as their epicenter has expanded notably, complementing courses in the areas of medical and health sciences, natural and exact sciences, agricultural sciences and engineering. Currently, across its public and private universities, Argentina can offer 15 undergraduate degrees and 12 postgraduate specializations in biotechnology and related disciplines. A new biotech degree at the National University Córdoba has attracted over 700 new undergraduate students, becoming the second-most elected degree in the Chemistry Sciences Faculty just two years after its creation.⁶⁸

Productive and entrepreneurial capabilities are strong

Argentina has entrepreneurial and productive capabilities in sectors where biotechnology technologies are widely applied, such as agriculture, health and the food industry. The country is among the world’s leading agricultural producers and food exporters, and has an important local seed industry and a pharmaceutical industry with a high participation of national companies. In the 1980s, some companies established in these sectors began to acquire R&D capabilities in biotechnology to develop vaccines, drugs, new varieties of seeds, etc. In other words, companies that used biological or chemical technologies began to diversify into the adoption of biotechnology. Dedicated biotechnology firms have also emerged, many of them start-up companies that develop technologies that can be applied in the agricultural, food, energy or health sectors. For these companies, Argentina acts as an “immense pilot plant” – a huge testing ground

⁶⁷ In 1999, the National Association of Incubators, Parks and Technology Poles (AIPYPT) was created. Two years later, the Secretary of Science and Technology (SECyT) financed a program for the planning and implementation of incubators and technology parks in the country.

⁶⁸ Speech by Marcelo Mariscal, Chemistry Sciences Faculty Dean at Córdoba National University, at 1st Córdoba Biotech Cluster Meeting, May 12th 2022.

for their new worldwide developments. The growth of DBF start-up companies in the country has turned Argentina into the main provider of projects for IndieBio, the world's first accelerator of biotech start-ups (Engler, 2023). DBFs in biotechnology (mostly start-ups) set up alliances locally with established firms in various fields of application (human health, animal health, seeds, food, etc.) that have the productive knowledge, specific assets (greenhouses, for example), marketing capacity and other complementary knowledge and resources (Box 4.1)

Business accelerators are a driving force for industry dynamism

The emergence of scientific accelerators offers further opportunities for development in the biotech sector. It is estimated that around 65 biotech start-ups have been created since 2017, supported by the country's business accelerators. The creation of FONDCE by Law 27,349 on Entrepreneurial Capital in March 2017 offers a public-private arrangement to stimulate investment in innovative start-ups. The law

▶ BOX 4.1. LOCAL PRODUCTIVE CAPABILITIES HAVE HELPED TO DEVELOP NEW BIOTECHNOLOGY BUSINESSES

In the field of agricultural biotechnology, the start-up Bioheuris is a case to highlight. Bioheuris, a domestic firm created in 2016, is considered one of the five most important agricultural biotechnology companies in the world. Bioheuris developed a patented gene editing technology based on CRISPR (three provisional patents in the United States) which would help to use fewer herbicides to eliminate weeds in soybean, sorghum and alfalfa. Alliances with local seed companies have been key to its growth and business strategy, providing the genetic material for testing the technology, as well as for its financing and potential subsequent commercialization. The first tests of this technology at the Argentinean seed company Santa Rosa were crucial for gaining access to the first investment funds. Bioheuris has molecular biology laboratories and plant handling facilities at the Scientific and Technological Center in Rosario and at the Helix Center in Saint Louis (USA).

The Argentine biotechnology company Keclon, created in 2011, develops industrial enzymes of internationally competitive quality for the edible oil, food, biodiesel and animal nutrition industries. The enzymes are innovative biotechnological solutions that improve industrial performance without harming the environment. The company originated from the demands of the biodiesel production sector in Argentina which – being one of the world's largest producers and exporters of soy-based biodiesel – faced the problem of biodiesel impurity, which reduced its quality. A team of CONICET researchers led by Dr. Hugo Menzella developed enzymes to optimize the quality, efficiency and cost of oil and biodiesel production. This patented development gave rise to Keclon, which currently develops enzymes for several industries in Argentina and in the international market. Although Keclon receives public support through CONICET and funding through the R&D&I Agency (through the FONARSEC and Empretecno programs), which was key in its early stages (Kantis and Federico, 2016), more than 90 percent of the company's financing is provided by private investors, particularly from the local oil industry. Molinos Agro, one of the main oil companies in the country, was the first customer and investor, using Keclon's enzymes to treat one million tons of oil per year. Other local oil companies linked to Keclon are Santa Fe Aceites and Ganagrín. Through the investment of private and public capital, the company was able to set up a production plant in the Province of Santa Fe with a capacity of 65,000 liters of fermentation (expandable to 200,000) with large-scale fermentation technologies. It employs around 100 people.

