

Report No. 55195-MD

Moldova

After the Global Crisis

Promoting Competitiveness and Shared Growth

June 14, 2011

Poverty Reduction and Economic Management Unit
Europe and Central Asia Region



Document of the World Bank

MOLDOVA - GOVERNMENT FISCAL YEAR

January 1 – December 31

CURRENCY EQUIVALENTS

(Exchange Rate Effective as of June 14, 2011)

Currency Unit = Moldovan Leu
US\$1.00 = 11.3552 (MDL)

Weights and Measures
Metric System

ACRONYMS AND ABBREVIATIONS

CAS	Country Assistance Strategy	LFS	Labor Force Survey
CEM	Country Economic Memorandum	MDGs	Millennium Development Goals
CFAA	Country Financial Accountability Assessment	MOE	Ministry of Education
CIS	Commonwealth of Independent States	MOF	Ministry of Finance
DPL	Development Policy Loan	MOH	Ministry of Health
ECA	Europe and Central Asia	MTEF	Medium-Term Expenditure Framework
ETF	European Training Foundation	NBM	National Bank of Moldova
FDI	Foreign Direct Investment	NPL	Non-Performing Loan
FSAP	Foreign Sector Assessment Program	PEFA	Public Expenditure and Financial Accountability Assessment
GDP	Gross Domestic Product	PER	Public Expenditure Review
GNP	Gross National Product	PFM	Public Financial Management
GOST	Gusudarstyenny Standard	IFRS	International Financing Reporting Standards
IFC	International Finance Corporation	TFP	Total Factor Productivity
IMF	International Monetary Fund	UNDP	United Nations Development Program
LDP	Letter of Development Policy	VAT	Value Added Tax

Vice President:	Philippe H. Le Houerou
Sector Director:	Yvonne M. Tsikata
Sector Manager:	Benu Bidani
Task Team Leader:	Dino L. Merotto

MOLDOVA
COUNTRY ECONOMIC MEMORANDUM

TABLE OF CONTENTS

EXECUTIVE SUMMARY	I
SUMMARY AND RECOMMENDATIONS	I
MAIN ANALYTIC FINDINGS.....	X
1. SOURCES OF GROWTH: MACRO AND MICRO FINDINGS	1
A. Impact of the Global Crisis.....	1
B. Remittances, the Fiscal Accounts, and the Need for Expenditure Reforms	4
C. Implications for Future Growth Strategy	5
D. Macro Accounting for Sources of Growth, 2000-2008 – Expenditure and GDP Decomposition.....	7
E. Capital, Labor and the Solow Decomposition	10
F. Micro Evidence of Sources of Growth at the Sector Level, 2003-2009	15
G. The Structure of the Moldovan Economy	15
H. Productivity and its Characteristics: An overview	23
I. Productivity and the Investment Climate.....	25
J. Towards a Reform Program.....	29
2. CAN EXPORTS PROVIDE A SECOND ENGINE OF GROWTH?	32
A. Introduction and Summary	32
B. Export Trends: And How Declining Export Growth is Bad for Job Creation.....	33
C. Building an Export-Led Growth Strategy around Moldova’s Comparative Advantage.....	37
D. Sophistication	38
E. Ease of Movement to Diversify	41
F. Conclusions and Policy Implications	43
G. Symptoms of the Agriculture Sector in Moldova.....	47
3. MIGRATION: BENEFITS, PROSPECTS, CHALLENGES, AND OPPORTUNITIES.....	55
A. Magnitude of Migration in Moldova	55
B. Benefits of Migration.....	56
C. Prospects.....	58
D. Opportunities	60
E. Challenges: Migration and Macroeconomic Management	61
F. Challenges: Emigration, Wages and Skills in Moldova.....	62
G. Skills: Is Human Capital a Binding Constraint to Growth?.....	67
H. Implications for the Education Sector	69
I. General Education.....	70
J. Vocational Education and Training	71
K. Conclusions for a Reform Program	73

LIST OF ANNEXES

Annex 1: Value Chain Analysis: The Moldovan Apple Sector.....	75
Annex 2: Value Chain Analysis: Software Development Sector	80
Annex 3: Reconciling 2005 and 2006 Poverty Data	87
Annex 4: Total Factor Productivity (TFP) and Impact of the Investment Climate.	88

LIST OF FIGURES

Figure 1.1: Remittances & Growth and Value	2
Figure 1.2: Changes in Exports and Imports, and the Current Account Deficit (CAD) % Growth and Value	2
Figure 1.3: Foreign Direct Investment % Growth and Value.....	2
Figure 1.4: Evolution of International Reserves (left axis) and Exchange Rate (right axis).....	3
Figure 1.5: GDP growth: - Percent Change Year on Year	3
Figure 1.6: Real Wage Growth and Unemployment Rates	4
Figure 1.7: Public Current Spending % GDP.....	5
Figure 1.8: Public Capital Expenditures as Share of GDP 2005-2009	5
Figure 1.9: Moldovan GDP Index (1991-2008).....	7
Figure 1.10: Moldova: Below Average Growth in a Fast Growing Region (2000-2008).....	7
Figure 1.11 : Remittances as a % of GDP, 2008	8
Figure 1.12: Remittances Fuelled an Increase in Private Consumption and Imports.....	8
Figure 1.13: Remittances Fuelled an Increase in Housing	8
Figure 1.14: The Composition of Real Value Added By Sector (2000-2008).....	9
Figure 1.15: Percent Annual Growth in Real Value Added by Sector (2000-2008).....	9
Figure 1.16: Export Groups as a Share of GDP 1998-2008	10
Figure 1.17: Sources of Growth – Solow Decomposition 1998-2008.....	11
Figure 1.18: Labor Left Agriculture and Industry, and Left Moldova	11
Figure 1.19: Elasticity of Employment to GDP 2001-2005	12
Figure 1.20: Labor Force Participation Rate 2007	13
Figure 1.21: Employment Rate 2007.....	13
Figure 1.22: Sector Growth Accounting – 2000-2008 (% annual average growth per period).....	14
Figure 1.23: GDP GDY GDE in constant million Lei – 2000-2008	14
Figure 1.24: Remittance Inflows Led to Marked Real Exchange Rate Appreciation	15
Figure 1.25: Change in Sources of Total Firm Revenue, 2003-2008.....	16
Figure 1.26: Output by Sector, 2009	17
Figure 1.27: Sectoral Breakdown of Total Employment, 2009.....	17
Figure 1.28: Sales and Employment by Ownership, 2009	18
Figure 1.29: Sales and Employment by Firm Size 2009	18
Figure 1.30: Overall Profitability of Moldovan Enterprises (2003 - 2009).....	19
Figure 1.31: Aggregate Profitability by Quintiles of Market Share: 2005 to 2009	20
Figure 1.32: HHI Manufacturing.....	20
Figure 1.33: Weighted Average Cost of Capital (WACC).....	21
Figure 1.34: Evolution of Total Factor Productivity (TFP) in Moldova:	23
Figure 1.35: TFP Evolution (by Location)	24
Figure 1.36: TFP in 2003 and 2009 (by Sector).....	24
Figure 1.37: Evolution of Average TFP (by Ownership).....	25
Figure 1.38: Quality of Transport Infrastructure	26
Figure 1.39: Customs Performance Index.	26
Figure 1.40: Percentage of Firms Identifying Transportation as a Major or Severe Constraint....	26
Figure 1.41: Cost of Starting a Business (percentage of per capita GDP).	27

Figure 1.42: Percentage of Senior Management Time Spent Dealing with the Requirements of Government Regulations.....	27
Figure 2.1: Average Annual Growth of Exports of Goods and Services, 2004-2008 (US\$ 2000)	33
Figure 2.2: Share of Merchandise Exports in Total Exports of Goods and Services, 2004 and 2008.....	33
Figure 2.3: Merchandise Exports 2000-2008	34
Figure 2.4: Growth of Own-Production Versus Re-Exports, 2000 and 2007	34
Figure 2.5: Destination of Gross Exports ('000 \$US).....	35
Figure 2.6: Top Gross-Export Destinations, 2000 and 2008 (share of total gross exports)	35
Figure 2.7: Decomposition of Gross Merchandise Export Growth, 2004-2008.....	36
Figure 2.8: Growth of Total Exports, OECD ('000\$US)	36
Figure 2.9: Herfindahl Index for Direct Exports (SITC 4-Digit), 2000-2008	37
Figure 2.10: Relationship Between Export Diversification and Population, 2008.....	37
Figure 2.11: Export Sophistication (EXPY).....	40
Figure 2.12: Technology Composition of Exports	40
Figure 2.13: High Value, RCA Exports in Total Export Basket, 2000-2008	41
Figure 2.14: Moldova's Higher-Value RCA Exports in the Product Space.....	42
Figure 2.15: Higher Value Exports "close to" Moldova's Successful High-Value Exports	43
Figure 2.16: Concentration of Sales and Exports in Moldova, 2006.....	44
Figure 2.17: Top 5 Constraints to Business Expansion (2008 BEEPS)	46
Figure 2.18: Moldova 2010 Logistics Performance Index Relative Score.....	46
Figure 2.19: Indices of Real Prices for Crops, Production and Agriculture Workers	48
Figure 2.20: Agro-Food Imports Overtook Exports in 2008.....	48
Figure 2.21: Index of Prices Paid for Farm Costs and Prices they Received for Their Produce (2000= 100).....	48
Figure 2.22: Wages in Agriculture Grew by More than Labor Productivity.....	49
Figure 2.23: Change in Real Profitability Per Ha (2000-2008 in 2000 prices)	50
Figure 2.24: Change in Real Profitability Per Ha (2000-2008 in 2000 prices)	50
Figure 2.25: Change In Share Of Land Area Under Crop 2000-2008.....	51
Figure 2.26: Crop Yields are Lowest in Moldova	51
Figure 2.27: Moldovan Farmers get Lower Prices than their Neighbors	52
Figure 2.28: Moldovan Agricultural Products Receive Prices at the Low-End of Export Markets	52
Figure 3.1: Moldova's Work Force by Education Level.....	56
Figure 3.2: Growth and Poverty 2000-2007	56
Figure 3.3: Migrants Earn Significantly More On Average By Migrating	58
Figure 3.4: 40 Year Demographic Changes by Region (million).....	58
Figure 3.5: Projections of Moldovan Employment and Labor Force (Assumes 3 percent Annual Employment Growth)	59
Figure 3.6: Projections of The working Age Population and Dependents	60
Figure 3.7: Returning Migrants: Sector of Employment.....	67
Figure 3.8: There is No Evidence That Moldova Lacks Graduates in Aggregate.....	68
Figure 3.9: Relative Returns to Higher Education are not increasing with Growth.....	68

LIST OF TABLES

Table 2.1: Socioeconomic Characteristics of Migrants in 2006 (percent of migrants unless specified).....	38
Table 2.2: Small Farms Are Becoming Less Profitable	49
Table 3.1: GDP Growth in Selected Economies	59
Table 3.2: Comparing Migrants and Non-Migrants	65
Table 3.3: Student Achievement in Math and Science.....	71

LIST OF BOXES

Box 1.1: Data Sources for Micro Analysis.....	15
Box 1.2: Business Dynamics – Who is Growing?.....	22
Box 2.1: Export Sophistication Methodology	39
Box 3.1: Remittances and Dutch Disease.....	62
Box 3.2: Emigration and Wages: International Evidence	63
Box 3.3: Public and Private Roles in the Moldovan Education System: A Snapshot	69
Box 3.4: Vocational Education and Training: What Do Employers Want?.....	72

ACKNOWLEDGEMENTS

Background work for this report was prepared by a World Bank team led by Lawrence Bouton and Erwin R. Tiongson and including (in alphabetical order): Iaroslav Baclajanschi, Scherezad Latif, Saumik Paul, and Viorica Strah. Several background notes and papers were prepared including those by (in alphabetical order): Celine Ferre (poverty maps and poverty analysis); Raquel Gomez (remittances and the Dutch Disease); Bailey Klinger (product space and export sophistication in Belarus, Ukraine, and Moldova); Toman Omar Mahmoud (skills shortage); a team of consultants at Nathan EME Ltd. led by Buddhika Samarasinghe (value chain analyses); Stefanie Stantcheva (middle class); Charles Udomsaph (enterprise performance), and Paolo Verme (jobless growth). The report also draws on the analysis of trade indicators conducted by Marcel Chistruga during his internship at the Moldova Country Office.

After the global crisis, the composition of the Government of Moldova and the World Bank team changed. The work on growth, exports, agriculture and remittances and the policy conclusions were developed by a team led by Dino Merotto and including Jennifer Keller, Olasupo Olusi, Iaroslav Baclajanschi, and Felicia Pricorp.

This report was undertaken under the guidance of Luca Barbone and Benu Bidani (Sector Manager). Maureen Itepu and Helena Makarenko provided team assistance.

The team received valuable comments and suggestions at the Concept Note, Decision Draft, and other stages of the preparation process from Peer Reviewers and numerous colleagues. These include (in alphabetical order): Asad Alam, Edmundo Murrugara, Kenneth Simler and Jos Verbeek.

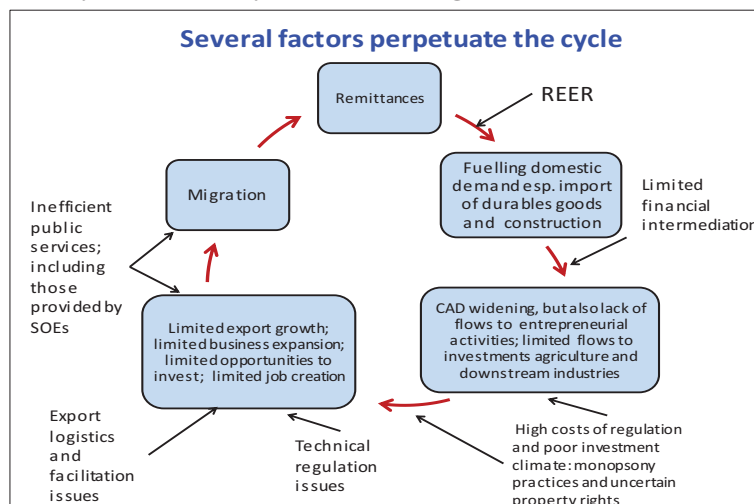
A number of individuals generously shared the results of their ongoing empirical analyses and/or data, including Pablo Saavedra, and the European Training Foundation, Torino, Italy.

EXECUTIVE SUMMARY

SUMMARY AND RECOMMENDATIONS

1. Moldova, once the ‘garden’ of the Soviet Union, is the poorest country in Europe. Income per head has been growing rapidly since 2000, but slower than the average for other Eastern European countries, and it remains well below the level Moldova had during Soviet times. Neither capital inflows, exports nor FDI drove Moldova’s recent economic prosperity: rather it was laborers flowing out and sending back remittances. Moldova experienced jobless growth. Instead of wages, remittances increased the disposable income of rural households. Constrained banking and a poor investment climate meant remittances did not help to finance business investments. Their enhanced incomes funded housing construction and an increase in consumption, mostly of imported goods (including durable goods). This consumption driven model opened up a large current account deficit, reduced competitiveness in Moldova, and stymied export industries in a more competitive global economy. Moldova lost jobs and created few new jobs, which in turn encouraged more emigration abroad. The escape of migration has helped reduce poverty, but has completed a cycle of lower opportunity at home (see Figure 1).

Figure 1: The Cycle created by Moldova’s Migration-led-Growth “Policy Trap”



2. This report argues that in the future Moldova will need to develop a second engine of growth from exports of goods and services. We argue that Moldova needs to resurrect agro-based exports, to raise their value by exporting to higher value markets, and develop service exports in order to provide job opportunities for underemployed tertiary graduates. To be successful in doing so, the government will need to implement deep fiscal and structural reforms to break the cycle, while taking advantage of productivity gains. Much needs fixing, and Moldova’s public sector does not have the capacity to fix it all. Moldova’s leaders need to reach consensus on a comprehensive and sequenced growth and poverty reduction strategy. This report sketches out what such a strategy should contain. We suggest that *geography* and the Government’s *policy* stance fundamentally shape Moldova’s economic growth potential and the path and priorities that a growth strategy should follow.

3. Remittance-led growth is certainly not ‘bad growth’, because remittances have been instrumental in reducing poverty in Moldova. In fact, remittances – if captured by the banking sector and efficiently intermediated – could be used to fuel growth. But shortcomings in

Moldova's investment climate are limiting the profitability of businesses, and with that, the prospects of attracting new foreign investment and exports. There are many problems that need to be addressed including; costly over-regulation, poor property rights, expropriation of businesses, and the creation by licensing and regulation, of monopolies for export and distribution of agro-based products for which farmers get depressed farm gate prices. Since October 2009, the Government of Moldova has made a good start in removing these policy failures that trap Moldova in a cycle of migration and jobless growth, but there is a long way to go.

4. Government needs to accelerate reforms so that the country can emerge from the global crisis-induced recession with faster and less vulnerable growth. Business as usual will not suffice. The world's capital markets have become tighter, foreign investors more demanding, and export markets more competitive. In April 2009, Moldova's youth indicated that that they can no longer stand aside and watch Moldova fall behind – they have called for a politics of aspiration, and they will demand economic policies consistent with these aspirations.

Geography and its implications for a viable growth strategy

5. Moldova is a small, resource poor, and relatively isolated nation in terms of its proximity to major European cities and markets. Historically, the land area now known today as Moldova has been on the outer boundaries of empires and kingdoms. Moldova is a European nation nonetheless, potentially close in economic terms to the enormous purchasing power of Western Europe, and to the major urban centers of Russia and Ukraine. Bordered today by the EU to the West (Romania), by the last contested border in the Soviet Union (Transnistria) to the East, and by Ukraine to North and South, the country is landlocked and agrarian. With the highest share of cultivated land in total land area of any country in the world, with good soils, climate and topography, Moldova has a comparative advantage in agricultural products.

6. Trade integration with product specialization is always important for a small remote poor country. Moldova's total population of 3.6 million in 2009 and that of its two largest cities are arguably too small to support large scale manufacturing clusters with adequate skilled labor supply and buoyant consumer demand. There are therefore sound reasons to believe that Moldova's prosperity will depend in future, as it has traditionally in the past, upon specializing in the export of agro-based products to its neighbors. In the world of modern supermarket value chains, this will require that Moldova becomes highly efficient in cold storage, packaging and transport logistics, where the country now ranks low by international comparisons. To access the more demanding EU food markets will require investments in quality and standards. Solving the Transnistria dispute will help improve market access to the East.

7. Whereas there are encouraging recent signs of export diversification to EU markets, the country's energy and exports remain heavily dependent upon the rest of the former Soviet Union. When Transnistria broke away from Moldova in 1992 it housed most of Moldova's heavy industry, producing about 40 percent of GDP but containing just around 15 percent of the population. Little is known of the details of Transnistria's economy since the collapse of the Soviet Union, except that it has declined¹. By restricting access over the Eastern border, the Transnistria stand-off has complicated an already difficult post-Soviet transition for Moldova.

8. Given the economy's size and relatively high land distance from major city markets, Moldova's development opportunity lies in accelerated trade integration with Europe. Unfavorable geography only accentuates the high costs already imposed by the country's landlocked and remote location. Moldova's trade regime is open, but goods seem to flow less freely over its borders than labor and capital. The recent redirection of Moldova's trade policy

¹ Transnistria is excluded from Moldova's National Accounts and fiscal data and so is excluded from this and all other

towards European integration, and recent initiatives to solve the Transnistria border problem, can only help Moldova's need for better trade integration, and should be continued, along with stronger efforts to fix customs and trade and transport logistics.

Policies and their ramifications: the Moldovan “policy trap”

9. Moldova's large, inefficient Government, structural policy distortions, over-regulation, and under-investment in productive infrastructure and economic services are blocking its development potential. This report argues that these structural constraints and policies have trapped the economy into one of high costs, low and declining returns to investors, low technology adoption and low innovation, which in turn has meant missed opportunities and jobless growth. Jobless growth and low returns at home drive Moldovans abroad in search of better incomes. Their remittances in turn reduce the competitiveness, erode returns to capital, and limit longer-term productivity gains in Moldova, completing a *policy trap*. At the core of the policy trap is rent-seeking behavior through economic concentration: some narrow vested interests in Moldova have used regulation, licensing and their political connections to consolidate their control of purchases and sales, leaving no breathing room for new entrants or competition in the sectors in which they operate.