stipulated a co-investment system: for every Argentine peso invested by the private party, the state would invest two pesos, with a cap of US\$ 300,000 per venture. These funds act as Conditional Liquidation Financial Assistance, which implies that they are only reimbursed if the

company is successful. In Argentina there are four science-based business accelerators, two of which are only focused on biotech companies (GridX and SF500). In 2022, Córdoba Province also launched *Coinversión Biotech*, an initiative that replicates the FONDCE model at a provincial scale (Box 4.2).⁶⁹

➤ BOX 4.2. SCIENCE ACCELERATORS IN ARGENTINA

CITES (Center for Technological, Business and Social Innovation). CITES is Argentina's first scientific accelerator and defines itself as a venture builder, translating local capabilities into investment opportunities for global investors. CITES has management support from the corporate areas of the Sancor Seguros Group, its main investor. It provides space for incubating and establishing startups with offices, co-working facilities and laboratories in three Argentine cities: Sunchales (where the headquarters are located), Buenos Aires and Bariloche. The business model is inspired by Israel's incubators. It invests up to US\$ 750,000 in seed capital and up to US\$ 600,000 in follow-on. CITES has a portfolio of 15 companies with more than 25 patents and more than 100 scientists involved. Its sectors include pharma, medical implants, drug discovery, food tech, medical equipment, agtech and drones, medical diagnosis, and robots. It is the first venture capital fund with public placement in Argentina.

Litoral Accelerator. This was born in the city of Santa Fe in 2017 as a consortium founded by the Litoral National University, the Litoral Centro Technology Park, and the Santa Fe Stock Exchange, with the Industrial Union of Santa Fe as a consultative body. It differs from other scientific accelerators in its trajectory, being closely linked to the scientific-technological system, which provides it with very deep project evaluation expertise and knowledge of the scientific environment and its organizational culture. It invests in a range of sectors: biotechnology, life sciences, human health, animal health, environment, agribusiness, medical devices and equipment, fine chemistry, digital health, nanotechnology and engineering. The average initial investment by companies is US\$ 500,000 and around US\$ 1.5 million in follow-up investment in successive rounds of financing. Since its inception, it has attracted 233 ventures, pre-selected 58, and invested in 5 biotech companies: Inbioar, Bioheuris, Infira, and BioSynamptica S.A.

GRID Exponential (GridX). GridX is an accelerator focused on biotechnology. Set up in 2017, it defines itself as a company builder, bringing scientists and entrepreneurs together to create biotechnology companies that solve global problems. Its areas of interest are agriculture, food, diagnostics, health and biotech tools. GridX's rationale is based on generating teams that complement and balance scientific and business capabilities to promote market success. It brings the scientific and business worlds closer together for the creation of new companies. It invests a maximum initial capital of US\$ 500,000 per start-up. Its portfolio includes 39 biotech companies, and it expects to select around 10 start-ups a year for financing. Examples include: Microgenesis, Stamm, Beeflow, Caspr, Michroma, Feedvax, Tomorrow Food, Bitgenia, and OncoPrecision.

⁶⁹ See <https://innovaryemprendercba.com.ar/coinversion-biotech>

➤ BOX 4.2. SCIENCE ACCELERATORS IN ARGENTINA (CONT.)

SF500. Located in the city of Rosario (Santa Fe province), SF500 is an investment fund and accelerator for biotech companies, aiming to create 500 new biotech startups in the next 10 years. SF 500 was established in March 2022 by the Bioceres group and private investors (90 percent of total capital) and the province of Santa Fe (10 percent of total capital). It will invest US\$ 250,000 in early-stage ventures. SF500 is also a company builder, offering legal, financial, management, and intellectual property advice to the ventures. It also provides infrastructure and laboratories through its alliance with the National Agrobiotechnology Institute (INDEAR) in Rosario, a research and development organization created by the Bioceres group and the Conicet in 2004. SF500 has invested in four companies: Wonder, Oncoliq, Biota Life, and Dharma Biosciences.

Coinversión Biotech. Born in March 2022, Conversión Biotech focuses on scientific-technological enterprises in Córdoba Province that have an investment agreement or commitment with an angel investor, an accelerator or an investment fund. The program has a total budget of US\$ 400,000. Conversión Biotech can co-invest with angel investors with a public ticket of between US\$ 30,000 to 50,000, or co-invest with accelerators or investment funds with a public ticket of US\$ 50,000.

Source: World Bank, based on interviews with key sector stakeholders.

Growing capabilities for linkages and collaboration are vital

Developing the capabilities that allow firms to collaborate and exchange resources and knowledge with third parties is crucial in the world of biotechnology. There are two main reasons for this. First, the knowledge base on which biotechnology is based is increasingly broad and complex, which makes it very difficult for all knowledge to be concentrated under “one roof”. Second, technological change is occurring at a dizzying pace. This means that the competitiveness of companies depends to a large extent on the capacity and speed with which they can incorporate new knowledge. It also means that carrying out learning processes and developing new technologies in isolation is highly risky and costly. The best strategy is therefore to become networked companies.

Over the last 15 years, the public scientific-technological system has acquired institutional

capabilities for technology transfer and setting up linkages. This is driven by the less negative view of scientists collaborating with industry and a greater need for companies to collaborate to bring innovative technologies to the market. This has seen a rise in collaboration in the local system, which can be either unidirectional – through the purchase of technological services, access to specific assets (equipment, physical space) or licensing – or joint, for example working with R&D projects.

A milestone for private-public collaboration in the biotechnology arena occurred in response to the COVID-19 pandemic. The Research and Development and Innovation (R&D&I) Agency (formerly known as ANPCYT) created the COVID-19 Coronavirus Unit together with MINCyT and CONICET. The unit launched a special call for project proposals (the “COVID-19 Project Ideas”) to finance the development of projects carried out by national researchers and technology-based companies (EBT) for the study, diagnosis, control, prevention and

treatment of the disease, with total funding of up to US\$ 5 million. This initiative fostered significant intra-public sector collaboration (involving the Ministry of Health, CONICET, INTA, ANLIS and universities, and the Ministry of Science, Technology and Productive Innovation) as well as with the private sector. It did so through: (i) the participation of scientists not

accustomed to applied science; (ii) the accelerated timeframe in the transfer and regulatory processes of public sector agencies shortened timeframes and encouraged more research;⁷⁰ and (iii) the creation of new public-public and public-private collaborations led to the development of a COVID-19 vaccine, treatments for COVID-19, and diagnostic kits (Box 4.3).

▶ **BOX 4.3. COLLABORATION AND TECHNOLOGICAL DEVELOPMENTS HELPED RESPOND TO COVID-19**

ARVAC Cecilia Grierson: a vaccine against COVID-19

A team of researchers from the Biotechnological Research Institute of the National University of San Martín (UNSAM) and CONICET, led by Dr. Juliana Cassataro, applied to the COVID-19 Project Ideas call for the development of a COVID vaccine based on recombinant proteins, a technology already applied in vaccines against Hepatitis B or HPV. The working group had experience in developing adjuvants for vaccines against infectious diseases, as evidenced by publications and patents.

Through the R&D Agency, the UNSAM research team was partnered with Laboratorio Cassará, an Argentine pharmaceutical company with significant R&D capabilities in biotechnology, scale-up and production capacity under good manufacturing practice standards, as well as regulatory knowledge. This public-private collaboration allowed the scientific team of UNSAM and the Pablo Cassará Laboratory, through a research and development agreement, to combine capabilities to develop the vaccine for COVID-19 ARVAC Cecilia Grierson. They were authorized in March 2022 by ANMAT to perform Phase 1 clinical studies in humans. Previously, two vaccine prototypes had been obtained which demonstrated in studies in animal models the potential to induce very good levels of virus-neutralizing antibodies and T-cell immune response, in line with current requirements for vaccines that prevent COVID-19.

The preclinical studies were funded by the R&D&I Agency under the call for "In vivo trials of Argentine COVID-19 vaccines" through FONARSEC, and the industrial development, scale-up and Phase I clinical trial are funded by the Pablo Cassará Laboratory.

Treatment for COVID-19: Hyperimmune serum anti-SARS-CoV-2

The anti-SARS-CoV-2 hyperimmune serum project was another one selected by the COVID-19 Project Ideas. It is a biological drug developed for the treatment of people infected with SARS-CoV-2, with the aim of reducing its impact and lethality. It was approved by ANMAT after obtaining positive results in the Phase 2/3 clinical trial: it reduced mortality by almost half (45 percent) in patients with severe COVID-19, and treated patients showed a 24 percent reduction in hospitalization in intensive care and 36 percent reduction in the need for mechanical respiratory assistance.

This technological development is the result of joint work by a public-private network headed by the company Inmunova together with the Argentine Biological Institute (BIOL) and the National Administration of Laboratories and Health Institutes Dr. Carlos G. Malbrán (ANLIS). It also involves collaboration with CONICET, the Leloir Institute Foundation (FIL), Mabxience – a company specialized in biosimilars and biopharmaceuticals – and the National University of San Martín (UNSAM).

⁷⁰ For example, the National Administration of Medicines, Food and Medical Technology (ANMAT) implemented an ultra-fast approval mechanism for clinical research protocols and a common model was established for hospital ethics committees.

➤ BOX 4.3. COLLABORATION AND TECHNOLOGICAL DEVELOPMENTS HELPED RESPOND TO COVID-19 (CONT.)