10. This ‘*trap*’ was disguised from 2000-2008 by the success Moldova's migrants had in escaping from it. Though their flight is its main symptom, migrants have become the crutch on which Moldova's economy now rests. Their behavior, having voted against their own economy with their feet, shapes the path of economic developments back home; both positively and negatively. To understand the existence of a policy trap in Moldova, one must recognize the lack of opportunities for well-paid work at home, and the negative impact that over-dependence upon remittance-driven growth can have on future growth potential.

11. Remittances are also highly beneficial in the short-term. Migration provided a release valve from declining employment, stagnant productivity and declining profitability, and it has proven more effective in reducing poverty than all of Moldova's (mostly untargeted) social protection programs combined. Those households who have ‘exported’ their workers to more prosperous economies typically enjoy per capita consumption that is 20 percent higher than in households without migrants, who in rural areas are struggling. Furthermore, remittances proved more robust than exports of goods through the global crisis, returning relatively quickly when the Lei exchange rate depreciated. Migration will continue to be a significant feature of Moldova's economy in future. It is well worth embracing in public policy formulation for the growth and development opportunities it provides. This report therefore argues that Government should promote policies and innovations that maximize the development impact of remittances.

12. On the down side, exporting labor brings macroeconomic challenges. Migration and aging have sharply reduced Moldova's working age population. The labor market has tightened, especially in rural areas from which most migrants originate; where there is evidence that the labor participation rate for remittance-receivers has also decreased. This tightening has helped wage earners in rural areas: but it has harmed the profitability of farms, and it has reduced the returns from farming for the majority of aging smallholder farmers who rely on hired help at harvest time. Remittances have also skewed demand towards the consumption of imports, to housing and construction, and to the production of services. Real growth and productivity in manufacturing and agriculture declined since 2006, whilst that of service sectors – especially retail, construction and real estate grew.

13. Like a booming export sector, or foreign direct investment (FDI), or even like large inflows of foreign aid, absorbing and spending remittances appreciates the real exchange rate in an economy, making imports relatively cheaper and exports less competitive. However, spending remittances does not automatically generate productivity gains for the economy. Exports and FDI

usually bring new productive technologies or management innovations. Aid can – if spent wisely - improve the stock of productive public infrastructure. Remittances lack these dynamic gains. A declining traded goods sector is a worrying symptom of the ‘*policy trap*’ because tradeables – and especially exports - tend to generate higher productivity gains than non-traded sectors. The welfare gains remittances offer are offset by this loss of dynamic growth potential.

14. By exporting labor to the location of capital rather than attracting capital to labor, Moldova gains from a share of the return to labor (a share of migrants’ low skilled wages) but not from a share of the returns to capital nor total factor productivity (TFP). It would be preferable for the long-term prosperity of Moldovans for future governments to put in place policies that attract capital to production in Moldova rather than maintain the ‘*policy trap*’ that makes it more attractive for labor to flee a jobless economy in search of low paid work in more capital-rich economies. Moldova’s costly and over-regulated investment climate is still not attracting sufficient inflows of foreign direct investment to drive future growth once the remittance boom rescinds.

15. Up to now, the path of growth through remittances from labor exports has generated real GDP growth averaging 6.3 percent between 2000 and 2008 (just below the average for the region) and a decline in the poverty headcount from 2000-2004 faster than anywhere else in Eastern Europe and Central Asia. So why should Moldova worry? First, with a large share of the working age population already abroad, the potential for further *growth* of migration is limited, even with continuing pull factors from richer economies. Second, remittances tend to decline naturally over time. For now a good share of Moldovan migrants return from CIS countries, though less so from EU countries. As migrants spend longer abroad, and as they relocate their families over time, they tend to lose ties with the country — and after one generation remittance ties typically break completely. Thirdly, current migrants abroad, primarily in low-skilled, occupations are unlikely to see high *wage growth* to fuel further increases in remittances. Moldova therefore needs a second engine of growth to come from exports. But for this to happen, the domestic economy will need to be released from the ‘*policy trap*’.

16. That there is a problematic *policy trap* at all becomes evident only from understanding three things covered in the first chapters of this report. First, it requires an understanding of the incentives migrants have to leave their children and families behind; second, it requires an understanding of the pattern of recent growth and investment which their remittances and Moldova’s structural policies have generated; and third, it requires projections of the likely future sources of Moldova’s growth when, inevitably, remittance-led growth slows down.

Conclusions for a growth strategy

17. This report assembles evidence from Moldova’s macro-economic accounts, from household, farm and firm data surveys, and from Government expenditure data, to draw the conclusion that Moldova needs to develop **a second engine of growth from exports of goods and services**. We conclude that to accelerate growth and poverty reduction and to close the current account imbalance, Moldova’s Government should prioritize reforms and investments in public services and infrastructure that **resurrect traditional agro-based exports and stimulate the ICT sector**. The former is required to capitalize on Moldova’s revealed comparative advantage and to stimulate rural growth and poverty reduction. The latter could create more highly skilled service sector jobs for the underemployed Moldovan youth as they advance further into tertiary schools, and it could facilitate the labor productivity gains needed as the labor force ages and shrinks. For the strategy to work, Moldova needs to overhaul the investment climate, improve quality in secondary education, and make tertiary curricula more relevant to the demands of businesses. We focus on resurrecting traditional agro-based exports because revealed comparative advantage in Moldova still rests in these. Instead of seeking to diversify into new products, the report suggests that Moldova diversifies into new and higher value markets in the

EU, because doing so will improve Moldova's competitiveness in traditional but more volatile CIS markets.

18. A more rapid pace of more comprehensive reform is vital for this suggested growth path to materialize. The Government must tackle causes of the symptoms of low productivity and low product quality in agriculture. At the heart of these is weak trade integration, high costs of transport logistics and trade across borders, a lack of competition, subsidies which distort price signals, and the practice of creating export monopolies through over-regulation and licensing. Government must accelerate the process of reducing the administrative burden of inspections and regulations must continue to remove regulations that create market dominant buyers and sellers, and must accelerate their own withdrawal from loss-making state-owned enterprises in productive sectors, by resurrecting the privatization program.

Redefining Government's role in the economy through public debate

19. Moldova made significant changes to the regulatory environment under the first "Guillotine" reforms, and over the past 12 months has made good progress in changing procedures and regulations to reduce administrative constraints facing private businesses. More of these sorts of reforms are needed to allow businesses to compete internationally. Past governments have adjusted sectoral policies of a Soviet-style public sector to intervene – in a piecemeal fashion – to address some of the symptoms of the policy trap without dealing with the underlying causes. For instance, to deal with low quality wine exports, instead of encouraging private firms to invest in branding and quality control, in 2007 the then Government introduced a ban on bulk wine exports, created a private monopsony for local bulk wine purchases, and granted that company an export license. To offset declining crop yields for foodstuffs and an increase in food imports, past governments subsidized input use for large farms and again granted processing licenses to individual buyers. To create employment in rural villages, and to delay retirement onto inadequate pensions, the public sector has taken on the role of social insurer; retaining more teachers and non-teaching staff in schools than is justified by the declining numbers of students, and keeping them employed well into retirement. This is eroding schools' non-salary budgets and if it continues, it could decrease the quality of education. Most recently, with food prices rising and increasing the potential price incentives for farmers, an over-riding concern to protect consumers from higher prices led Government to intervene to restrict grain exports and encourage sugar manufacturers to sell domestically at lower prices.

20. To break out of the policy trap, Government of Moldova should focus systematically on actions that address the cycle. It is time for Moldova to consider an overhaul of policies and public services, to set a new vision for prosperity, and to develop a comprehensive and consistent policy redirection to move Moldova forward. Government needs to improve the investment climate with a focus on enhancing productivity, improving export competitiveness, and reducing the costs of crossing borders; regulatory reforms should target EU standards; and all reforms should be shaped by the need to reduce the footprint of the public sector on the economy. To develop widespread ownership of this vision, the country first needs a stable political system that develops national consensus through debating policy choices and trade-offs. This has proven elusive. Second, any Government will have to work hard to make the case for reforms. One aspect of migration is that migrants who may witness more progressive policies abroad, have a declining stake in holding Moldovan politicians to account for better policies at home. Perhaps in part because of this, the emergent middle class in Moldova tends to be less market and private sector friendly than in most former Soviet countries. Only through progressive debate about policies for future prosperity and their trade-offs can a new transformative consensus emerge. In designing the reform path we suggest Government should be selective, and sequence reforms to get the job done. In the next section the report differentiates between "sine qua non" measures

for the next 12 months, “low-hanging fruit” i.e. reforms with limited social costs and big benefits, and important structural reforms for the medium term.

Policy recommendations

21. **The essential immediate priorities for policy reform, the “sine qua non” of an EU-focused agro-based export strategy** are as follows:

- a. Eliminate any remaining entry restrictions that enable market dominance across sectors.
- b. Liberalize transport route operators and facilitate their entry and improve governance and transparency in the management of the transport sector, (including tariffs).
- c. Eliminate (through the “Guillotine approach”) all outdated technical standards including the outdated GOST food product standards, and adopt at once EU standards.
- d. Give farmers access to approved seeds and seedlings in the EU common catalogue and access to all fertilizers and pesticides approved in the EU.

22. **Low cost reforms that require limited action but would generate substantial gains**, so called “low hanging fruit”, include the following;

- a. Elaborate a general framework law to establish risk based inspections and streamlined procedures for all control agencies.
- b. Re-commence efforts to reduce the share of shipments physically inspected by Customs by fully implementing a risk-based approach.
- c. Eliminate institutional overlapping by creating a single food authority combining the food control functions currently assigned to various government agencies such as Ministry of Agriculture, Ministry of Health and Moldova Standard.
- d. Make more transparent the EU zero-tariff export quota allocations.
- e. Eliminate export quotas on grain.
- f. Establish a public credit registry/bureau within the National Bank of Moldova to make information on borrowers more transparent, reduce risk aversion in the banking sector, and improve access to credit to SMEs

23. **An immediate macroeconomic priority will be to restore a structurally sustainable public budget deficit.** Public expenditure in Moldova soared to 45.5 percent of GDP in 2009. Moldova’s public sector is bloated, inefficient, and heavily skewed towards social projects and transfers to individuals, households and enterprises. Strategic priorities for reforms to restore the budget to a sustainable path (which were set out in a series of World Bank fiscal notes for the Government in January 2011) include:

- a. Reduce the deficit by holding down public spending (tax collections are already high).
- b. Reduce spending in education and change education financing by optimizing the school system to reduce the costs of general education, converting to per pupil financing and improving the non-salary per pupil component of financing for hub schools.
- c. Complete health reform with a focus on hospital efficiency.
- d. Improve the efficiency of public capital investments, especially through the local budget, by investing an increasing share in productive infrastructure and improving capital budgeting procedures.
- e. Rationalize the public service and payroll to increase staff incentives and reduce staff numbers.

- f. Gradually start the implementation of pension reform to make the system sustainable in the medium and long term. Improve pensions adequacy and long run sustainability through a combination of wage valorization of past earnings, adequate indexation, a lower accruals rate, gradually increasing the retirement age, and making a tighter link between contributions and benefits and reducing the scope for retirement whilst working. Fixing pensions is the key to unlocking several of the inefficiencies in the public sector.
- g. Accelerate transparent privatization efforts, including for utility companies.

24. **Moldova should seek to maximize the development gains from migration.** Remittances will remain a very important share of Moldova's economy for a long time, and the incentive for a worker to migrate will not decline in the short or medium term. Reforms to help remittances work better for growth, including through better financial intermediation, should:

- a. Improve communication with the public about the benefits of using the formal financial remittance transactions partnership with the banking and related sectors, including through public access to information on currency rates and charges (costs of sending remittances) through alternative channels.
- b. Improve remitters' confidence in the formal banking sector through banking product innovation (ie alternative savings instruments).
- c. Modernize the payment system to retain remittances within the financial system and investigate the option of remittance transfers by internet or cell phone from EU member states.
- d. Encourage the development of on-line savings instruments for migrants – to facilitate banks to capture and intermediate remittances.
- e. Improve prudential and business conduct supervision of the banking sector and the financial sector as a whole.
- f. Implement reforms in the secured transactions area in line with World Bank recommendations.
- g. Implement International Financing Reporting Standards for all enterprises eligible for Moldova Stock Exchange Listing.

25. **Moldova must out-perform other countries in improving the overall investment climate and reducing the costs of doing business, especially for exporters.** Emphasis must be placed on enabling more entry and fairer competition. This would make Moldova a more attractive destination for FDI and foreign exporters in a post-crisis world where foreign capital is scarcer. In this regard Moldova might usefully seek to emulate Georgia, another country with difficult geography and similar export products, but a superior investment climate. Analysis of business data for Moldova suggests that the priority reforms for productivity growth, investment and employment creation in Moldovan enterprises are:

Business entry/exit and regulatory reform:

- a. Implement the law on one stop shop at the business registry: consolidating the activity of different agencies which currently issue different registration numbers; connecting electronically the tax administration with the chamber of registration.
- b. Elaborate a general framework regulation to establish risk based inspections and streamlined procedures for tax administration.
- c. Develop a system of regulating, training, licensing, monitoring insolvency practitioners to further the goal of rehabilitating viable companies and liquidating the nonviable ones more efficiently.
- d. Reduce times and transactions costs to receive construction permits. Implement the law on construction permits, setting up a functional one stop shop at the municipality

level and setting up a functional data base for construction permits that can feed from and to the land registry data base.

On FDI, competition and property rights:

- a. Re-draft and adopt a law on competition in line with good international practice
- b. Strengthen the competition authority independence and enforcement of existing laws and regulation.
- c. Revitalize the privatization process (at the state and municipal level) through transparent and competitive procedures.
- d. Improve legislation on intellectual property rights and enforcement.
- e. Make fairer the enforcement of legislation for all market players through the judicial system.
- f. Improve access to land by reducing the transactions costs of registration, improving data accuracy in the cadastre.
- g. Upgrade the IT system for the cadastre to enable the registrations of mortgages and to obtain extracts on-line, and without personal intervention.
- h. Allow tenure of agricultural land by foreign interests and put in place adequate controls against speculation.

26. **Moldova should seek higher value from exporting existing agro-based products in new markets** rather than seeking to diversify into new goods for export. In agriculture and food processing, reform emphasis must be to:

Facilitate farmers' access to modern inputs

- a. Accepting all annual crop varieties from the EU common Catalogue and varieties registered in neighboring CIS countries without further tests (with appropriate phytosanitary safeguards).
- b. Allowing (for perennial crops) producers to import seedlings of unregistered varieties to be planted on own land, subject only to phytosanitary considerations.
- c. Adjusting Government seed regulations and regulatory practices to EU practices.
- d. Revising procedures for certifying inputs that are already certified in line with standards of other countries with which Moldova has mutual acknowledgement certificates.
- e. Accepting all fertilizer and pesticides approved EU and encourage entry of market participants.
- f. Adopting the Chemical management law.
- g. Providing farmers better access to information on new inputs and research (including through training programs and ICT systems).

Improve access to financial products for farmers

- a. Taking legislative and regulatory measures to ensure the proper functioning of a warehouse receipt system.
- b. Developing a land re-parceling strategy aimed at reducing the regulatory load for land purchase and sale, swap and inheritance transactions.
- c. Reviewing the current agricultural insurance schemes and associated subsidies, with the aim of increasing efficiency, outreach and diversification of insurance products.
- d. Strengthen government support in marketing domestic products abroad.
- e. Concentrate budget support to agriculture on infrastructure needed to facilitate exports and other WTO green box items (as opposed to input and productions subsidies)

- f. Adjust the agricultural research system and education to better fit the needs of the private sector.

27. **Facilitating export growth requires lowering the high costs of crossing Moldova's borders.** Better transport infrastructure, logistics, and customs facilitation are priorities. Moldova should:

Enhance Transport infrastructure, policy and export logistics:

- a. Continue, and make more efficient, the investments in roads—tackling export corridors.
- b. Improve spending and efficiency of road repair and maintenance, including through better asset management and monitoring systems.
- c. Reduce cross subsidies from freight to passengers to contain growing costs of freight, separate the accounting of the different divisions to make results more transparent, and improve corporate governance in tariff setting in the railways company.
- d. Lower the burden of social-cultural spending from the railways company to generate savings to be invested in rolling stock and diesel fleet renovation.
- e. Facilitate the entry of post-harvest handling and logistics services, including: harvest quality control and packaging, storage, cold storage, freight operators, and other facilitation companies.

Streamline customs and other behind the border procedures:

- a. Re-start efforts to reduce border processing delays by making fully operational a single window (one-stop shop) operation under Customs administration that includes representatives of SPS, sanitary, environment, roads, and other dependencies. But where customs is in charge of all basic border procedures.
- b. Provide the needed IT infrastructure for data sharing between the agencies involved in border crossing.
- c. Streamline border procedures in line with EU-recommended practice.
- d. Combating unofficial payments in the process of border-crossing.

28. **To create opportunities for service growth,** reform emphasis should be on unleashing the potential of ICT to generate productivity gains throughout the economy, and in particular to support nascent exports of business service and software outsourcing. Reforms should:

- a. Reduce the costs of external calls by rebalancing Moldtelecom tariffs to closer match market rates for domestic and international land line calls.
- b. Create a competitive market for band width by making Moldtelcom sell its excess capacity at market rates to other internet service providers (ISPs) and by issuing licenses to new ISPs.
- c. Generate new ICT products by removing administrative or legislative barriers that prevent innovative cell phone applications – such as providing agricultural price information, mobile banking, mobile remittances, etc.
- d. Prepare Moldtelecom for eventual privatization.
- e. Adjust legislative framework to improve radio spectrum management.

MAIN ANALYTIC FINDINGS

29. **Economic growth from 2000-2008 was driven by a boom in domestic demand funded by remittances, whilst agriculture and manufacturing struggled.** From the start of the new century, Moldova began to recoup some of the economic losses suffered after the disintegration of the Soviet Union in the 1990s. Real economic growth averaged just over 6 percent. Although credible, this still lagged the average for CIS countries over the same period. Industry, agriculture, and exports of goods have lagged behind growth of services and imports throughout the decade. Between 2006 and 2008 real value added in both industry and agriculture contracted and employment fell. As labor fled abroad, Moldova became one of the world's most remittance-dependent countries. Remittances expanded from 11.5 percent of GDP in 2000, to 30 percent by 2008. From 2000-2005 remittance-financed private consumption drove growth; then for the 3 years 2006-2008 leading up to the global crisis in 2009, the housing sector also boomed. Services and imports grew much faster than the rest of the economy. Although remittances collapsed in 2009, the most likely scenario for post-crisis recovery in economic growth in Moldova is a return to remittance-led growth. Migrant remittances may not increase as a share of GDP in future, given that high rates of migration during the decade are already slowing. But remittances will remain significant to Moldova's growth and development into the next decades. The demand for migrant Moldovan labor is likely to rebound in 2010, especially in Russia.

30. **Poverty initially fell dramatically from 2000-2004, but poverty reduction has recently been sluggish, while the proportion of rural people amongst the poor has risen as agriculture has declined.** As remittance income gave poor households a consumption boost, growth dramatically reduced poverty from 2000-2004. Since then, the rate of consumption-based poverty in Moldova has not significantly fallen. Though urban poverty continued to decline, farmers and rural households that have more retirees and children than they do workers are now significantly more likely than other groups to be poor. So too are households without migrants. For the rural economy to pick up, Moldova needs to see a reversal in the trend of declining real agriculture value added. However, reaching elderly poor rural people – absent adequate pensions - will require reforms to the social insurance system.