Inmunova is in charge of the serum development process. It is a national public-private biotechnology company founded in 2009 by Argentine scientists as a spin-off of the research center Fundación Instituto Leloir. The company is incubated at the Argentine Nanotechnology Foundation (FAN) and specializes in research, design and development of innovative drugs for rare diseases.

The Argentine Biological Institute (BIOL), in charge of the development of serum engineering batches for preclinical and clinical trials, is a long-standing national company founded in 1908, which specializes in the production of injectables, semisolids and biological products.

The joint venture between Inmunova and BIOL was based on their complementary technological capabilities: Inmunova specializes in immunology, while BIOL focuses on the production of hyperimmune serums. Both companies had previous experience working together for a joint process of co-development of a heterologous serum for hemolytic uremic syndrome. It is on the basis of this previous collaboration that they decided to join forces again in this new project. The National Institute of Infectious Diseases (INEI-ANLIS) performed tests in their laboratories and measured the serum's ability to neutralize the COVID-19 virus.

Diagnostic reagents

In less than 90 days, 4 tests for COVID-19 were developed and approved by the regulatory authorities (Table 4.4), and a potential capacity to produce 240,000 kits per week was achieved. In addition, another 53 research projects – specifically for diagnostic kits – were submitted and admitted to the ANCyPT call for proposals, revealing the capabilities of the entire system to deal with this type of device.

Table 4.4
Diagnostic kits for COVID-19 developed through public-private partnerships

Nombre del Kit	Tipo de Kit	Desarrolladores	Estado del Kit	Tiempo de Desarrollo	Producción semanal
COVIDAR IgG	Serológico	Instituto Leloir y Laboratorio SRL	Aprobado por ANMAT	45 días	10.000
NEOKIT TECNOAMI	RT-PCR	CONICET, ICT C. Milstein y Laboratorio Pablo Cassará	Aprobado por ANMAT	<60 días	50.000
ELA-CHEMSTRIP	Diagnóstico molecular - Easy Loop Amplification	UNIQUI, UNSAM, Chemtest y Productos Biológicos SA	Aprobado por ANMAT	<90 días	100.000
COVIDAR-DX	RT-PCR	Argenomics y ZEV Diagnostics	Aprobado por ANMAT	<90 días	100.000
No disponible	RT-PCR Tecnología Crisper	UNQUI y Hospital Italiano	En desarrollo	En desarrollo	En desarrollo

Source: Economic Commission for Latin America and the Caribbean (ECLAC), "La salud como desafío productivo y tecnológico: capacidades locales y autonomía sanitaria en la Argentina pospandemia", ("Health as productive and technological challenge: local capacities and health autonomy in post-pandemic Argentina"), Documentos de Proyectos (LC/TS.2020/172- LC/BUE/TS.2020/2), Santiago, 2020.

4.1.5 Key bottlenecks to strengthen the competitiveness of the sector

Education, training and skills

Address an emerging shortage of human capital.

Argentina has skilled human resources in basic sciences and engineering who conduct research in a broad spectrum of biosciences and biotechnologies. However, the growth of the sector demands different skills to what the market is providing. There are growing signs of tight availability of human resources in certain areas or disciplines (bioinformatics, for example). The flow of researchers moving from the scientific-technological system to industry – fueled by good job opportunities in the private sector, low salaries in academic careers and a researcher evaluation system that does not reward the development of technology in the same way as the development of science – risks hollowing out the scientific system. It has been pointed out that researchers' low salaries and low funds for doctoral and post-doctoral fellowships are undermining talent attraction and retention, as well as the training of new human resources in the scientific system. This poses hurdles to the sector's sustainability in the medium to long term.

Implement a bold human resources policy to ensure the sustainability of the innovative eco-system in biotechnology.

This needs to simultaneously feed the country's science base and the development of the industry. Some ways to do this are to identify the areas and specialties in which people need to be trained in basic and applied science to generate technical training programs for the industry, and to identify the specialties that are required for the growth and development of the biotechnology industry (e.g., people with expertise in fermentation, regulation, etc.). In particular, a gap was identified in the training of human resources in regulatory issues that can cut both ways, in regulatory agencies and in research.

Equipment and R&D financing

Step-up investment in R&D activities. The biotech sector would benefit from greater commitment to invest in R&D in the public and private sector. Funding available for researchers in the public research system is generally low and in Argentine pesos, with a drop in value due to the delayed allocation of funds. Financing for developing technology and innovation is scarce and not always accessible to certain types of companies. For example, start-ups find it difficult to access programs designed for well-established companies. It is important to have different financing instruments for start-ups and for small, medium, and large established companies. The timing, sums and requirements of financing are often not well matched to the needs of the sector, which involves high-risk technology development processes and a long maturity period. Specific policies are needed to foster the consolidation of specialized venture capital funds. This implies distinguishing between policies aimed at fostering biotech start-ups and those aimed at developing the start-up ecosystem, which views fund managers as one of the key players.

Rekindle investment to address increasing obsolescence of biotech equipment.

The public sector is obsolete and lacks biotechnology equipment, which is an increasingly important obstacle not only to the growth of biotechnology companies, but also to local scientific excellence in this field. Even the ability to publish scientific articles is at risk, according to local stakeholders. The lack of adequate equipment and facilities lengthens the time of scientific and technological development, and even hinders collaboration between scientific institutions and the private sector. Public sector scientific institutions are unable to meet the demands of local companies (e.g., provision of certain technological services). The imported nature of the equipment and its costs make it difficult for public science and technology institutes to renew it through ordinary or local

research project funds. Specific lines of financing are required to meet this need.

Macroeconomic stability is key for the development of the industry and retaining emerging start-ups in Argentina. Macroeconomic uncertainty and instability, import restrictions and underdeveloped capital markets make doing business complicated in Argentina, particularly for those ventures that are inherently risky and that depend on key strategic import inputs (like imported reagents, for example) as in the case of biotech-related business. The macroeconomic context is particularly unfavorable for new-born biotech start-ups. Time is precious for these ventures, thus, start-ups are severely affected in the innovation process by long import timespans, which, in turn, delay potential access to new funds. Adverse macroeconomic conditions also affect biotech science, as researchers are unable to obtain the inputs they need in a timely manner.

Innovation from the laboratory to the market

Create the conditions for transitioning from the scientific process to industry. This is a key challenge for many businesses. In particular, the scale-up stage of scientific-technological developments in biotechnology faces difficulties in terms of lack of equipment and resources. Developing incentives for researchers in the scientific system to participate in business development activities or even start a new company is another key objective, as these types of activities are not appreciated in academic careers in Argentina. Some stakeholders interviewed even identified the latter as a major bottleneck and pointed out the need to update CONICET's Research Scientific-Career Framework (dated from 1973). A key finding that emerges from interviews with CONICET is that the institution is aware of this situation and recognizes the need to develop new rules and a new set of incentives to ease and trigger the participation of scientists in technological and science-based business ventures.

Remove infrastructure bottlenecks at the incubation stage to bolster the number of new biotech start-ups and their growth. This raises questions about where the new start-ups will settle in the future as they need to scale up their developments. Although there are a few incubators for biotechnology companies in the country, incubator space is still insufficient.

Streamline bureaucracy and long regulatory processes. Local regulatory processes can be long and uncertain, which significantly affects innovation opportunities in sectors such as animal or health biotech where time-to-market is crucial. For example, ANMAT, the regulatory agency for human health medicines, has very bureaucratic and excessively long regulatory processes according to most stakeholders interviewed. Companies point out that this issue should be improved by the regulatory agency. During COVID, the processes have been shortened due to the health emergency. These fast-track processes need to be implemented permanently. Also, given the rapid progress in knowledge development, staff of regulatory agencies need to be trained and strengthened on a continuous basis.

4.2. Automobiles: Long industrial tradition weakened by macroeconomic instability and distortive trade policy

The automotive industry is one of the most important manufacturing activities in the world due to its contribution to production, employment and trade, the production chains it generates, and its contribution to technological development. Its production is concentrated in only 30 countries, including Argentina. Globally, the sector contributes 3 percent of world GDP, although in some countries it ranges between 5 percent and 10 percent of national GDP (Germany, Brazil, China, Korea and India, among others). It is the fourth largest exporting sector,

Table 4.5

Terminals produce all types of vehicles, with recent specialization in pick-ups
Automotive terminals with production in Argentina

Company	Location (province)	Production	Productive capacity (thousands of units per year)
Agrale	Buenos Aires	Trucks and buses	10
Stellantis (PSA+FCA)	Buenos Aires/ Córdoba	Cars and utilities	300
Ford	Buenos Aires	Pick-ups	100
General Motors	Santa Fe	Cars	100
Iveco	Córdoba	Trucks	20
Mercedes Benz	Buenos Aires	SUVs and trucks and buses	50
Nissan	Córdoba	Pick-ups	70
Renault	Córdoba	Cars and utilities	90
Toyota	Buenos Aires	Pick-ups	160
VW	Buenos Aires	Pick-ups and cars	100

Source: ABECEB.

accounting for 8.9 percent of world trade, behind electronic equipment, fuels and nuclear reactors. It generates around 10 million direct jobs globally and is a strong stimulator of technological change (The World Factbook, 2022).

The sector is immersed in a global process of change, with effects on production and markets.