31. **The agriculture sector in Moldova shows pervasive symptoms of decline and is most likely the cause of the slowdown in poverty reduction.** This decline has come despite Moldova's natural advantages of climate, soil and topography, and relative proximity to EU and Russian markets. Farm-gate prices are much lower than Moldova's export prices, and Moldova's export unit values are lower than those other countries receive. Indeed prices for Moldovan crops are declining relative to other prices in the economy, and have been subject to collapses. That they are falling faster than the rise in land productivity explains why farm incomes are contracting. In fact, land productivity is comparatively low in Moldova these days, and is growing very slowly. Labor productivity and agriculture wages have increased only because around 300,000 workers migrated out of agriculture (and most out of Moldova). Perhaps most revealing is that the land area under crops with increasing productivity has fallen, whereas the land area under crops with no improvement in land productivity is increasing. The incentives for farmers seem inverted, perhaps because of distortions caused by public policy interventions (including crop-specific subsidies). The outcomes are troubling: a trade deficit for food came into being in 2007 and many products that were exported only 10 years ago, Moldova no longer exports. Remaining agriculture exports have grown much less than half as fast as GDP. Small farmers are generally making losses from farming, facing steeply higher input costs and falling crop prices. Poverty is rising amongst farmers, and young farmers seem to be abandoning Moldova in search of work – between 2000 and 2008, the average age of a Moldovan self-employed agriculture worker increased by 12 years from 37 to 49 years of age.

32. **Exports are critical to allow a small country with a limited domestic market to capture economies of scale and specialization.** But Moldova's exports of goods have struggled during this recent growth episode. Driven by sluggish growth of exports of crops, agro-based products, and wine; Moldova's exports of goods shrank to only 24 percent of GDP by 2008 from 45 percent of in 1998. This decline in exports coupled with the real decline in agriculture and manufacturing is a worrying trend. With a diminishing role for export-oriented industries in total output, the ability for Moldova to benefit from knowledge transfer (both technology and managerial skills) also diminishes, making catch-up in the global arena increasingly difficult. For this reason, this report suggests Moldova should implement policies to resurrect exports. The market share of Moldova's traditional exports has dwindled through the decade. Some new higher-skill and higher technology exports have emerged, but they remain small. Moldova's comparative advantage lies in traditional export products. Yet traditional export markets for these goods (to Russian and the CIS) are becoming more volatile, and for manufactured exports, CIS markets are declining in importance relative to the EU. Growth in Moldova's traditional export sectors has been constrained by licensing, 'thick' borders, poor infrastructure and limited financing. In the apple-growing and processing sector, for example, the lack of cold storage, constrained financing opportunities, and labor force shortages hamper growth. Regarding borders, Moldova ranked 104 out of 155 countries in the Bank's 2010 trade restrictiveness index. Government should take into account both the constraints to maintaining and increasing market share and value addition from existing markets, and the constraints to accessing new markets, especially those in the EU.

33. **The Moldovan public sector fed off consumption-led growth, and largely consumed the proceeds, making very limited new investments in productivity-enhancing infrastructure.** Roads deteriorated through inadequate maintenance - the 2010 Budget was the first for several years in which Moldova allocated an adequate amount for maintenance. Buoyant VAT and customs revenues allowed Government to reduce the deficit and public indebtedness even whilst they increased spending in line with nominal GDP. The composition of spending deteriorated however, as the public sector gradually increased consumption spending in excess of nominal GDP and dramatically increased wages, whilst neglecting investment projects and road maintenance. Teachers' and public sector wages received a generous boost in 2006 and then again ahead of the 2009 elections, along with increases in public pensions. These have made Moldova's post-crisis deficit structurally unsustainable and a crisis response that is way out of line with other countries in the region. Key priorities for correction are; the education sector, where consolidation of schools to match rapidly declining pupil numbers is overdue; better targeted social insurance; a switch to more productive investments in the capital budget; and pensions reforms that focus on improving the adequacy and long run fiscal sustainability of Moldova's pensions.

34. **Not only has infrastructure been neglected, firms located in Moldova are struggling with the investment climate.** Data on 36,000 firms from 2003 to 2009 indicates that net operating profits are either very low or negative for the majority of sectors and firm categories, are declining on average, and that returns to capital are certainly lower than the costs of capital. For most of the period and specifically in 2009 as the crisis hit, both mean and median profits are negative for firms in agriculture, fishing, textiles, wood, and other manufacturing, hotels and restaurants, and other community services. The global financial crisis exacerbated loss making in Moldovan firms – 46.4 percent of firms were making losses in 2003 compared to 44.5 percent in 2006, 44 percent in 2008 and 48.3 percent in 2009. Those in public ownership are less productive and seem to be shedding labor. Firms that are more productive do appear to be expanding faster than those that are less productive. Over the period 23.7 percent and 52.3 percent of the more productive firms expanded employment and sales, respectively, whereas only 16.1 percent and 40 percent (on average) less productive firms have increased employment and sales, respectively. However, the overall evidence suggests that productivity is negatively correlated with job creation (i.e. more efficient firms are more likely to shed jobs), but is positively correlated with

sales. This explains the symptom of Moldova's joblessness in growth, though not the reason for it. The fastest business growth has come from firms in services, small and foreign owned firms, and those with market dominance. These firms are also the most productive categories of firms, being nearly twice as productive as average firms in manufacturing or agriculture.

35. **Moldova needs to gain momentum by dramatically improving the business environment.** One of the defining characteristics of the new post-crisis global economic environment will almost certainly be constrained and scarce international capital flows. There will be new pressure, relative to the pre-crisis environment, for higher returns to global capital. In the competition for global capital, the relative place in global competitiveness and business environment rankings matters. Notwithstanding its reform achievements in 2009, Moldova still ranks relatively low in global and regional comparisons of competitiveness and the quality of the business environment. Other countries in the ECA region have enacted equally significant (if not faster and deeper) reforms and without an acceleration of reforms in priority areas, Moldova could be left trailing behind as a destination for investors. In general, productivity is highly correlated with growth in Moldova, so Government needs to prioritize those aspects of the business environment that have the largest impacts on productivity. Our analysis suggests that regulation, inspection, loss of sales in transit, workforce skills, capacity utilization, land and R&D seem to have the biggest impact on firm-level productivity. We estimate average capacity utilization at around 54 percent, and about 45 percent of firms are operating below this level. Some 76 percent of firms are operating below 80 percent capacity, which for the US economy is 'optimal' capacity. Rapid improvements in the investment climate could therefore generate a rapid response from firms. Difficulties with firm exits seem to be a constraint to growth, because they lock up capital in non-productive firms – it will therefore be important to reduce the costs and time taken for business closure, and to liberalize rules on the resale of insolvent firms' assets.

36. **The difficult business environment and a shortage of the right skills may be stunting emerging service sectors with export potential.** Emerging sectors such as the software development sector have been growing and making substantial contributions to the local economy. However, few business development services exist to support these fledgling companies. Future growth opportunities in ICT are constrained by the large unmet demand for university graduates with appropriate skills.

37. **Growth over the past decade in Moldova was 'jobless'.** Moldova's economic expansion came from productivity and capital investment, mostly in services. Total employment in the economy contracted, especially in rural areas. Agriculture and industry shed jobs for most of the decade. Some workers found jobs in services and construction, which created 140,000 new jobs. Others found work in wholesale and retail trade, hotels and restaurants, and real estate. Almost twice as many Moldovans as those who found jobs at home had to flee Moldova to earn a living abroad. Nearly 320,000 Moldovan workers (about 40 percent of the workforce) lives and works outside of Moldova. Moldova's employment rate has fallen steadily and is the lowest in Eastern Europe. The tightening of domestic labor supply from migration – despite jobless growth at home - seems to have lifted wages, especially for the remaining agricultural workers. Whereas this has been good for *some* rural workers, along with stagnant average crop yields and a worsening of farmers' terms of trade, it may also have reduced the profitability of farming in Moldova. Neither farmers, nor exporters, nor manufacturers show healthy signs of employment growth. On average, sales growth among producers of exportable goods is about 40 percent the level of non-exportables. Job growth, meanwhile, is about 80 percent the level of non-exporting sectors. Large firms seem to be shedding labor. Foreign-owned firms and domestic private firms to a lesser extent were the drivers of job creation from 2003-2008. This jobless growth in part explains the incentive for Moldovans to migrate. Future growth will need to generate a pattern of higher productivity employment; both to keep skilled workers in Moldova, and because the workforce is shrinking.

38. **Looking ahead, the Moldovan workforce will shrink by 11 percent in the coming decade, whilst aging rapidly, and urbanizing only gradually.** The strong pattern of natural aging has accelerated with migration, whilst young people stay on longer into tertiary education in the cities and towns, financed often by their migrant parents. Future growth in an economy with a declining work force and rising dependency will need to rely on productivity gains and an acceleration in capital per worker, which in turn will require improvements in the investment climate and competitiveness. To date, capital per worker has risen through investments in the housing stock rather than equipment.

39. **To increase productivity in the future, Moldova’s workers will need to be equipped with more, relevant, and more modern skills.** The average years of education in the declining work force is rising rapidly, as children stay into vocational and tertiary education. Yet businesses typically complain about a shortage of skills. While emigration may have contributed to a skills shortage in Moldova, most migrants in fact lack tertiary education. The mismatch of skills seems to be due - in large part - to the quality of the education system. There is strong evidence that the tertiary education system is failing to equip graduates with the skills the economy needs. For example, the share of tertiary graduates amongst the unemployed has doubled in the last decade, and unusually for a growing economy, relative returns to tertiary education have fallen compared with returns to those with only primary education. The vocational education and training system in Moldova needs major upgrading. There appears to be keen interest in the private sector to work closely with the (mostly public) education sector in designing a curriculum that is relevant to the needs of the Moldovan labor market.

40. **The global crisis in 2009 exposed Moldova’s vulnerability, and the fragility of recent remittance-led growth path.** In common with many other emerging markets, the crisis hit Moldova suddenly on several fronts, and from the outside. Moldova suffered the collapse of remittance income, exports and FDI. Domestic demand fell by close to 10 percent in 2009 and the real economy contracted by 6.5 percent. Whereas Moldova could do nothing to prevent a crisis from outside, the severity and abruptness of the downturn has exposed Moldova’s over-reliance on remittances to fund domestic demand and fill the fiscal deficit, the heavy concentration of Moldova’s exports in a few commodities, and – once again - how dependent both these income sources are on the prosperity of the Russian economy. It has led economists to debate the sustainability of remittance-led growth in Moldova and the need to open Moldova’s borders to more diversified exports, especially with the EU.

41. **In the wake of the global crisis, the new Government of Moldova is rightly assessing Moldova’s growth strategy. This report seeks to provide an input into their “re-thinking Moldova”.** The first chapter takes a close look at the sources of growth in Moldova since 2000 using macro and micro data, underscoring the conclusion that remittances drove growth. It considers the impact of the international financial crisis on Moldova and draws lessons from it for Moldova’s future growth strategy. We conclude that Moldova’s heavy dependence on remittances for domestic demand deepened the fiscal impact of the crisis, and that to reduce vulnerability and hasten recovery Moldova must develop a second engine of growth from exports, which should target higher value exports to EU markets. Recognizing that in a tight global capital market, attracting new investment demands improvements in Moldova’s investment climate, the chapter considers which aspects of the investment climate seem to matter most to the productivity of businesses in Moldova. Subsequent chapters develop the arguments laid in Chapter 1. Chapter 2 discusses the need to develop exports, first by tracing the evolution of Moldova’s exports in the growth period, concluding what the trends show of Moldovan revealed comparative advantage and then identifying high value products in which Moldova could have export potential. The chapter summarizes what exporters complain most about in business surveys of the investment climate, and what the Bank’s Logistics Performance Index and “Doing Business” surveys show of Moldova’s relative rank for ease of exporting compared with other countries. Having

concluded that Moldova has revealed comparative advantage in agriculture-based exports, Chapter 2 ends by identifying symptoms of poor policy that lies at the heart of the “policy trap”. The annex to Chapter 2 takes the example of the value chain for apples to illustrate the sorts of issues that face exporters of potentially high value products. The final Chapter 3 considers the impact of migration on households, the labor market, and on skills in Moldova, and considers the importance of skills in future growth. The chapter notes that remittances will remain important to Moldovan growth and poverty reduction, and presents some options – based on global experience – for what government could do to improve the growth impact of remittances. Because high migrant countries need to invest in skills, the chapter ends by discussing the effectiveness of Moldova’s education system. The annex to Chapter 3 looks at the importance (and shortage) of skills through the lens of the ICT sector’s value-chain.

1. SOURCES OF GROWTH: MACRO AND MICRO FINDINGS

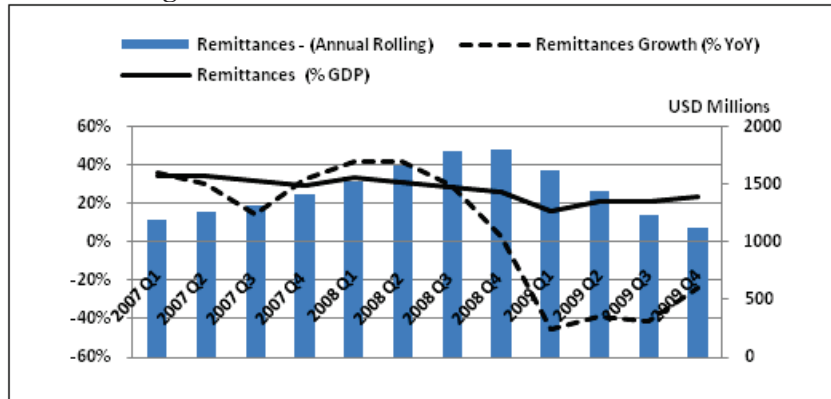
This chapter starts by looking at the impact of the international financial crisis on Moldova's economy and fiscal accounts, and the lessons from it for Moldova's future growth strategy. The first section concludes that Moldova's heavy dependence on remittances for domestic demand may have deepened the fiscal impact of the crisis. To reduce vulnerability and hasten post-crisis recovery, we conclude that Moldova needs a second engine of growth from exports (this is then taken up in Chapter 2). The second section of this chapter looks in detail at Moldova's growth episode from 2000-2008 using macro and micro data. First we undertake macro growth accounting using expenditure, sector GDP and Solow decompositions. Then we use firm-level data from the annual structural enterprise surveys and financial statements survey to provide more disaggregated evidence of the sources of Moldova's recent growth. Finally the third section of the chapter starts to diagnose why business growth turned out the way it did, and what needs to be done to improve the business environment. We use data from the financial statements survey (36,000 firms) to investigate the returns to capital and costs of capital, trends in productivity and the determinants of productivity for Moldovan firms. We conclude with suggestions for the new Government's priorities to improve the investment climate and generate productivity growth for Moldova.

A. Impact of the Global Crisis

1.1 The global crisis led to a sharp decline in GDP in 2009, exposing the vulnerability of remittance-financed and import-intensive economic growth. The effects of the global meltdown were transmitted to Moldova in the fall of 2008, as the recession hit major trading partners – Russia, Ukraine, Romania, and Western Europe, leading to sharp falls in remittances and export earnings. Real GDP fell by 6.5 percent. Unemployment increased from 5.5 percent of the workforce in the first quarter of 2008 to 9.1 percent in the first quarter of 2010 when urban unemployment peaked at 11 percent. Remittances drastically declined – by 37.4 percent (year on year) in 2009 to 20.8 percent of GDP (from about 30 percent of GDP in 2008, (see Figure 1.1), leading to a collapse in domestic demand. As a result, consumption expenditure shrunk by 6 percent (year on year) by the end of 2009. The volume of imports into Moldova also dropped by around 20 percent (year on year) in 2009, much faster than the 7.8 percent fall in exports (see Figure 1.2) thereby narrowing the current account deficit to US \$439 million in 2009, from US \$987 million in 2008. Similarly, investment expenditure was badly hit. By the end of 2009, gross fixed capital formation (GFCF) had dropped by 31.3 percent from the previous year. The net flow of foreign direct investment (FDI) also fell sharply during 2009, from US \$707 million in 2008 to just US \$86 million (see Figure 1.3).

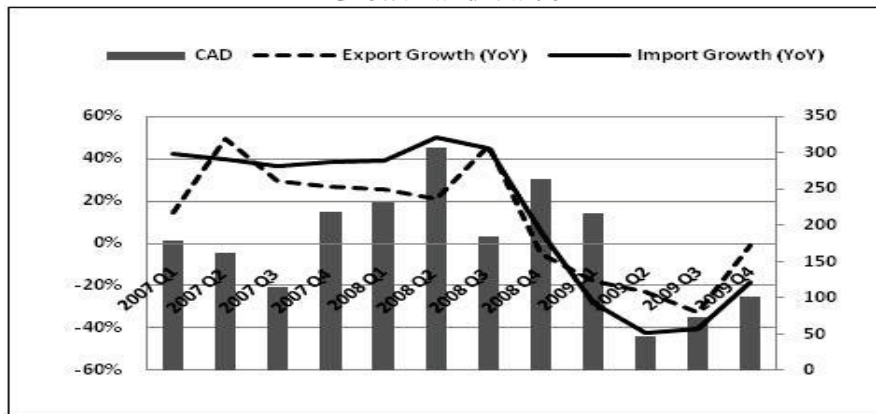
1.2 The slowdown in investment, remittances, and exports put pressure on the exchange rate. As foreign exchange inflows dried up and the Moldovan Lei came under devaluation pressures in late 2008, the National Bank of Moldova (NBM) intervened in support of the Lei, resulting in the loss in international reserves of about 60 percent from the September 2008 peak to US \$1.1 billion by the end of March 2009 (Figure 1.2). The fall in international reserves is also traceable to the 8 percent points lowering of the required reserves of freely convertible currencies of banks – a measure taken by monetary authorities to ease pressure on the banking sector. From April to the end of December 2009, the Lei depreciated gradually vis-a-vis the US dollar and the euro by 12.2 percent and 22.1 percent respectively, while international reserves increased to USD 1.48 billion due primarily to the IMF's SDR allocation of US \$185 million.

Figure 1.1: Remittances & Growth and Value



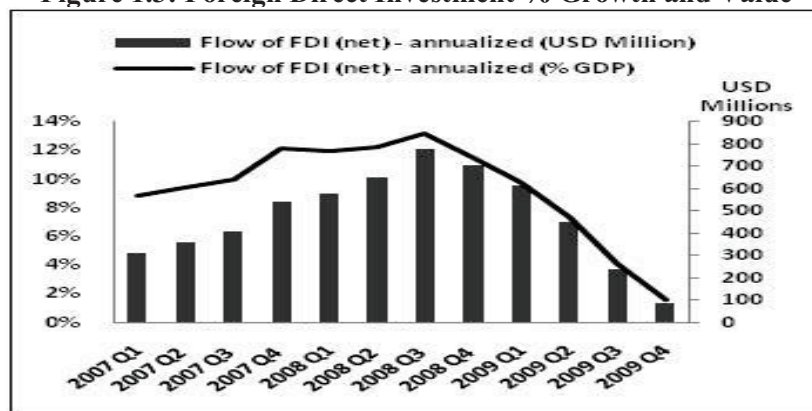
Source: MoldStat, IMF, and Bank staff calculations.

Figure 1.2: Changes in Exports and Imports, and the Current Account Deficit (CAD) % Growth and Value



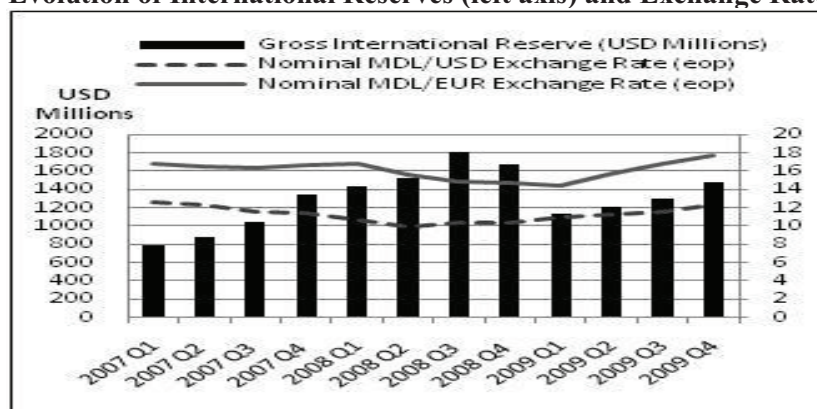
Source: MoldStat, IMF, and Bank staff calculations.

Figure 1.3: Foreign Direct Investment % Growth and Value



Source: IMF and Bank staff calculations.

Figure 1.4: Evolution of International Reserves (left axis) and Exchange Rate (right axis)

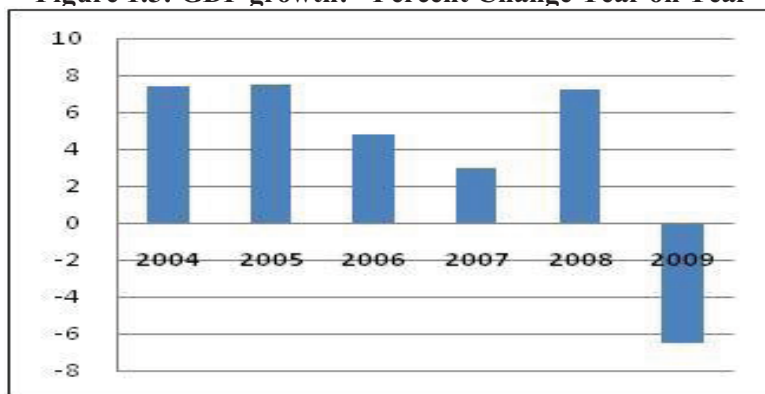


Source: IMF and Bank staff calculations.

1.3 **The recession widened the fiscal deficit.** The fall in remittance-financed consumption and imports led to a serious drop in VAT receipts, import duties and non-tax revenues, causing fiscal revenue to fall by 8.8 percent in 2009 from a year earlier. Against this loss in revenues, wage and pension spending increases and social payments caused recurrent public expenditure to rise by about 5 percent by December 2009. Consequently, the fiscal deficit increased from 1 percent of GDP in 2008 to an unprecedented 6.8 percent of GDP by the end of 2009.

1.4 **All sectors in Moldova’s economy contracted sharply in 2009 as the impact of the global meltdown weighed heavily on the real sector, putting downward pressure on prices and jobs.** The 6.5 percent contraction in GDP in 2009 (see Figure 1.5), can be linked to the 22.2 percent fall in output in the industrial sector² during the year. Several sectors – including mining, agriculture and construction, recorded declines in output ranging from 12 percent to 60 percent during 2009. Resulting job losses have pushed the annual unemployment rate to 6.4 percent, from 4 percent at the end of 2008 (see Figure 1.6), although with minimal effect on the growth of real (total) wages. Deflationary trends also emerged as a result of falling demand and output - annual inflation dropped to -0.6 percent at the end of the fourth quarter in 2009, from around 11 percent in September 2008.

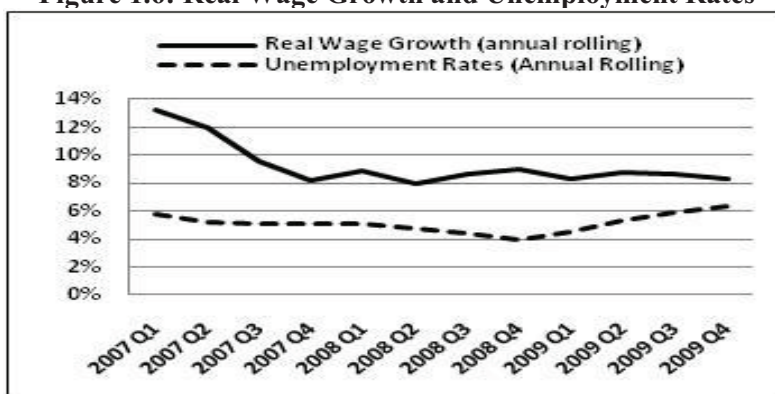
Figure 1.5: GDP growth: - Percent Change Year on Year



Source: MoldStat and Bank staff calculations.

² Growth in the industrial sector has stalled since 2005 and the value of output has been dropping, owing to various shocks, including energy price increases, drought, and the Russian ban on Moldovan exports.

Figure 1.6: Real Wage Growth and Unemployment Rates



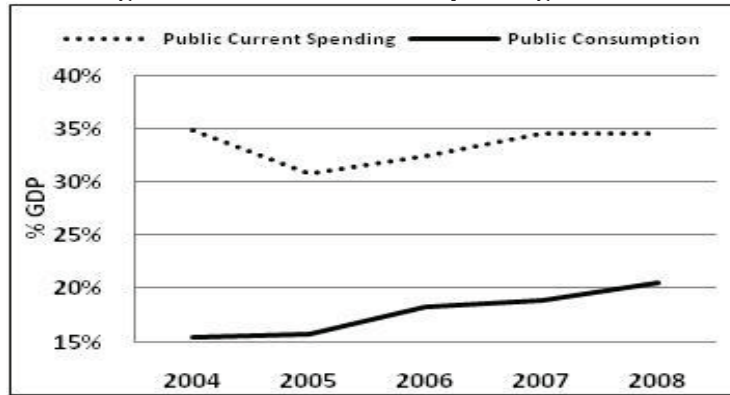
Source: MoldStat and Bank staff calculations.

1.5 **In contrast to the private sector, wages in the public sector are rising.** Workers in the private sector have seen a significant decline in their real incomes in spite of disinflation. Annual growth in real wages in key sectors like agriculture, construction, and wholesale and retail trade (which together account for about 55 percent of the pre-crisis total labor force) has fallen dramatically since the onset of the crisis – construction workers have seen a 13.1 percent pay cut on average. Total employment in these sectors combined fell by 8 percent (nearly 60,000 jobs) during 2009, compared with the previous year. In contrast, public sector wages are growing fast: average real wages in public administration and education sectors increased by around 14.1 percent and 28 percent in 2009 – a source of concern for the widening budget deficit.

B. Remittances, the Fiscal Accounts, and the Need for Expenditure Reforms

1.6 **Remittances helped to finance an ever-larger public sector footprint on the economy during 2000-2008.** Throughout the growth episode of 2000-2008, Moldova's Government maintained fiscal balance through the collection of buoyant tax revenues rather than by expenditure restraint. Robust VAT on remittance-funded imports buoyed up tax revenue, which crept up by 3 percentage points of GDP between 2004 and 2008. Fiscal prudence would have generated budget surpluses during the period of high growth. Instead, between 2004 and 2008 growth in Government spending in Moldova kept pace with nominal GDP growth. Perhaps most troubling is that between 2004 and 2008 public consumption rose by 5 percentage points of GDP. Total public recurrent spending increased in this period accounting for 4 percentage points of GDP (see Figure 1.7). Thus although there was balance in the fiscal accounts before the crisis, the public sector was expanding on the back of buoyant private foreign inflows, and was consuming rather than investing the proceeds.

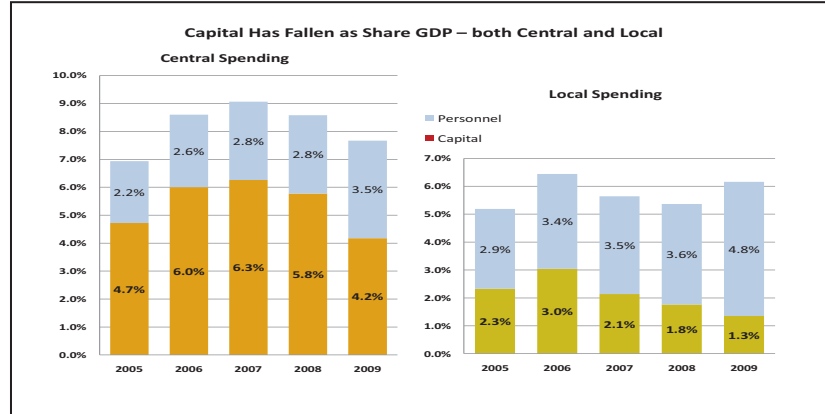
Figure 1.7: Public Current Spending % GDP



Source: World Bank staff estimates based on National Bureau of Statistics Data.

1.7 **The Government’s failure to use higher revenues to invest in productivity-enhancing infrastructure was a missed opportunity.** Worse, the share of declining capital spending spent on investment, was also decreasing (see Figure 1.8) Fiscal policy thus did not offset the declining competitiveness of the Moldovan economy by improving the stock of productive public infrastructure. Water, irrigation, heating, electricity and roads infrastructure in Moldova are deteriorating, though the (inefficient) state-owned telecommunications company has made significant investments in the fiber-optic backbone.

Figure 1.8: Public Capital Expenditures as Share of GDP 2005-2009



Source: World Bank.

C. Implications for Future Growth Strategy

1.8 **Many public expenditure reforms in Moldova are overdue.** Tax policy and administration reforms still receive more focus in the annual Government action plan than expenditure reforms. Considerable effort is still required to introduce evidence-based strategic priorities in the investment budget with project screening, selection and appraisal drawn from appropriate cost-benefit analyses. Existing public infrastructure, particularly the road network, is in urgent need of higher levels of maintenance spending to prevent the further deterioration. As will be explained in Chapter 3, the education system requires important reforms. With aging and an increase in the dependency ratio, reforms to make the pension system sufficient and affordable should be given priority sooner rather than later.

1.9 The global crisis hit Moldova on all fronts, but the depth of the crisis impact on the fiscal accounts and household poverty stemmed from the economy's reliance on remittances. Even before the crisis, there had been worrying signs that Moldova's growth model may not be sustainable in the medium to long term, as the next sections of this chapter will show. With a substantial share of the Moldovan work force already working abroad, it was not clear that the economy could sustain remittance-driven growth for much longer at the same rapid pace. As poverty reduction stagnated between 2004 and 2005, there was rising concern that Moldova's economic growth was not reaching the poor. Sluggish job creation between 2000 and 2008 left a large share of the working-age population unable to participate in economic activity at home. As a result, both Moldova's employment and activity rates are among the lowest in the region. In addition, although new business opportunities for Moldovan exporters opened with improvement in the trade regime, many producers have been unable to take full advantage of these trade opportunities because they are unable to meet quality standards or the Government's licensing requirements.

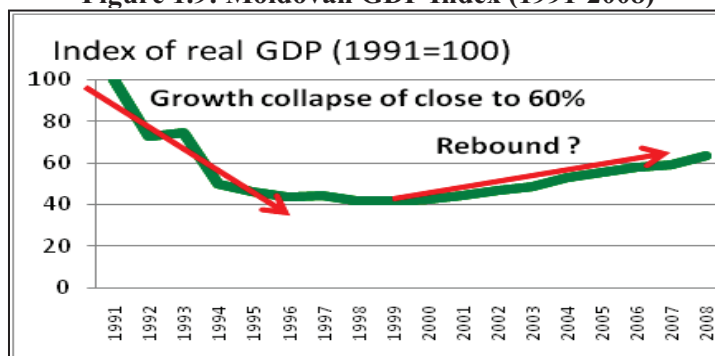
1.10 The most likely scenario, as the global economy recovers, is the immediate resumption or rebound of pre-crisis remittance-driven growth. This is a reasonable scenario given limited options in the short-run, persistent wage differentials between Moldova and the major host countries in the short-run, and the lack of employment opportunities in the local economy. It seems likely that the property market will recover only slowly, so the rebound in growth may initially be a catch up in consumption. If so, Moldova will need to make the most of remittances, seeking to channel the flow into the production of tradeables whilst addressing persistent challenges in promoting competitiveness and shared growth.

1.11 As the world economy recovers, Moldova will need to identify new drivers of economic growth, especially exports. A small open economy, Moldova must position itself to take advantage of diverse opportunities to integrate further into the global economy. There needs to be a further shift in the source of growth from consumption to net exports and investment. Capital and labor seem to flow more freely over Moldova's "thick" borders than do goods and services. This needs to change. If foreign investors are to be attracted to set up profitable exporting firms in Moldova, Government will need to identify and remove the constraints that exporters face. There are a number of persistent challenges both at the macroeconomic and microeconomic levels; they all have broad implication for Moldova's growth, irrespective of the speed and quality of global economic recovery. With rural poverty worsened in the current crisis environment and poverty remaining a rural and agricultural phenomenon, efforts to increase agricultural productivity and generate job creation in the formal, non-agricultural sector will be critical to sustaining poverty reduction. Finally, to restore macro stability, Government's footprint on the economy needs to reduce, whilst fiscal space must be freed-up for productivity-enhancing infrastructure investments. The next chapter discusses priorities for export market development. The remainder of this chapter uses business data to draw conclusions on investment climate priorities for investors in Moldova.

D. Macro Accounting for Sources of Growth, 2000-2008 – Expenditure and GDP Decomposition

1.12 **Moldova’s growth improved significantly over the 2000s averaging 6.3 percent per year before the global crisis.** From the start of the new century, Moldova began to recoup some of the estimated economic losses suffered after the disintegration of the Soviet Union in the 1990s. Real economic growth averaged over 6 percent (see Figure 1.9). Although credible, this still lagged average growth of 7.4 percent for CIS countries between 2000 and 2007.

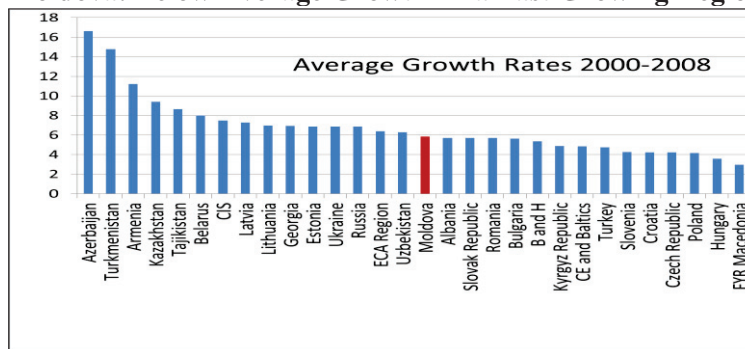
Figure 1.9: Moldovan GDP Index (1991-2008)



Source: World Bank LDB.

1.13 **Nonetheless, Moldova’s credible rate of growth was in fact just below average in a fast growing region.** (see Figure 1.10) shows that even with a respectable 6.3 percent growth per year, Moldova’s economy grew more slowly than the CIS country average, and more slowly than Ukraine, Belarus and Russia, the country’s richer traditional trading partners.

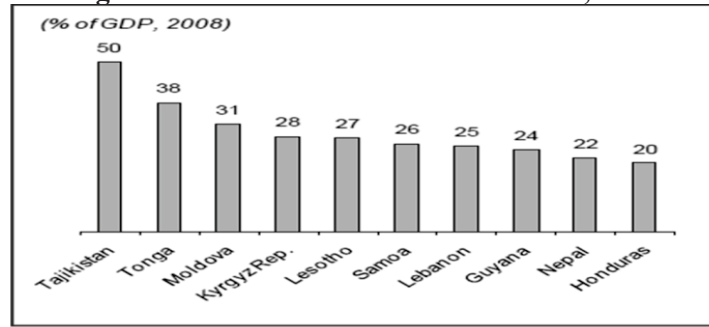
Figure 1.10: Moldova: Below Average Growth in a Fast Growing Region (2000-2008)



Source: World Bank.

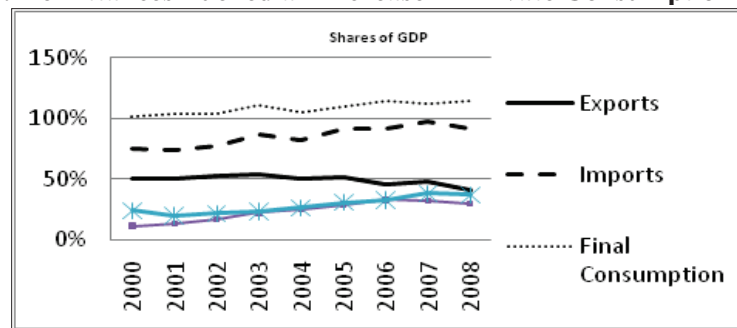
1.14 **Remittance-financed private consumption drove growth for most of this period.** By 2008, with remittances at about 30 percent of GDP, Moldova was one of the world’s most remittance-dependent economies (see Figure 1.11) Remittances grew on average by around 46 percent annually in US dollar terms from 2000-2008, rising from 12 to 30 percent of GDP (see Figure 1.12). This financed an average annual increase in private consumption of almost 10 percent, driving real private household consumption’s share of GDP up from an already high 95 to 113 percent of GDP. Imports rose in line with consumption, averaging about 11 percent annual growth per year from 2000 to 2008.

Figure 1.11 : Remittances as a % of GDP, 2008



Source: World Bank.

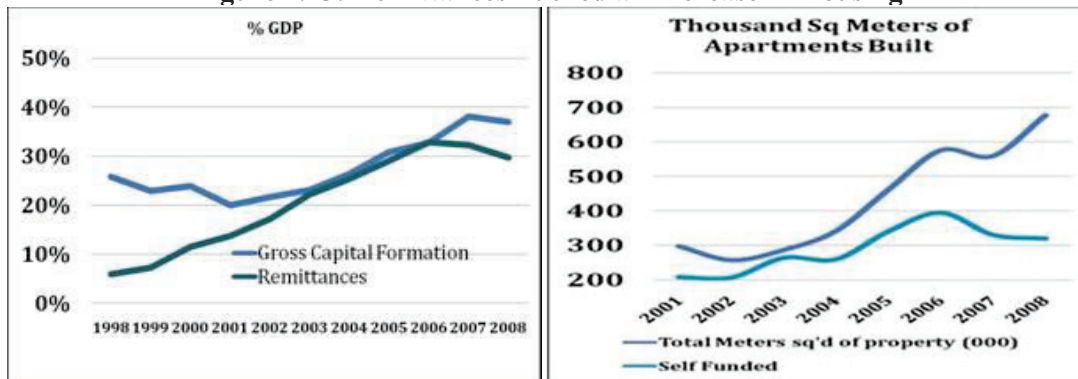
Figure 1.12: Remittances Fuelled an Increase in Private Consumption and Imports



Source: World Bank.

1.15 For the years leading up to the global crisis in 2009, investment also picked up, mostly in the form of housing construction. Private investment contributed the most to the increase in absorption as a share of GDP between 2005 and 2008. However, national accounts data show that investments in construction, real estate, renting and business services account for the change. The share of Moldova’s Gross Fixed Capital Formation (GFCF) investment occurring in these sub-sectors increased slowly from just 9 percent in 2001 and 2002 to 14 percent by 2004 before booming to 26 percent of GDP by 2007 and 2008 (see Figure 1.13) shows the link between remittances and the increase in new housing between 2003 and 2006. It seems the initial boom in consumption with remittances was maturing into a property boom shortly before the crisis. When remittance growth slowed relative to GDP from 2006-2008, FDI in the form of new bank finance helped to finance the construction of new apartments.

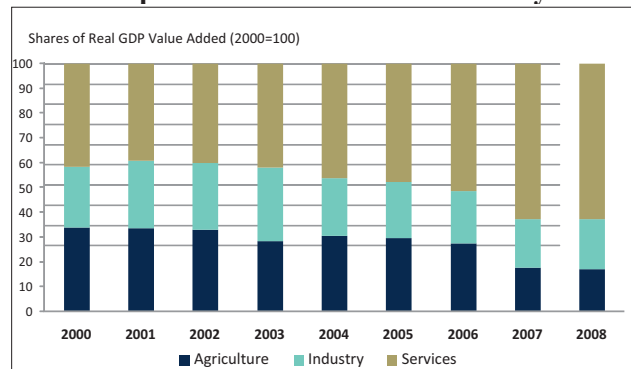
Figure 1.13: Remittances Fuelled an Increase in Housing



Source: National Bureau of Statistics Moldova.