The emergence of new businesses and new companies is redefining the productive space. New “production ecosystems” are being shaped, under the influence of several factors: the centrality of the new consumer; technological acceleration; and the influence of governments through sustainability initiatives, new regulatory frameworks, and government incentives. The electrification of mobility is also advancing exponentially, based on the role of governments promoting its production, consumer demand, and the price catch-up between electric and combustion vehicles, mainly due to the decrease in the price of electric batteries.

4.2.1 Argentina’s automotive industry is mature and has recently specialized in medium-size pickups

Argentina has a mature automotive industry, with a long industrial tradition. There are 10 terminals, located in three provinces (Buenos Aires, Córdoba and Santa Fe), which produce all types of vehicles: cars, utility vehicles, pick-ups, trucks and buses (Table 4.6). They jointly have an installed capacity of approximately one million units and generate around 28,000 direct jobs (ADEFSA and Ministry of Labor, Employment and Social Security-MTEySS).

It is estimated that the auto parts sector is made up of 400 companies. Around 100 companies are part of the first tier of suppliers (system and auto parts manufacturers that supply directly to the terminals), with the remaining 300 making up the second tier. These companies are geographically located close to the automotive terminals and

account for 37,000 jobs (MTEySS). Among the products manufactured, metallurgical activity stands out (manufacturing of molds and dyes, stamping of metal parts, forging, steel and aluminum casting), followed by the plastic industry (injection and manufacturing of plastic parts), armed sets (boxes, gear, steering boxes), structural elements (PU chassis and trucks), tires and glass. As in other countries, the auto parts companies in the first ring are highly technical and maintain high production standards, following the guidelines of the terminals. Technology and standards are lower in the second ring, and sometimes they have a diversified offer serving industries other than automotives.

Although Argentina produces all types of vehicles, it has specialized in recent years in the manufacturing of medium size pick-ups with a load capacity of up to 1 ton. The share of this segment in total production has almost doubled in the last 10 years, from 36 percent in 2011 to 60 percent in 2021. Additionally, pick-up exports represent 63 percent of foreign vehicle sales. Currently, the country is positioned on the world stage as the fifth largest producer of medium pick-ups, behind Thailand, the US, China, and Mexico. There are four manufacturers: Toyota, Ford, VW and Nissan/Renault. The segment has high engineering capacities, production plants at the technological frontier, a highly developed and competitive supplier network and high external insertion. For these reasons, it stands out as the specialization segment that could lead the Argentine automotive industry's growth (Civetta et al., 2020).

Bilateral integration of the automotive sector with Brazil was crucial for the development of the sector, including modernization of the productive structures. The *Acuerdo de Complementación Económica N14*(ACE, Complementary Economic Agreement)N 14, signed in December 1990, provided the framework for the development of the automotive industry, and set out the expansion path for bilateral integration with Brazil. Managed trade

gave the necessary signals for complementarity in production. Brazil specialized in the manufacture of small low-end and heavy commercial vehicles, while Argentina first developed the mid-range car industry, and then that of light commercial vehicles, dominated by pick-ups.

The Argentine automotive industry has been experiencing a contraction over the last decade, both in consumption and production. The production peak recorded in the last ten years occurred in 2013, at 791,000 units, after which production began to fall, reaching a low of 276,000 units in 2020 (Figure 4.3a). During 2021 and 2022, activity recovered strongly, resuming the growth path towards values closer to the decade's average (450-500,000 units per year). Having reached domestic sales of 900,000 units per year in 2017, sales have now levelled off at around 400,000 units (Figure 4.3b).

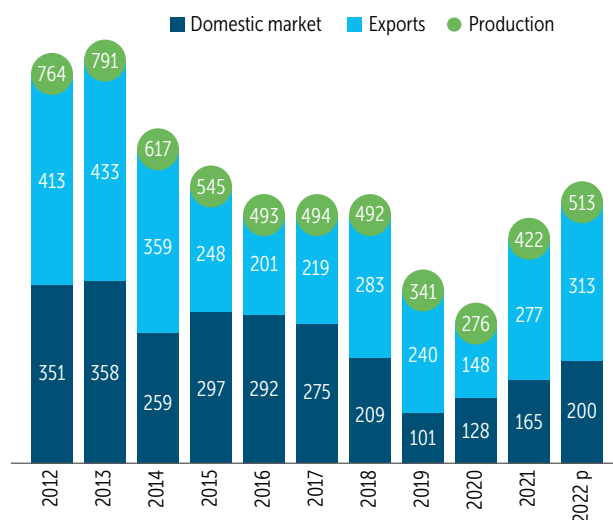
The limited performance of production and sales is mainly explained by macroeconomic instability and distortive policies. Unlike other economies in the region, the country has not yet managed to create the conditions required to stabilize its macroeconomic indicators. Recurring changes in the regulatory framework, imports, capital flows and price controls, exchange restrictions and a high tax burden, together with other fluctuating and inconsistent macroeconomic policies – largely determined by political-electoral cycles – have led to decades of chronic macroeconomic imbalances, recurring crises and market distortions. These have negatively affected investment and economic growth in the medium term (Chapter 1).