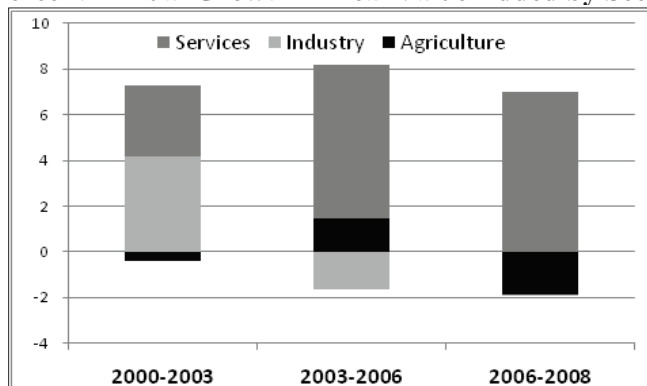
1.16 **Services and imports grew faster than the rest of the economy, causing the current account deficit to widen.** Industry grew strongly between 1999 and 2004 and then fell steadily after. Agriculture and exports of goods lagged behind growth of services and imports throughout the decade. The share of real GDP value added for agriculture halved between 2000 and 2008 from 34 to 17 percent, whilst the share of industry fell from 25 to 20 percent (see Figure 1.14). In fact from 2003 to 2008 industry contracted and from 2006 to 2008 real value added in agriculture also contracted (see Figure 1.15) partly reflecting the serious drought in 2007. However, as Chapter 2 will show, most indicators of agriculture point to troubling symptoms, suggesting that the sector is in decline and is facing a poor investment climate. Services took off – with their share rising from 42 to 63 percent of real GDP between 2000 and 2008. Public services and the construction sector grew steadily during the period. Much of the growth in public sector spending came in public consumption rather than public capital formation. Public capital fell as a share of GDP both at central and local levels, and within capital, the share of investment funding also shrank.

Figure 1.14: The Composition of Real Value Added By Sector (2000-2008)



Source: World Bank.

Figure 1.15: Percent Annual Growth in Real Value Added by Sector (2000-2008)

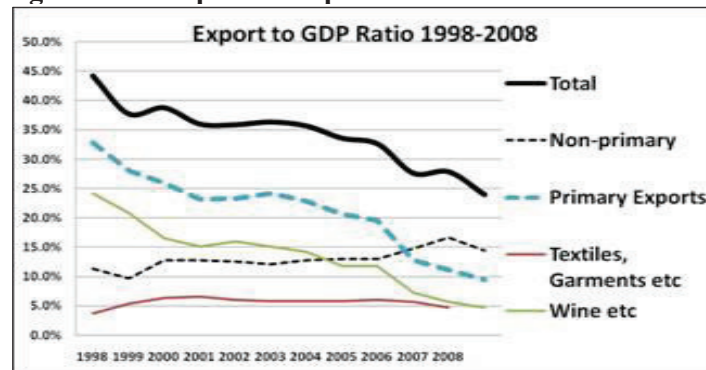


Source: World Bank.

1.17 **Sluggish growth of exports of crops, agro-based products, and wine saw Moldova's exports of goods shrink to just 24 percent of GDP by 2008 from 45 percent in 1998.** The collapse in importance of wine exports to the economy accounts for much of the declining importance of goods exports in GDP (see Figure 1.16). Wine exports fell from almost a quarter of

GDP to about 5 percent of GDP in 2008³. As will be discussed in Chapter 2, the emergence of some new goods exports (initially textiles and bags and more recently metal products) has compensated for the fall in other agriculture-based exports. Textile exports have kept pace with GDP through the decade, declining slightly after the appreciation of the real exchange rate in 2007-8. Between 2007 and 2008, metal products drove the rise in non-primary exports as a share of GDP. Chapter 2 will also show that whereas Moldova is losing its market share in traditional primary product exports, revealed comparative advantage for exports still lies in primary products. This occurs because global trade in Moldova's new exports is rising faster than their share in Moldova's trade. Given this fact, the symptoms of malaise in Moldova's agriculture sector set out in Chapter 2 are all the more important to diagnose and treat.

Figure 1.16: Export Groups as a Share of GDP 1998-2008



Source: National Bureau of Statistics Moldova.

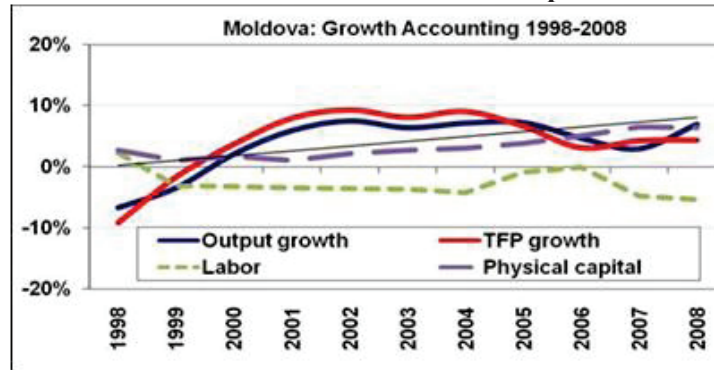
1.18 Exports of services have increased in line with GDP and slightly faster than service imports. The increase in service exports has come in transportation (for which there is an offsetting service import); in telecommunications; and in financial services. In fact, the balance of trade in services (although small) turned positive for the first time in 2008. The nature of service Moldova's exports suggests strong a link to the increase in migration and remittances.

E. Capital, Labor and the Solow Decomposition

1.19 Moldova's growth in the period 2000-2008 was jobless. Growth came from capital accumulation and productivity gains in the face of a declining labor force. The remittance-funded investment boom and structural transformation of the economy into services show up in growth accounting results using Solow's decomposition (see Figure 1.17) shows that strong annual TFP growth drove output growth starting 2000 and running through 2006. This partly reflects the emergence of new exports, but it mostly reflects the transformation of the economy and movement of the labor force into services. Throughout there was negative growth in labor supply and positive capital investment, implying a rapid increase in capital per worker, which curiously shows up for services (largely because of construction) and in agriculture (where machinery seems to have replaced labor), but not significantly for manufacturing. Growth in physical capital started in 2000 and gradually increased, outstripping TFP's contribution to growth by 2008.

³ Wine exports more than halved between 2006 and 2008 as a share of GDP from 12 to 5 percent following the closure of the Russian market for Moldovan wine in 2006

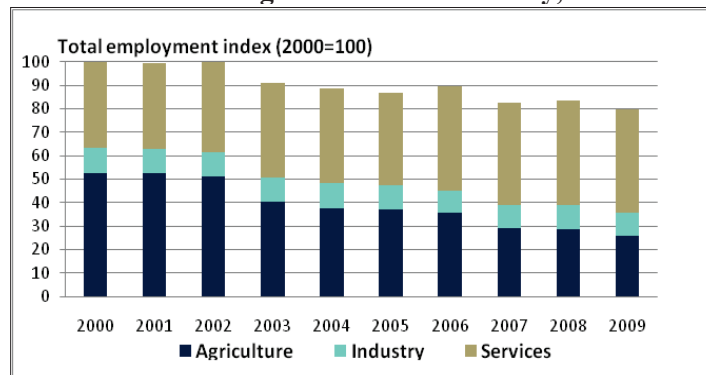
Figure 1.17: Sources of Growth – Solow Decomposition 1998-2008



Source: World Bank Staff estimates.

1.20 Employment shifted from agriculture and industry, into market services, moving closer to the patterns seen in market economies. Tremendous labor shedding occurred in the agricultural sector over this period; agricultural employment shrank by -10.6 percent annually. Industrial employment fell to a lesser degree. Job destruction in manufacturing was balanced by job creation in other mining and quarrying and construction. Conversely, job creation in services was strong: Wholesale and retail trade, hotels and restaurants and to a lesser degree, real estate, renting, and business activities created new jobs. Aggregate patterns in labor reallocation by sector largely hold for men and women alike, but female employment in the construction sector fell, while male employment in construction increased. (see Figure 1.18) shows that total employment dropped by almost a quarter between 2000 and 2008. The service sectors (notably wholesale, retail and construction) absorbed some of the labor force that was shed from agriculture, but the net loss of jobs in Moldova was 260,000.

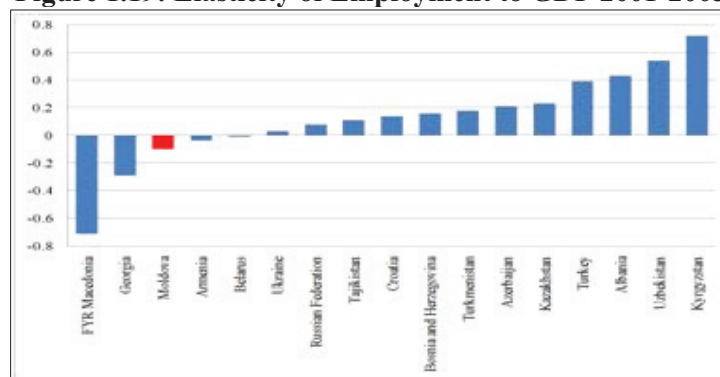
Figure 1.18: Labor Left Agriculture and Industry, and Left Moldova



Source: World Bank staff estimates from Bureau of Statistics Data.

1.21 Stagnant employment growth with economic growth is atypical in the region. The negative elasticity of employment with respect to GDP in Moldova in recent years contrasts strongly with other countries in the region (see Figure 1.19).

Figure 1.19: Elasticity of Employment to GDP 2001-2005



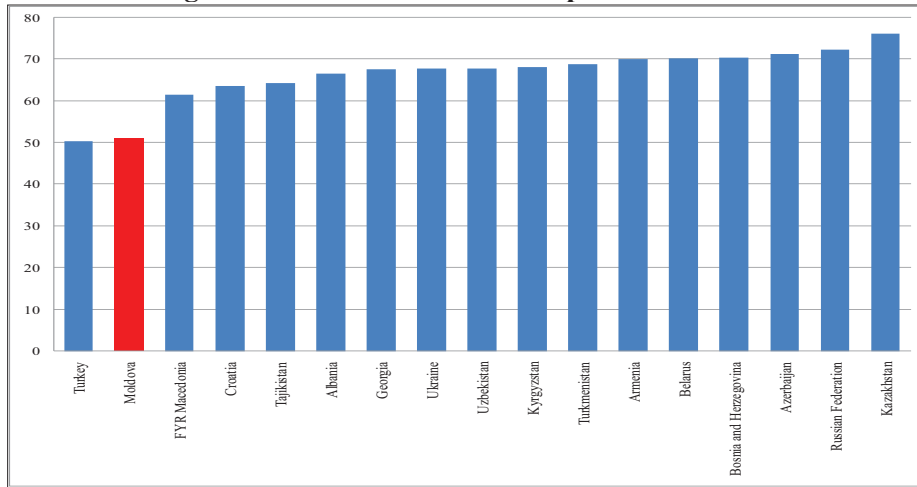
Source: World Bank staff estimates based on National Bureau of Statistics Data.

1.22 Moldova’s employment and activity rates are among the lowest in the region and both are falling. In 2007, the only recent year for which comparable cross-country information are available, the data suggest that Moldova’s employment and labor force participation rates are substantially below the unweighted average for the region, which are about 51 percent and 65 percent respectively (see Figure 1.20 and Figure 1.21). Between 2000 and 2008, Moldova’s employment rate⁴ (referring to those 15 years or older) has fallen steadily from 54.8 to 42.5 percent, using official data drawn from the Labor Force Survey. But unemployment did not rise. This implies a similar number of Moldovans fled the country in search of work during this period. Economic activity rates⁵ have been falling too, from 59.9 to 44.3 over this same period. The rise in economic inactivity is, to some extent, inflated by the inclusion of some of the emigrant population in the Moldovan workforce considered inactive. However, both employment and activity rates calculated from the Labor Force Survey fell, even after adjusting for emigration. There are some discrepancies in the agriculture employment figures; depending on whether they are calculated using LFS data or Household Budget Survey (HBS) data and depending on how certain agricultural activities are treated. However, the trend with respect to labor market activity is consistent: economic growth has not translated into employment creation in Moldova, and in particular many rural jobs were lost. This lack of job creation is likely a key driver of migration, and remittances from migration may in turn reduce the proportion of the remaining workforce actively seeking work. But what is the cause of jobless growth and migration? The next sections of this chapter unpick the micro story further, and consider how the investment climate may have affected productivity, job creation and growth.

⁴ Employment rate is the percentage of the working age population (ages 15 to 64) who are currently employed.

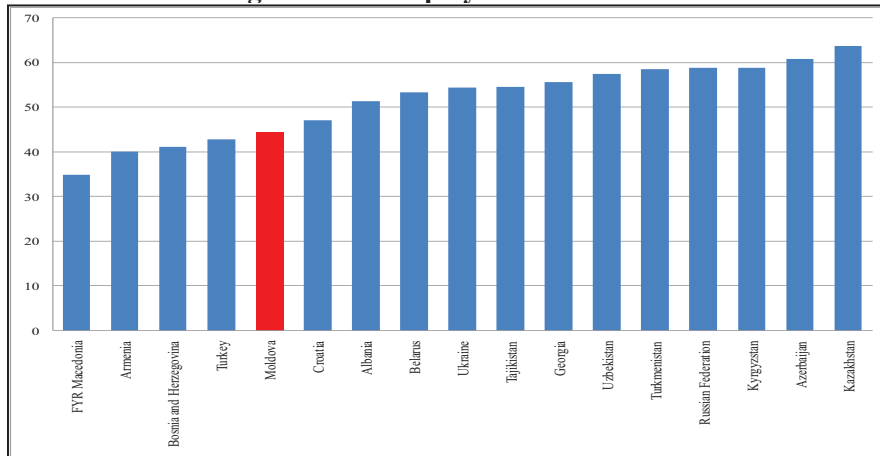
⁵ Economic activity rate (like labor force participation rate) is the percentage of the population, both employed and unemployed, who are actively seeking work regardless of their current labor status. This figure is a measure of the degree of success of the economy in engaging the population in some form of production activity. The economically *inactive* are those people who are not in employment, but do not fulfil all the criteria to be classified as unemployed.

Figure 1.20: Labor Force Participation Rate 2007



Source: World Bank staff estimates based on National Bureau of Statistics Data.

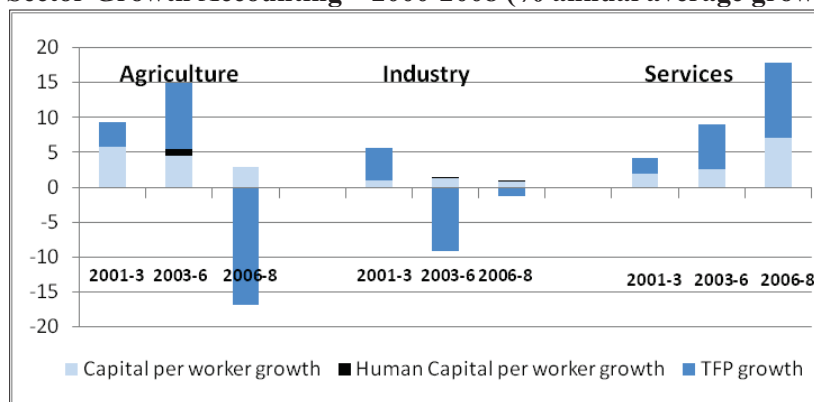
Figure 1.21: Employment Rate 2007



Source: World Bank staff estimates based on National Bureau of Statistics Data.

1.23 **The sector decomposition of growth suggests a decline in the competitiveness of Moldova's tradeables.** Negative TFP growth and negative growth in output per worker in agriculture and industry in Moldova (see Figure 1.22) are concerning because real wages in these sectors rose; suggesting a decline in the competitiveness of tradeables. Between 2006 and 2008 TFP as well as output per worker fell in agriculture and industry. During this same period official statistics suggest real wages in agriculture more than doubled, while in industry they increased by 30 percent. The doubling of real wages in the agriculture sector could in turn be a symptom of labor shortages arising from migration.

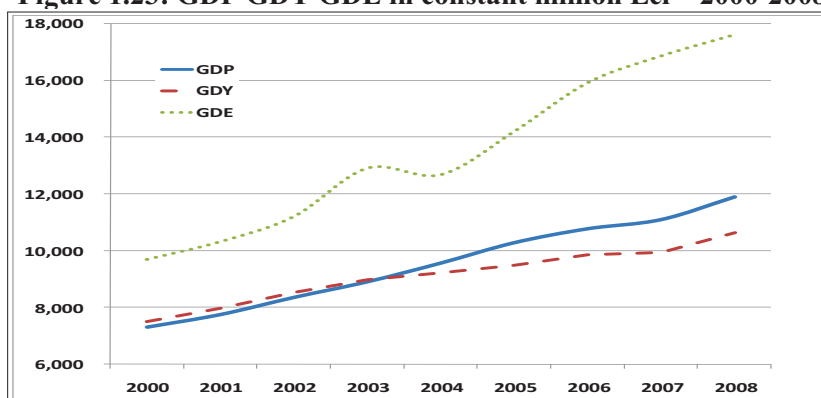
Figure 1.22: Sector Growth Accounting – 2000-2008 (% annual average growth per period)



Source: World Bank.

1.24 **The picture that emerges from our macroeconomic stock taking is of an economy increasingly dependent upon remittances suffering a decline in tradeables and failing to create jobs.** (see Figure 1.23) puts the overall picture into perspective by adjusting GDP for the terms of trade (GDY) and for the trade balance (GDE). It shows that during the period 2004 to 2008, Moldova suffered deteriorating terms of trade through higher imported fuel prices. Whereas an appropriate policy response to maintain competitiveness in tradeables may have been a real depreciation, inflows initially from remittances and later from bank financing for the construction boom (which show up in the 30 percent gap in GDE and GDP) caused the opposite to happen. Productivity gains in the economy will be needed to offset the remittance-induced real effective exchange rate appreciation.

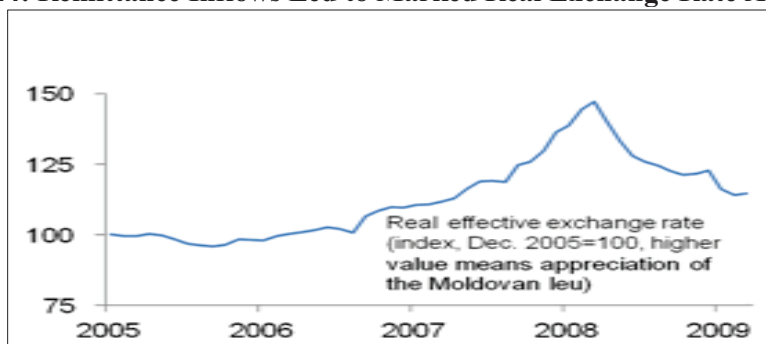
Figure 1.23: GDP GDY GDE in constant million Lei – 2000-2008



Source: World Bank staff estimates based on National Bureau of Statistics Data.

1.25 **Indeed, competitiveness concerns arose from the sharp appreciation of the real exchange rate between 2006 and 2008.** (see Figure 1.24) shows that the real effective exchange rate for Moldova appreciated by almost 50 percent in the two-year period. As the final section of this chapter shows, this appreciation was not due to relative productivity gains in Moldova's businesses. The decline in competitiveness accentuated the displacement of domestic products with imports, placing yet one more hurdle ahead of Moldovan exporters.

Figure 1.24: Remittance Inflows Led to Marked Real Exchange Rate Appreciation



Source: IMF.

F. Micro Evidence of Sources of Growth at the Sector Level, 2003-2009

1.26 **Firm-level data confirm the increasing reliance on services as a driver of growth, and the accompanying decline in the contribution of industry to growth.** It confirms productivity growth – particularly in the service sectors like construction, wholesale and retail, transport storage and communication, and real estate (renting), and the general lack of employment and value creation in the economy. This section uses the Moldovan Annual Financial Statements Survey and the Annual Structural Enterprise Survey (Box 1) to conduct more disaggregated analysis of the economy.

Box 1.1: Data Sources for Micro Analysis

The Annual Financial Statement Survey (AFSS) is a mandatory statement that all firms registered in Moldova are required to submit at the end of the fiscal year. Officially, it includes all firms in the Moldovan economy but there is an annual variation in the degree of firms' responses or survey completion. The AFSS is structured into 3 parts: Part 1 – Balance sheet; Part 2 – Profit and loss account; Part 3 – Cash flow, and it also covers basic information, including employment, economic sector, geographic location, ownership type, and age of firm. The number of uniquely identified observations (firms) per year ranges from 27,981 in 2003 to 41,485 in 2009. This variation reflects entry and exit, and oversights in survey data compilation. The total number of observations over this period is circa 195,000.