The period 2017-2021 saw an important investment cycle in the automotive industry (Table 4.6). This process included the launch of new exclusive platforms, the restyling of existing products and the modernization of facilities. According to SMATA (the automobile transport mechanics and related union), investments accounted for US\$ 5

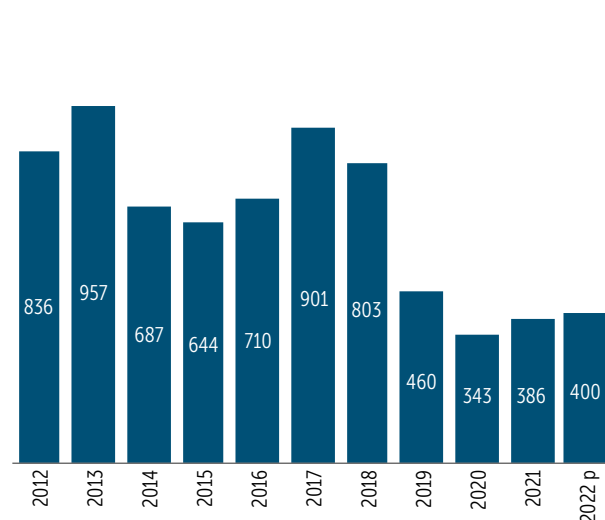
Figure 4.3

The automotive industry has seen a 10-year contraction

a) Production by destination market (thousands of units)



b) Sales to the domestic market (local + imported, thousands of units)



Source: ABCECB based on ADEFA.

billion⁷¹ (SMATA et al., 2021). Since 2021, investment has barely exceeded US\$ 1 billion, among which the new Ford Ranger model and the expected launch of the region's first hybrid pick-up by Toyota stand out. However, Argentina is far from obtaining enough new investments or assignments of new models for the established terminals.

4.2.2 Key bottlenecks to strengthen the competitiveness of the sector

The medium-sized pick-up segment will continue to be driven by demand from productive activities linked to natural resources: mining, oil and gas, agribusiness and construction. All these activities generate sustained demand based on international prices. Argentina has an important insertion in the South and Central American markets, but it could continue to expand, even into Mexico. Additionally, although to a lesser extent, the production of mid-range cars could grow hand in hand with international

expansion. Even though it is not the strongest segment in the country, the regional strategy of some companies could allow the expansion of some models with an exclusive platform in Argentina. For this purpose, it would be key to improve competitiveness through larger-scale production. Finally, the production of heavy vehicles (trucks and buses) could be sustained in the short term from the manufacture of CNG/LNG (compressed and liquefied natural gas) vehicles if Argentina manages to increase gas production. This development would be domestic market-oriented.

The potential international expansion of Argentine production depends on specialization in exports and the country's existing competitive advantages. Argentina maintains relative advantages over Brazil in the manufacture of pick-ups, while the latter is more competitive in the car and truck segments. However, there are specific

⁷¹ Including investments of the entire chain: terminals, auto parts and distributors.

Table 4.6

Automotives experienced an important investment cycle between 2017 and 2021
Investments in automotive projects (2017-2025)

Terminal	Segment	Project/Model	Start of production	Amount
Million US\$	Pick-ups	New Hilux	2017	817
VW	Pick-ups	Amarok Restyling	2017	44
Ford	Pick-ups	Ranger Restyling	2017	73
Nissan	Pick-ups	Frontier	2018	600
Fiat	Cars	Cronos	2018	456
Renault	Utilities	Kangoo II	2018	80
PSA	Cars	New 208	2020	138
Iveco	Trucks	New CNG engines	2020	20
VW	SUV	Taos	2021	650
Nissan	Pick-ups	Frontier restyling	2022	130
GM	SUV	Tracker	2022	300
MB	Utilities	Sprinter restyling	2022	150
Ford	Pick-ups	New Ranger	2023	580
VW	PU/SUV/motorcycles	Amarok, Taos, Ducatti	2023	250
Iveco	Trucks	New models	2025	200
Toyota	Pick-ups	Hybrid version	2025	NA
Total				4.488

Source: ABECEB. Note: Restyling means the redesign of the model.

niches in all segments (commercial vehicles, compact cars, medium trucks) where Argentine production is still competitive.