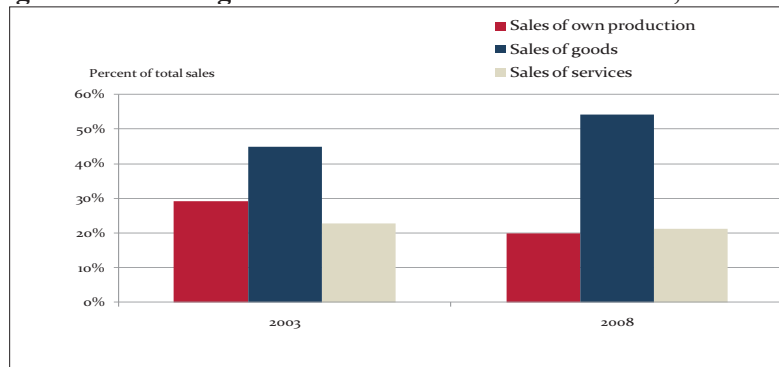
The Annual Enterprise Survey (AES) is officially a sub-set of the AFSS but provides more detailed information on the operations of firms. Unlike the AFSS, it distinguishes sales by firms into three categories: sales of own production, sales of goods, and sales of services. Sale of own production, as the term suggests, reflects the sale of goods (intermediate or final) which have been produced by the firm and sold to other economic agents, directly to the domestic population, or for export markets. Sale of goods, on the other hand, reflects the sale of goods purchased by the firm and resold. A limitation of the AES is that it does not include firms working in the area of financial intermediation. That is a significant limitation, as the sector is an important provider of both jobs and output in Moldova, given the large demand for financial services associated with high migration levels. The Annual Enterprise Survey (AES) includes 59,245 observations from 2003 to 2008. The number of uniquely identified observations on a yearly basis ranges from 7670 firms in 2004 to 14,002 firms in 2008.

G. The Structure of the Moldovan Economy

1.27 **The structure of the Moldovan economy is heavily geared towards resale of goods and the provision of services rather than own production.** However, this was not always the

case. Important changes, that clearly reflect the strong presence of remittance-financed consumption in the economy, occurred in the structure of output and jobs between 2003 and 2008. The most significant was a decline in own production as a source of business revenue. In 2003, close to 30 percent of total revenues in the non-financial sector were generated through own production (and these were sold either for export, or domestically to the general population), while revenues from resale of goods accounted for 45 percent of revenues. In the span of just five years, however, domestic production has fallen to only 20 percent of total output, while goods sales accounted for more than half of sales revenue (54 percent) and services another 21 percent of sales (see Figure 1.25). Similarly and unusually, a large proportion of firms' incomes are generated outside of normal business operations. These include income from financing activity (mostly income from the effect of foreign exchange fluctuations on debt and foreign trade, and activity on the securities market), income from investment activity (mainly sales of fixed assets, revaluations, and income from other companies/subsidiaries), and income from extra-ordinary sources (including income from insured harvest, state debt forgiveness, and other contingencies). In 2008 only 48 percent (on aggregate) of total income was generated from normal business operations, down from 81 percent in 2005. In 2009 (the crisis year), the figure rose to 134 percent of total income, following severe losses from activities outside operations. That Moldovan businesses rely heavily on other sources of income to supplement their operations may be a symptom that the returns to normal business operations are lower than they should be.

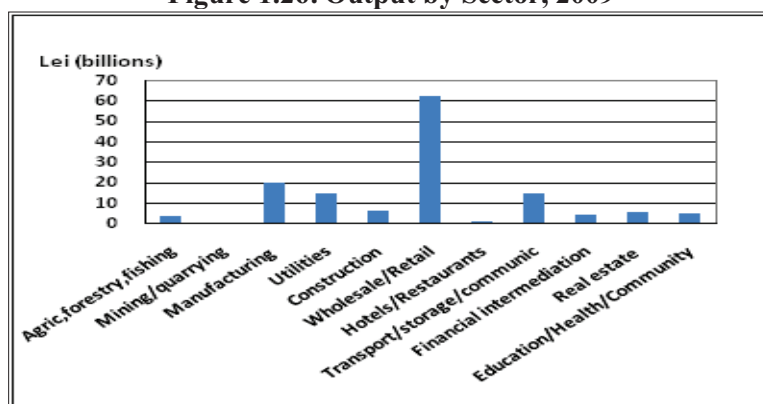
Figure 1.25: Change in Sources of Total Firm Revenue, 2003-2008



Source: AFSS and AES, Moldova.

1.28 The sector breakdown of business revenue confirms the consumption-driven nature of Moldovan growth. Wholesale and retail trade dominate, accounting for 45.3 percent of economic output in 2009 - more than triple the output generated in manufacturing, and about twenty times the output generated from the formal agriculture sector. Consumption of energy (almost all imported) also represents a large portion of total sales in the economy. Sectors with heavy service provision (transport, storage and communications, construction) figure prominently (see Figure 1.26)

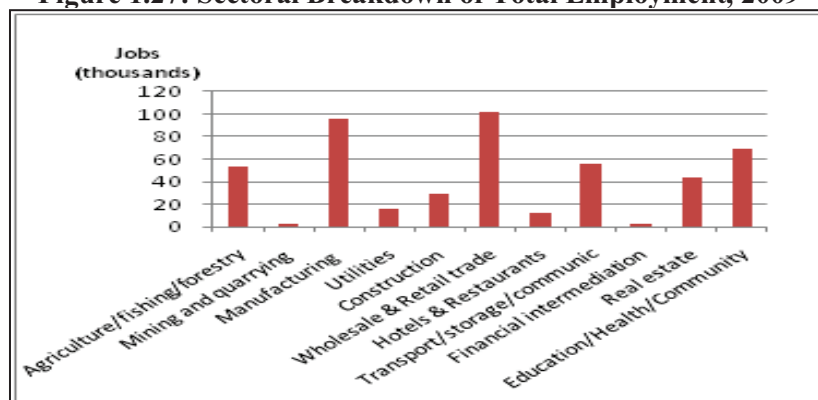
Figure 1.26: Output by Sector, 2009



Source: AFSS and AES, Moldova.

1.29 **The service sector is the largest employer in Moldova, with nearly 70 percent of formal sector employment in 2009.** In spite of a dominant share of gross output, only 31 percent of these service sector workers (or 21 percent of formal sector employment) are employed in wholesale and retail trade. Transport and health sectors are the second and third largest employers in services. Manufacturing and agriculture are also important employers providing jobs for around 20 percent (majority working in the food industry) and 11 percent of workers in formal sector employment, respectively (see Figure 1.27).

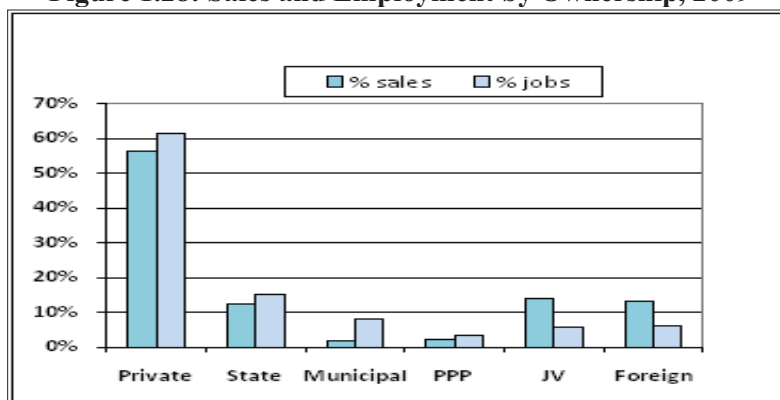
Figure 1.27: Sectoral Breakdown of Total Employment, 2009



Source: AFSS, Moldova.

1.30 **Sixty one percent of firms in Moldova are privately-owned and they account for 56 percent of sales in 2009.** Public enterprises (state and municipal) employ 23 percent of the formal sector, but only account for 14 percent of output. Although foreign and joint venture (mix of foreign and private ownership) companies are small in number, accounting for only 12 percent of employment, they generated about 27 percent of sales during 2009 (see Figure 1.28).

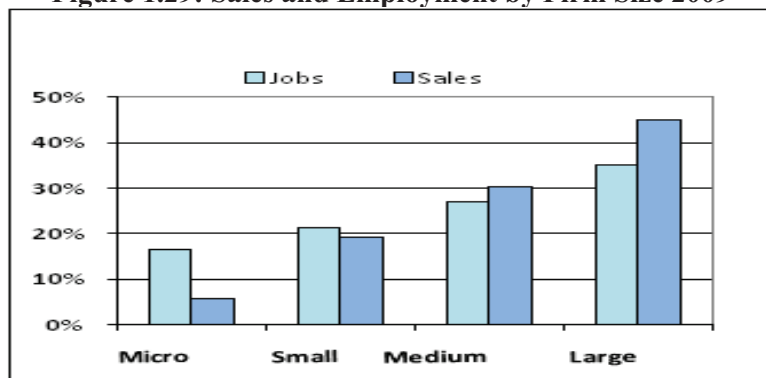
Figure 1.28: Sales and Employment by Ownership, 2009



Source: AFSS, Moldova.

The Moldovan economy is quite concentrated - large firms dominate output and employment, although jointly, the MSMEs (micro, small and medium-sized firms)⁶ employs more people and generates more revenue. In 2009, the 578 large firms employ about 35 percent of formal sector workers but account for 45 percent of the total revenue in the economy whereas 32,330 micro-sized firms employ 17 percent (or 79,610 workers) of workers and account for only 6 percent of the formal sector revenue (see Figure 1.29).

Figure 1.29: Sales and Employment by Firm Size 2009



Source: AFSS, Moldova.

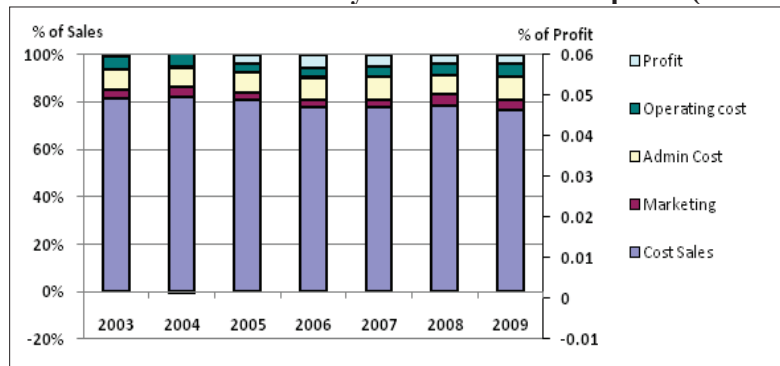
1.31 **Economic activities are also geographically concentrated.** In 2009, 63 percent of formal sector jobs were located in the capital city Chisinau – an area that has 26 percent of total population and occupies only 2 percent of the total territory of Moldova (excluding Transnistria). Firms based in Chisinau also account for 78 percent of total revenue of the formal sector. Furthermore, about 71 percent of business enterprises are located in Chisinau and nearly 85 percent of new firms established in Moldova between 2003 and 2009 are based in Chisinau.

⁶ The following are the definition of firm sizes according to Moldovan Law: Micro - annual average no. of employees 9 max, annual revenue from sales max 3 million lei and total asset value of max 3 million lei; Small - annual average no. of employees 49 max, annual revenue from sales max 25 million lei and total asset value of max 25 million lei with the exception micro firms; and, Medium: annual average no. of employees max 249, annual revenue from sales max 50 million lei and total asset value of max 50 million lei, with the exception of micro and small size companies. There are no thresholds for large firms.

1.32 **The bulk of firm creation between 2003 and 2009 came from the service sector – over 90 percent of new firms; foreign investment in Moldova also rose sharply.** About 35 percent of total firm entry was generated in wholesale and retail trade, while 26 percent of firm growth came from real estate. But the number of firms in manufacturing grew only modestly at 8 percent, while entry into the primary sector (agriculture, mining, and fishing) was negligible. Consequently, the largest single contribution to sales growth and job creation is the service sector, particularly wholesale and retail trade. Total sales in 2009 are nearly four times the level recorded in 2003, with service sector recording 89 percent of total growth, and the manufacturing sector accounting for the remainder. Total employment fell by 9 percent over the period; with the agricultural sector accounting for 138 percent of net job losses in the economy i.e. employment in the agriculture sector plummeted by about 55 percent between 2003 and 2009. In spite of growth in revenue, about 60,000 manufacturing jobs (or 118 percent of net job losses) were lost. However, service sector employment grew by a third (or 76,000 jobs). While privately-owned firms grew by 48 percent within the period, the number of foreign-owned firms and joint-ventures rose sharply by around 110 percent (to circa 3500 firms). However, this growth is not reflected in job creation: employment in foreign-owned firms have declined by 18 percent, compared to a 26 percent increase in employment by private domestic firms.

1.33 **According to official data, firms have low and declining profit margins on aggregate due to high costs, particularly indirect costs.** Profits rose rapidly peaking at around 5.2 percent margin in 2006, and have since fallen to around 3.5 percent by 2009 (see Figure 1.30). Rising general and administrative expenses – most of which are related to the business environment – are the main culprits for low profitability. Further analysis of the data shows that micro enterprises are significantly burdened by these costs – accounting for an average of 22 percent of their total costs, compared to between 6 and 13 percent in larger firms. As a result, micro firms have the lowest profit margins of all firm sizes in country. Public enterprises, foreign firms, and young firms (start-ups) are also facing this high administrative-cost/low-profits scenario.

Figure 1.30: Overall Profitability of Moldovan Enterprises (2003 - 2009)

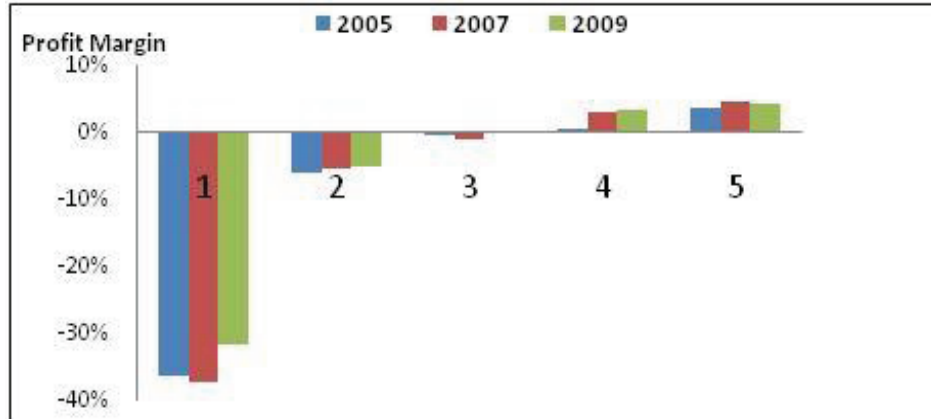


Source: World Bank Staff Calculations from AFSS, Moldova.

1.34 **Market share plays a key role in profitability – market dominant firms seem to be extracting monopolistic profits.** From the analysis of AFSS data, the proportion of a firm's sales to total industry sales is the single most significant driver of profitability in Moldova: it is estimated that a one percent increase in market share will raise profits by 0.55 percent. In fact (see Figure 1.31) suggests that only firms with sales market share in the fourth and fifth quintiles (i.e. above the 1.2 percent market share) have persistently made a profit in Moldova since 2005 – firms with lower market shares usually make a loss. Similarly, there is evidence that the Herfindahl Index (HHI) of industry concentration (based on level two SIC industry classification (26 industries) is significantly positively correlated to profitability i.e. firms in more concentrated

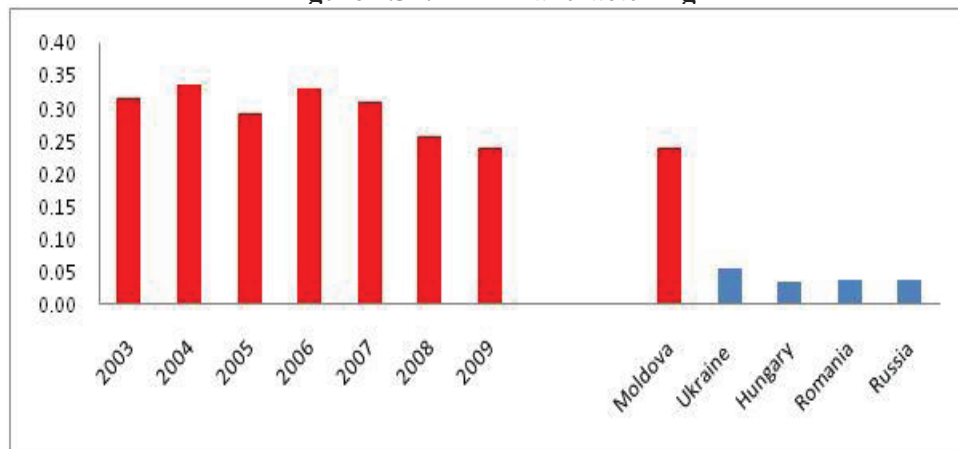
industries are more profitable than others⁷ (see Figure 1.32) shows the high (but declining) level of industry concentration in Moldova's manufacturing sector, relative to other neighboring countries.

Figure 1.31: Aggregate Profitability by Quintiles of Market Share: 2005 to 2009



Source: World Bank Staff Calculations from AFSS, Moldova.

Figure 1.32: HHI Manufacturing

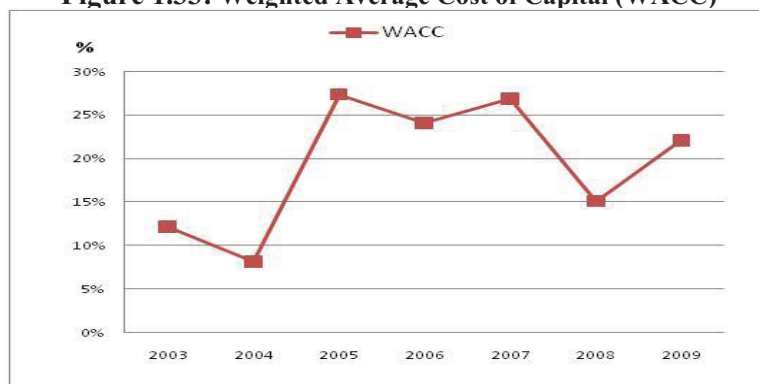


Source: World Bank Staff Calculations from AFSS, Moldova.

⁷ Note however that at the lower level four industry classifications (circa 450 industries), HHI index is negatively correlated with profitability. Further analysis shows that at such low levels, most industries are dominated by publicly-owned firms, and micro enterprises located in Chisinau – the main characteristics of loss-making firms in Moldova.

Against generally low profitability, Moldovan firms face relatively high costs of capital. The weighted average cost of capital (WACC) – the minimum rate that a firm is expected to pay on average to satisfy all its owners and long-term creditors – increased: from 12 percent in 2003 to 22 percent in 2009. Large firms and public-owned enterprises have relatively low WACCs – a reflection of low risk and access to cheaper capital, but firms that dominate their industry’s capital stock have the lowest WACCs. Chisinau-based firms have a relatively high WACC, as do younger (start-up) firms. This is partly explained by the underdevelopment of Moldova’s capital market, which can mean a high reliance on internally generated finance (re-invested earnings) or else short maturity and high interest rate loans from commercial banks who tend to over-price commercial risk because of a lack of public information on borrower credit risks. Priorities to reduce the costs of capital could usefully include improving credit reference information, channeling more remittance deposits through the formal banking system, and offering migrants a greater choice of savings instruments.

Figure 1.33: Weighted Average Cost of Capital (WACC)



Source: World Bank Staff Calculations from AFSS, Moldova.

Box 1.2: Business Dynamics – Who is Growing?

Private firms in Moldova grow the fastest. In terms of capital stock growth, state-owned firms and Public Private Partnerships (PPPs) grow slowest, implying that in terms of re-investment and expansion, public ownership is less progressive. Whereas most firms are not expanding employment, private firms are also the main drivers of the limited employment growth in Moldova. PPPs have the highest negative growth in employment (they are laying people off the fastest). Public companies shrink at a slower rate: they also tend to hold more staff on average, and pay them higher wages than other domestic firms. Foreign-owned firms have also been shedding jobs, though to a lesser extent. The same pattern exists for sales growth: publicly-owned firms (state, municipal, or PPPs) perform the worst especially in the services industry and much of growth in sales comes from private companies.

Neither productivity nor profitability improves capital accumulation or employment, especially in the manufacturing and services sectors. Both show up in our overall analysis as insignificant (and negative) factors in firms' additions to their capital stock, but profitable primary sector firms (mainly agriculture) are growing by accumulating capital and creating jobs. Nor do productive firms expand employment. Productivity is negatively associated with employment growth – essentially this shows that labor productivity is low, particularly in the agriculture sector. Productivity and profitability are positively associated with sales growth however: expanding sales seems to be the main route through which productive and profitable firms expand.

Growth is service sector-led but size and age of firm matters. Size is an important determinant of capital and employment growth with larger firms growing fastest. Size in fact seems to be more important than age in capital stock growth, implying a high and increasing degree of concentration in the economy. Nonetheless, new and small firms do experience capital, employment and sales growth, as should be expected. The service sector, particularly wholesale and retail, financial intermediation, and real estate (renting) – is dominating job creation, capital accumulation, and sales growth. Some manufacturing firms (leather, machinery, and minerals) also show modest growth.

Location affects capital stock and sales growth, but not employment growth. Firms located in Chisinau have seen their sales expand faster than those outside, but they accumulate less capital on average, indicating (i) that they are more likely to be less capital-intensive service providers, and (ii) the higher cost of capital in Chisinau. Overall, employment creation does not seem to be associated with location. However, job creation in the primary sector and manufacturing are largely confined to Chisinau city, whereas more services sector jobs are being created outside Chisinau.

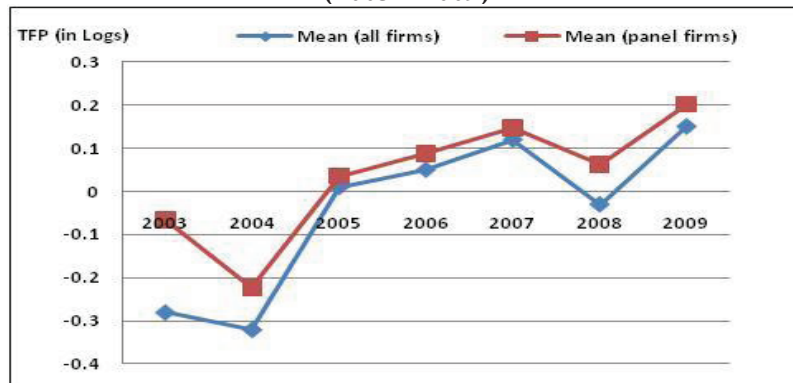
Job creation and capital accumulation are largely driven by factor market dominant firms, but these firms have negative output growth. Firms which already employ a relatively large share of an industry's labor force and capital stock are more like to create more jobs and increase their capital stock. Further analysis suggests that these firms pay lower wages (on average) and have a lower cost of capital, implying that they have "some control" over input markets. However, sales growth is positively associated with firms that already dominate industrial sales and workforce (and vice-versa) but negatively associated with firms that dominate a sector's productive capital: – implying diminishing returns to capital accumulation, especially in the agriculture and service sectors.

Access to debt financing plays a key role in the growth of firms, but rising costs are weighing heavily on growth. Sales growth, capital accumulation, and job creation are all significantly and positively correlated with changes in firm's leverage ratio (i.e. ratio of debt to total assets), unlike retained earnings (or equity). This evidence can also be corroborated at the industrial level – the only exception is that changes in leverage ratios are insignificantly correlated with employment creation in the agricultural sector. Lack of external funding will therefore constrain growth, although continued reliance on credit institutions may be counter-productive in the longer term, since firms with high leverage ratios are more vulnerable to economic shocks due to their obligation to fixed debt servicing. On the other hand, growth indicators are negatively (and significantly) correlated to changes in cost structure of firms (i.e. ratio of specific cost to total cost). Indirect costs like operating expenses (including property lease and interest payments on loans), general and administrative expenses, and marketing expenses are exerting negative pressures on growth, and these costs (as a ratio of total cost) are rising yearly

H. Productivity and its Characteristics: An Overview⁸

1.35 **Total factor productivity (TFP) increased during the 6-year period, with the exception of 2008.** As shown in (Figure 1.34), average TFP was negative in 2003 but grew in the following years.⁹ This positive growth implies that the level of technology (level of knowledge imbedded in production processes) and the investment climate is improving. The overall evidence indicates that both labor and capital obey the law of diminishing returns: a 100 percent increase in capital stock will only yield a 3 percent increase in output, likewise an increase of 100 percent in the number of workers employed - will only increase output by 18 percent. Increasing materials by 100 percent will also increase output by 70 percent. Consequently, there are decreasing returns to scale: a 100 percent increase in all factors together will generate an increase in output by only 90 percent; so therefore, technological improvement (TFP) is a significant driver of economic growth.

**Figure 1.34: Evolution of Total Factor Productivity (TFP) in Moldova:
(2003 – 2009)**



Source: World Bank Staff Calculations.

1.36 **Firm characteristics such as size, age, location, and industry, can explain productivity heterogeneity among Moldovan firms.** Larger firms are more efficient relative to smaller ones. This suggests the existence of economies of scale and scope among Moldovan firms. Further analysis shows a strong negative correlation between costs (all types) and productivity i.e. the most productive firms are more cost-efficient. Younger firms tend to be more efficient than older ones, reflecting the improvements technology and the investment climate (Agarwal and Gort, 1996 and 2002).¹⁰ Data shows that productivity levels are higher in the capital city Chisinau than in other regions.

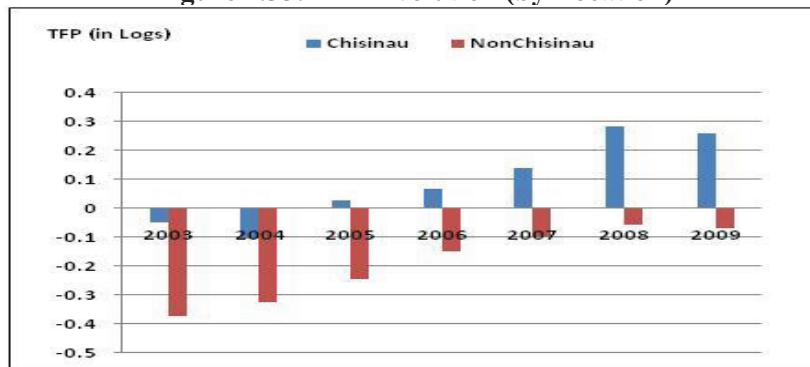
⁸ This section presents the result of the Escribano-Guasch methodology (see Appendices) of assessing Total Factor Productivity (TFP) and its correlates – using the Cobb-Douglas production function. The estimations are based on data from the annual *Financial Statements Survey* of Moldovan firms carried out by the National Bureau of Statistics. This analysis is an unbalanced panel, including data on approximately 36,000 firms, from 2003 to 2009 (around 87,000 observations). Firm-level TFP estimates here will differ from the decomposition set out in the macroeconomic section.

⁹ A similar trend is also evident in the TFP of firms with data in all years (i.e. a balanced panel of 5910 firms), so the finding is not related to the entry and exit of firms.

¹⁰ See Agarwal, R., and M. Gort, 1996, The evolution of markets and entry, exit and survival of firms, *The Review of Economics and Statistics*, 78 (3), 489-498; Agarwal, R., and M. Gort, 2002, Firm and product life cycles and firm survival, *American Economic Review, Papers and Proceedings*, 92, 184-190.

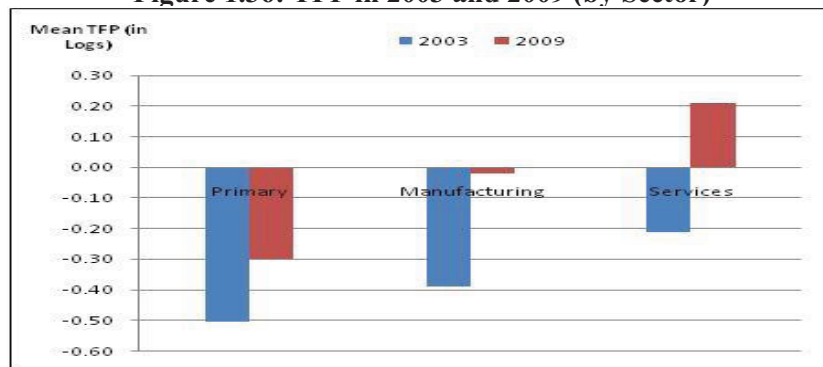
1.37 (Figure 1.35). This can be closely linked to lack of adequate infrastructure, distance to markets and other spatial differences.¹¹ Yet, the superior efficiency of Chisinau-based firms does not translate into higher profitability: firms in Chisinau are less profitable due to significantly higher indirect costs of doing business in Chisinau.¹² Finally, service sector firms (particularly financial intermediation, real estate (renting), and education) exhibit relative higher productivity than firms in the primary and manufacturing sectors and stand out as the most productive firms in the economy. Similarly the primary sector in Moldova – agriculture, fishing - clearly lags behind all other sectors of the economy in terms of productivity (see Figure 1.36).

Figure 1.35: TFP Evolution (by Location)



Source: World Bank Staff Calculations.

Figure 1.36: TFP in 2003 and 2009 (by Sector)



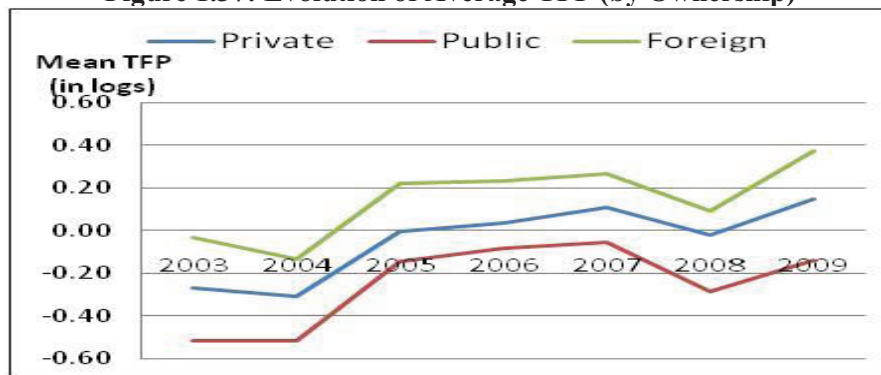
Source: World Bank Staff Calculations.

1.38 **The inefficiency of state-owned enterprises (SOEs) is also evident.** Findings indicate that public enterprises (state, municipal, and public-private partnerships) are significantly less productive relative to privately-owned entities (see Figure 1.37), thus emphasizing the need to consider privatization as one possibly path to improving productivity of the overall economy. Foreign participation (FDI) in the Moldovan economy, on the other hand, improves overall efficiency: foreign-owned firms have higher productivity relative to other types of ownership. Yet again, the superior efficiency does not translate into higher profitability because foreign firms also face significantly higher costs than domestic firms.

¹¹ The government report on poverty in the republic of Moldova 2009 indicates that rural areas are doing poorer in terms of physical infrastructure, public utilities, housing and access to quintessential social services, and this has led to a widening of the gap between rural and urban settings.

¹² Analysis of the drivers of profitability reveals that firms based in Chisinau face significantly higher costs – particularly marketing costs and other indirect costs (cost of property lease) – than firms located outside Chisinau.

Figure 1.37: Evolution of Average TFP (by Ownership)



Source: World Bank Staff Calculations.

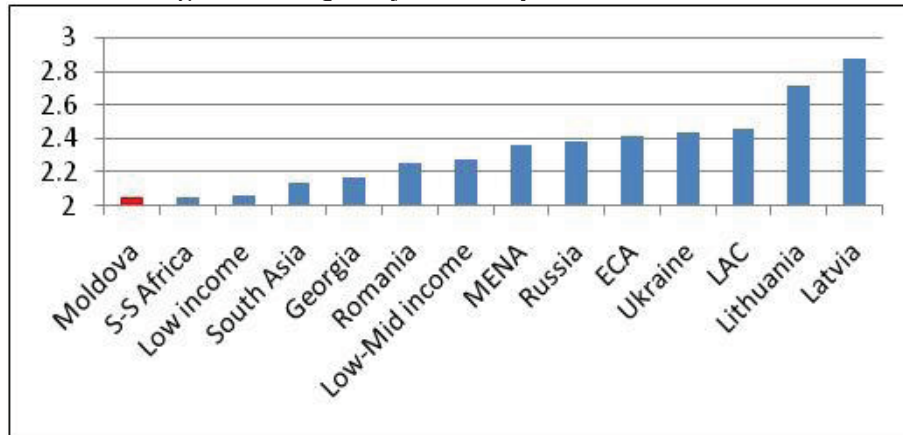
1.39 **The productivity of a firm increases with the firm’s market share.** Higher market shares (sales) are positively correlated with productivity corroborating empirical evidence that productivity can be increased by raising market share.¹³ Firms with higher market shares appear to have more “control” over the input market (i.e. they pay lower wages and have lower cost ratios), and can earn monopolistic profits. On the contrary, there is a negative correlation between share of employment and productivity – firms with a higher share of the industry’s employment are less productive, and they pay significantly lower wages. This may not be surprising given findings of diminishing returns to labor.

I. Productivity and the Investment Climate

1.40 **To make exports more competitive, Moldova must urgently develop transportation infrastructure and hasten customs clearance to facilitate faster movement of products within and outside the country.** Moldova scores low on the quality of transport infrastructure and customs performance – lower than neighboring countries and other developing regions, according to the World Bank’s *Logistic Performance Index* Survey in 2010 (Figure 2.2 also Figure 1.40). From the analysis of business data, losses of output in transit (through breakage, spoilage, or theft) seem to be the investment climate variable with the largest impact on productivity. This is especially true for exporters: we estimate that firms lose 0.25 percent in productivity for every one percent loss in goods exported. About one-third of Moldovan firms in general identify transport facilities as the major or severe constraint for growth, compared with about 20 percent (average) in other ECA countries (see Figure 2.3). The Doing Business (DB) Survey (2010) reports that it takes 32 days to export in Moldova, compared with 10 days in Georgia and a regional ECA average of 26 days. The DB Survey also reports that the cost of inland transportation in Moldova represents about 74 percent of total export costs, much higher than in neighboring Romania (39 percent) and Ukraine (61 percent). Analysis of business data further reveals that firms that stock-up on raw materials tend to be more productive – a common feature in countries where volatility from the movement of raw materials constrains businesses. As Moldova focuses on improving exports and export generated revenue, policy makers must address burdensome custom regulations and practices in conjunction with transport infrastructure. Landlocked countries need to be *more* integrated across borders and more efficient in transport logistics than the average country. Moldova is less efficient and less integrated.

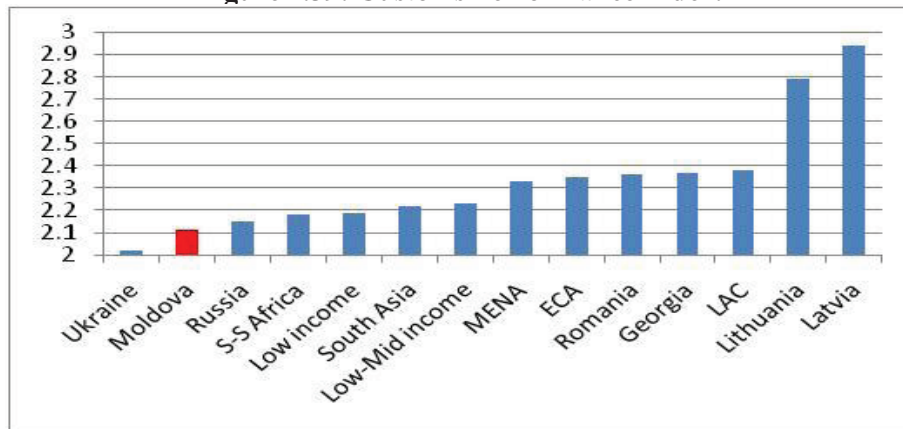
¹³ See Szegedi, Zoltan and Korom, Erik (2009). Market share increase: What happens to productivity and profitability? [International Journal of Procurement Management](#), Volume 3, Number 12, December 2009, pp. 72-90(19).

Figure 1.38: Quality of Transport Infrastructure.



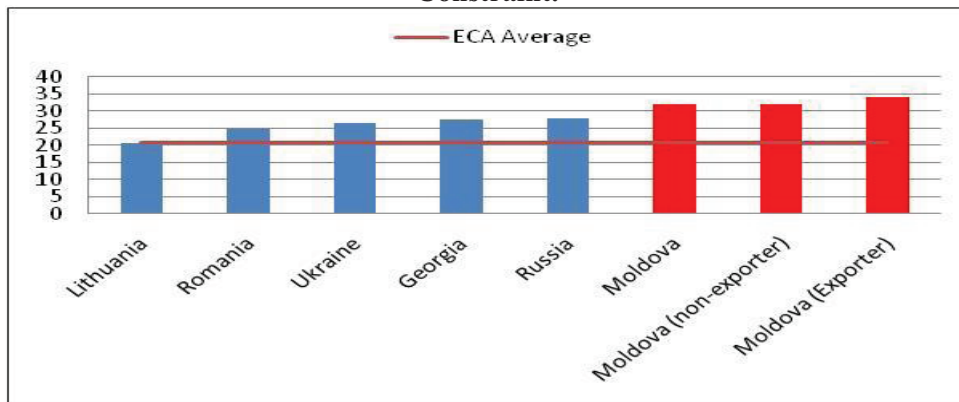
Source: World Bank Staff Calculations, based on Logistic Performance Index 2010.

Figure 1.39: Customs Performance Index.



Source: World Bank Staff Calculations, based on Logistic Performance Index 2010.

Figure 1.40: Percentage of Firms Identifying Transportation as a Major or Severe Constraint.

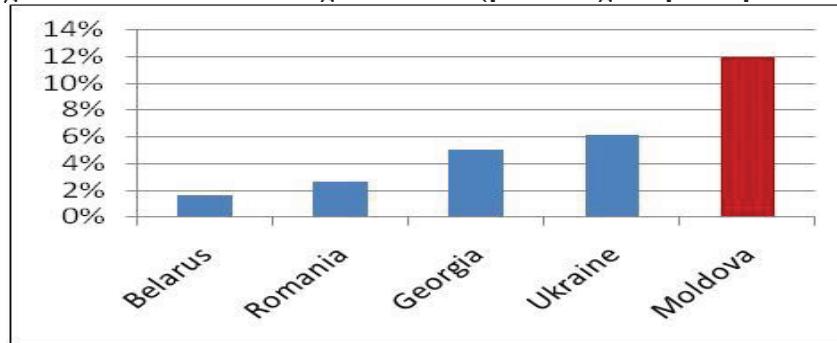


Source: World Bank Staff Calculations from the BEEPs Survey 2009.