The Argentine automotive sector is highly challenged by the eruption of a global process of technological change. The car of the future will be electric, connected, shared and autonomous. Globally, automotive companies are immersed in major transformation processes, both of products and production. This process confronts the country with the need to revamp its systems in an unfavorable context for investment in the region. There are 11 industrial establishments in Argentina and 25 in Brazil, with a combined capacity of approximately

6 million vehicles per year. Such capacity implies billions of dollars in specific assets that cannot be quickly converted to the manufacture of vehicles with new powertrain technologies. It seems that the current installed capacity -which exceeds 100 million units globally- will be underutilized, as global production has stabilized around 85 million units.

The sector needs to balance its productive capacities with the restrictions imposed by the macroeconomic environment, and structural difficulties. Industrial projects need macro stability, long-term policies, and predictable and stable regulatory frameworks. However, Argentina has gone through decades of chronic macroeconomic

imbalances and changing rules of the game. At a structural level, the main constraints include a high tax burden on vehicles, logistics problems and certain difficulties of the state bureaucracy. The tax cost of acquiring a vehicle is usually very high in Argentina, estimated between 40 percent and 50 percent of the sale price of locally manufactured vehicles. The tax burden is usually a distorting element of market prices, since it makes the final price of products more expensive, making it more difficult for consumers to purchase the vehicles.

Logistics considerably affect the competitiveness of a sector whose expansion will necessarily be linked to the external market. While Argentina increases its vehicle exports to Latin America and diversifies markets, the share of maritime transport is reduced in favor of alternative, less-efficient, means. Exports to neighboring regions have begun to involve road transport. This saw the share of exports by ship fall from 84 percent in 2014 to 70 percent in

2021. This situation is also observed in the auto parts trade, where 40 percent of imports come from Brazil and transport by road is used with great frequency.

The digitalization of production process and upgrading on human capital is a pressing need to continue competing in the medium term. The digital transformation would allow national providers (especially tier 2 and 3) to capture the opportunities derived from accompanying the development of leaders (terminals and tier 1). In turn, the training of human resources is a require if Argentina wants to remain in the group of countries that produce cars. Existing knowledge and institutions are not enough. It is necessary to consider future challenges, where knowledge will undoubtedly be the most important specific asset. In this sense, the country has an outstanding software and computer services sector (Grosso, 2019), which could add value to automotive production, both in vehicle and components software, and in industrial services such as logistics.

References

- Bercovich, N. and J. Katz (1990). *Biotechnology and Political Economy: Studies of the Argentinean Case*. University Libraries. Santiago: Centro Editor de America Latina (CEPAL).
- Civetta, A., Mauro, L. y Graña, F. 2020. "Capacidades tecnológicas en el sector automotriz argentino: ¿puede el segmento de pick-ups liderar el crecimiento?" *Pymes, Innovación y Desarrollo* 8 (3), 41-65.
- Engler, A. (2023). "Q&A: GRIDX CEO on why Argentina is leading Latin America's boom in biotech innovation". *Agfunder News*. <https://agfundernews.com/gridx-ceo-on-why-argentina-is-leading-latin-americas-boom-in-biotech-innovation>
- Grosso, M. J. 2019. "Especialización productiva y las prácticas de outsourcing y offshoring en el sector de Software y Servicios Informáticos". *Revista Pymes, Innovación y Desarrollo* 7(3): 37-62.
- Kantis, H. and Federico J. 2016. "Emprendimientos tecnológicos y política pública: resultados y reflexiones del programa Empretecno en la Argentina", *Informe Técnico* 3, CIECTI.
- Ministry of Science, Technology and Innovation. 2021. *R&D Survey of the Business Sector. Biotechnology Activities in Argentina. Years 2013-2019*. Buenos Aires: MINCyT.
- Ministry of Science, Technology and Innovation. 2016. "Biología Argentina al año 2030: llave estratégica para un modelo de desarrollo tecno-productivo", November 2016. Buenos Aires: MINCyT.
- Ministry of Science, Technology and Innovation. 2014. "Las empresas de biotecnología en Argentina", Documento de Trabajo, June 2014. Buenos Aires: MINCyT.
- OECD. 2018. "Key biotechnology indicators" <http://www.oecd.org/sti/inno/keybiotechnologyindicators.htm>. Paris: Organisation for Economic Co-operation and Development.
- OECD. 2005. *A Framework for Biotechnology Statistics*. Paris: Organisation for Economic Co-operation and Development.
- SMATA, ADEFA, AFAC, ACARA, ADIMRA, UOM and IAE. 2020. Plan Estratégico Automotor, propuesta para la sostenibilidad y el desarrollo. Sindicato de mecánicos y afines del transporte automotor
- Stubrin, L. 2022. "Un análisis del crecimiento de la actividad biotecnológica en la Argentina en clave sistémica (1982-2022)." *Desarrollo económico*, 62(236), 50-78.
- Stubrin, L. 2013. "High-tech activities in emerging economies. A network perspective on the Argentinean biotech activity", Doctoral thesis for the University of Maastricht.