1.41 **Compliance with excessive government regulations is stifling business entry and growth – a thorough review of the regulatory environment is necessary.** The Ministry of the Economy is right to have focused on this aspect of the investment climate in the last 12 months,

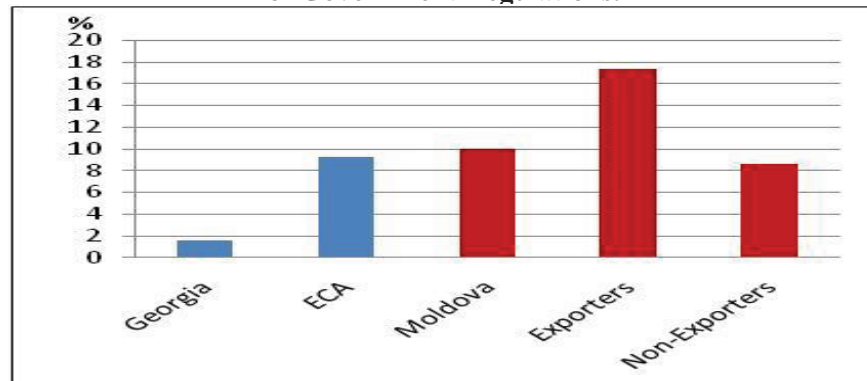
and Government should give top priority to implementing their proposed reform program. While some regulation of the business environment is always necessary, excessive regulation can be very costly. In Moldova, it costs about 12 percent of GDP per capita to register a business – more expensive than in neighboring countries (see Figure 1.41). Evidence from data analysis also indicates that the percentage of management time spent complying with government regulations, and the number of inspections from government officials have a strong negative impact on business productivity in Moldova. In addition, externally-auditing financial statements – as required by law for some firms – is unsurprisingly counter-productive: where capital markets are inefficient and access to finance is not facilitated by the possession of audited financial statements, it is conceivable that costly external audits yield little benefits to firms, and are merely another regulatory compliance exercise. In general, complying with regulations is a tax on management time dedicated to improving firm productivity and designing strategies for growth, and therefore should not be burdensome. In this context, Moldovan exporters are more susceptible to regulation: on average, 17.4 percent of management time in exporting firms is spent complying with regulations, compared with 8.6 percent in non-exporting firms, according to the 2009 BEEPS survey (Figure 1.41). In environments where businesses are over-regulated, firms respond by circumventing compliance and government interference through paying bribes to government officials “to get things done”, resulting also in loss of revenue to the government. Therefore, the interesting yet unsurprising finding from the business data that firms that pay bribes tend to have higher productivity in Moldova is evidence of over-regulation and inefficiencies in the regulatory environment.

Figure 1.41: Cost of Starting a Business (percentage of per capita GDP).



Source: Doing Business Survey 2010.

Figure 1.42: Percentage of Senior Management Time Spent Dealing with the Requirements of Government Regulations.



Source: World Bank Staff Calculations from the BEEPs Survey 2009.

1.42 **The quality of Moldova's labor force needs to be improved.** An inadequately educated workforce is the biggest obstacle to growth for firms in Moldova, according to the 2009 BEEPS survey. About 17 percent of firms are constrained by the shortage of skills, compared to a 9.5 percent regional average. A larger proportion of exporting firms are also complaining about poor quality of the Moldovan workforce, than non-exporters. Evidence from the business data reveals that the proportion of unskilled staff is inversely related to productivity (i.e. firms with high levels of unskilled staff are less productive), whereas firms with higher proportions of skilled workers are more productive. However, having a workforce containing large numbers of university-educated workers does not necessarily improve productivity, contrary to expectations. This suggests that tertiary institutions are failing to equip the workforce with the right skill set. Training (i.e. whether a firm has a training program for its staff or not), on the other hand, plays a positive and highly significant role in productivity improvement but may not be cost efficient for firms – especially in an environment of rapid turnover from migration. It would therefore be necessary to reexamine the university curriculum, in close collaboration with representatives of the business environment, and develop a new curriculum adjusted to the skills needed in the economy.

1.43 **The government should support innovation, and encourage competition in the ICT industry for better services at reduced costs.** The evidence suggests that having an R&D department correlates positively with productivity, and so does access to broadband internet. Since productivity is not positively associated with product development (and vice-versa), it appears that most R&D functions support firms' internal processes through productive technology advancement and efficiency. Product innovation needs to be encouraged in government policy, because Moldova currently lags behind neighboring countries in innovation, and Moldovan food producers in particular will need to innovate if they are to access high-value EU export markets. Only 53 percent of Moldovan firms introduced a new product or product line between 2006 and 2009 compared with nearly 70 percent of firms in Belarus and Lithuania. Access to high-speed broadband internet connection improves productivity but only 50 percent of Moldovan exporters have such access, compared to 71 percent in Belarus, and around 86 percent within the ECA region.

1.44 **Government should also facilitate access to land and support businesses relocating outside of Chisinau by simplifying the procedures for land ownership and developing industrial zones.** Evidence from the business data shows that firms that were successful in acquiring land within the last three years have significantly higher productivity than other firms. Yet, access to land is more of a problem for Moldovan firms: nearly 6.3 percent of firms report access to land as a major or severe problem, well above figure recorded in Belarus – 2.5 percent, Lithuania – 1.6 percent, Ukraine -3.5 percent, and the ECA region – 2.5 percent. Service sector firms appear to be the most affected by lack of access to land and is one of their top five constraints: about 9 percent of firms in the sector complain about land, relative to one percent in the manufacturing sector. Nearly 87 percent of firms outside Chisinau were able to acquire land over the last 3 years, compared to only 63 percent in Chisinau. In addition, only 30 percent of firms outside Chisinau complain severely about access to land, compared with nearly 50 percent in Chisinau. Like many other dimensions of the investment climate, regulations on land registration and building permits create rent-seeking opportunities and opportunities for favoritism. More transparent and streamlined registration procedures must replace these regulations.

J. Towards a Reform Program

1.45 An immediate macroeconomic priority will be to **restore a structurally sustainable public budget deficit**. Public expenditure in Moldova soared to 45.5 percent of GDP in 2009. Moldova's public sector is bloated, inefficient, and heavily skewed towards social projects and transfers to individuals, households and enterprises. Strategic priorities for reforms include:

- 1) Reduce the deficit by holding down public spending (tax collections are already high).
- 2) Reduce spending in education and change education financing by optimizing the school system to reduce the costs of general education, converting to per pupil financing and improving the non-salary per pupil component of financing for hub schools.
- 3) Complete health reform with a focus on hospital efficiency.
- 4) Improve the efficiency of public capital investments, especially through the local budget, by investing an increasing share in productive infrastructure and improving capital budgeting procedures.
- 5) Rationalize the public service and payroll to increase staff incentives and reduce staff numbers.
- 6) Gradually start the implementation of pension reform to make the system sustainable in the medium and long term. Improve pensions adequacy and long run sustainability through a combination of wage valorization of past earnings, adequate indexation, a lower accruals rate, gradually increasing the retirement age, and making a tighter link between contributions and benefits and reducing the scope for retirement whilst working. Fixing pensions is the key to unlocking several of the inefficiencies in the public sector.
- 7) Accelerate transparent privatization efforts, including for utility companies.

1.46 Remittances will remain a very important share of Moldova's economy for a long time, and the incentive for a worker to migrate will not decline in the short or medium term. **Moldova should therefore seek to maximize the development gains from migration**. Reforms to help remittances work better for growth, including through better financial intermediation, should:

- 1) Establish a public credit registry within the NBM to make information on borrowers more transparent, reduce risk aversion in the banking sector, and improve access to credit by SMEs.
- 2) Improve communication with the public about the benefits of using the formal financial remittance transactions partnership with the banking and related sectors, including through public access to information on currency rates and charges (costs of sending remittances) through alternative channels.
- 3) Improve remitters' confidence in the formal banking sector through banking product innovation (ie alternative savings instruments).
- 4) Modernize the payment system to retain remittances within the financial system and investigate the option of remittance transfers by internet or cell phone from EU member states.
- 5) Encourage the development of on-line savings instruments for migrants – to facilitate banks to capture and intermediate remittances.
- 6) Improve prudential and business conduct supervision of the banking sector and the financial sector as a whole.
- 7) Implement reforms in the secured transactions area in line with World Bank recommendations.
- 8) Implement IFRS for all enterprises eligible of Moldova Stock Exchange Listing.

1.47 Moldova must out-perform other countries in improving the overall investment climate and reducing the costs of doing business, especially for exporters. Emphasis must be placed on enabling more entry and fairer competition. This would make Moldova a more attractive destination for FDI and foreign exporters in a post-crisis world where foreign capital is scarcer. In this regard Moldova might usefully seek to emulate Georgia, another country with difficult geography and similar export products, but a superior investment climate. Analysis of business data for Moldova suggests that the priority reforms for productivity growth, investment and employment creation in Moldovan enterprises are:

Business entry/exit and regulatory reform:

- 1) Eliminate any remaining entry restrictions that enable market dominance across sectors.
- 2) Implement the law on one stop shop at the business registry: consolidating the activity of different agencies which currently issue different registration numbers; connecting electronically the tax administration with the chamber of registration.
- 3) Elaborate a general framework regulation to establish risk based inspections and streamlined procedures for tax administration and all other control agencies.
- 4) Develop a system of regulating, training, licensing, monitoring insolvency practitioners to further the goal of rehabilitating viable companies and liquidating the nonviable ones more efficiently.
- 5) Reduce times and transactions costs to receive construction permits. Implement the law on construction permits, setting up a functional one stop shop at the municipality level and setting up a functional data base for construction permits that can feed from and to the land registry data base.
- 6) Eliminate (guillotine approach) all outdated technical standards and adopt at once EU standards, including outdated GOST food product standards.

On FDI, competition and property rights:

- 7) Re-draft and adopt a law on competition in line with good international practice.
- 8) Strengthen the competition authority independence and enforcement of existing laws and regulation.
- 9) Revitalize the privatization process (at the state and municipal level) through transparent and competitive procedures.
- 10) Improve legislation on intellectual property rights and enforcement.
- 11) Make fairer the enforcement of legislation for all market players through the judicial system.
- 12) Improve access to land by reducing the transactions costs of registration, improving data accuracy in the cadaster.
- 13) Upgrade the IT system for the cadaster to enable the registrations of mortgages and to obtain extracts on-line, and without personal intervention.
- 14) Allow tenure of agricultural land by foreign interests and put in place adequate controls against speculation.

1.47 Facilitating export growth will require lowering the high costs of crossing Moldova's borders. Better transport infrastructure, logistics, and customs facilitation are priorities.

Transport infrastructure, policy and export logistics:

1. Liberalize transport routes to operators and facilitate their entry and improve governance and transparency in the management of the sector (including tariffs);

2. Continue, and make more efficient, the investments in roads—tackling export corridors.
3. Improve spending and efficiency of road repair and maintenance, including through better asset management and monitoring systems.
4. Reduce cross subsidies from freight to passengers to contain growing costs of freight, separate the accounting of the different divisions to make results more transparent, and improve corporate governance in tariff setting in the railways company.
5. Lower the burden of social-cultural spending from the railways company to generate savings to be invested in rolling stock and diesel fleet renovation.
6. Facilitate the entry of post-harvest handling and logistics services, including: harvest quality control and packaging, storage, cold storage, freight operators, and other facilitation companies.

On Customs and other behind the border issues:

7. Re-commence efforts to reduce the hore of shipments physically inspected vy Customs by fully implementing a risk based approach.
8. Re-start efforts to reduce border processing delays by making fully operational a single window (one-stop shop) operation under Customs administration that includes representatives of SPS, sanitary, environment, roads, and other dependencies. But where customs is in charge of all basic border procedures.
9. Provide the needed IT infrastructure for data sharing between the agencies involved in border crossing.
10. Streamline border procedures in line with EU-recommended practice.
11. Combating unofficial payments in the process of border-crossing.

2. CAN EXPORTS PROVIDE A SECOND ENGINE OF GROWTH?

A. Introduction and Summary

2.1 **Moldova clearly needs to export more - but more of what and how can policy reform help stimulate exports?** These topics are the subject of this chapter. Moldova needs more exports both to create an alternative growth impetus to remittances, and to create jobs to help reduce the competitiveness-decreasing cycle of joblessness and migration. Chapter 1 showed that export growth, especially of goods, has been lower than GDP growth. Worse, much of the growth in exports of manufactured goods has been from re-exports under the EU neighborhood agreement. Whilst it is not a good idea for policy makers to “pick winners”, it is possible to identify from trade data Moldova’s “emerging champions”: i.e., goods with high income-earning potential in which Moldova has a revealed comparative advantage. In this chapter we first trace the evolution of exports then identify a potential path for export promotion. **We conclude that Moldova’s comparative advantage is in agro-exports, that Moldova has a diversified export product basket, and that these exports have the potential to generate higher value than they do today.**

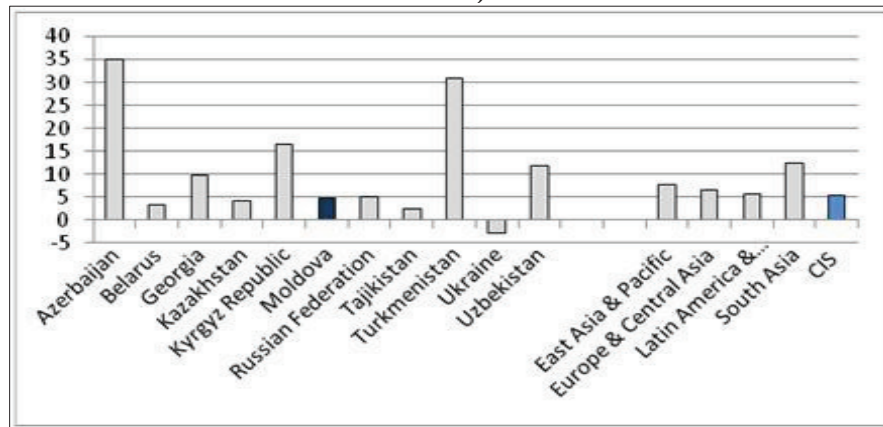
2.2 **We suggest that Moldova should seek to diversify markets rather than products, focusing on the EU market for two reasons.** First, because the traditional Russian market has become volatile with several bans placed on Moldovan produce since 2006, and second because EU product standards and prices are higher than those Moldova receives from traditional markets in CIS countries. Targeting EU product standards and adapting to EU value chains will be a major challenge for Moldova, but it will bring rewards; both in these new EU markets and by raising the reliability and value in CIS and other markets. It will also require more openness to business with knowhow of EU markets and in some agro-based products breaking the grip of existing monopsony buyers on local markets. Having suggested that agro-based products will likely continue to be the majority of Moldova’s exports, the chapter ends by discussing the symptoms of malaise in Moldova’s agriculture sector, and proposing reforms to reverse them. Annex 1 gives an example of the sorts of issues facing Moldova in moving up the value chain in a traditional export – apples.

2.3 **Moldova may also have some potential to increase ICT and software exports, and to continue to create employment opportunities in light manufacturing.** Annex 2 reviews the software development and business outsourcing industries in Moldova to give examples of the sorts of issues involved in expanding service exports. We chose ICT-based services because there are many small scale informal operations already thriving in Moldova, because Moldova’s return migrants bring back with them language skills, and because the younger generation of Moldovans – who also increasingly have these language skills – are heading to Chisinau for higher education, but are increasingly under-employed and unemployed. Development of service exports could, in principle, provide employment opportunities for this increasingly skilled and increasingly ICT literate group in the labor force. For less skilled workers, textiles, footwear, luggage and other light manufacturing industries could generate new jobs if the investment climate improves.

B. Export Trends: And How Declining Export Growth is Bad for Job Creation

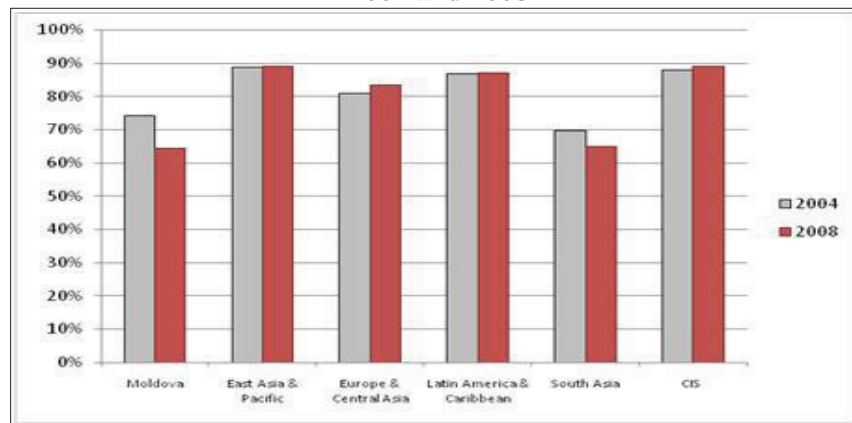
2.4 **Moldova’s export growth has been lackluster compared to other CIS countries and other developing regions.** Moldova’s exports of goods and services grew at under 5 percent a year in constant prices between 2004 and 2008, slower than real GDP, and slower than the growth among most CIS countries (with an average growth of 6 percent) and other developing regions (see Figure 2.1). The merchandise goods component has grown more slowly, impacted in part by the decline in wine exports since 2005. Whereas in 2004 goods accounted for 74 percent of Moldova’s exports, by 2008 they made up just 64 percent (see Figure 2.2).

Figure 2.1: Average Annual Growth of Exports of Goods and Services, 2004-2008 (US\$ 2000)



Source: World Bank staff estimates based on UN COMTRADE data.

Figure 2.2: Share of Merchandise Exports in Total Exports of Goods and Services, 2004 and 2008

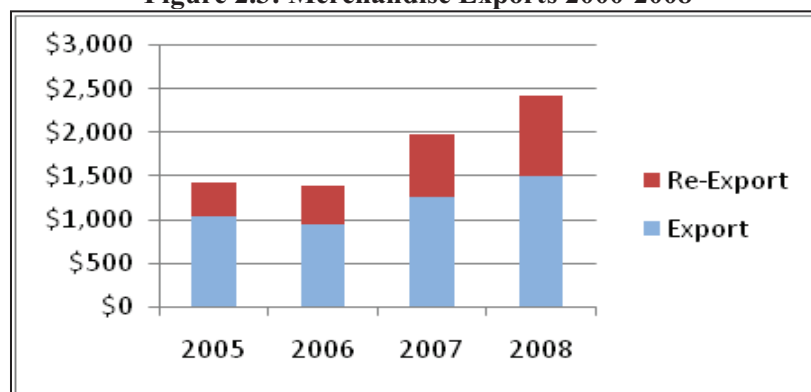


Source: World Bank staff estimates based on UN COMTRADE data.

2.5 **Re-exports account for a large share of Moldova’s merchandise exports.** By 2008, almost 40 percent of merchandise export value from Moldova emanated from re-exports (see Figure 2.3). Taking advantage of EU GSP,¹⁴ in particular a special incentive granted for its protection of labor rights in 2000, which is not enjoyed by other CIS member countries, Moldova has entered this new market intensely, with the primary destination for these re-exports the European Union.

¹⁴ Generalized system of preferences

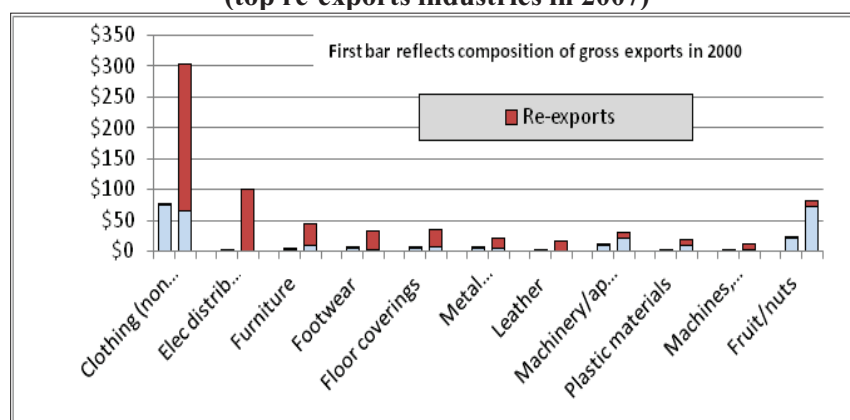
Figure 2.3: Merchandise Exports 2000-2008



Source: World Bank Staff calculations from UN COMTRADE data.

2.6 **The bulk of re-exports are from the clothing and footwear industries.** Over 80 percent of Moldova’s clothing and footwear exports to the EU are re-exports, and these accounts for almost half of the countries re-exports (see Figure 2.4). Re-exporting is pervasive though, with close to half of all industrial sectors having re-exports account for at least 25 percent of gross exports. While in most cases, re-export growth has come in tandem with direct (own-production) export growth, in a few key industries (including clothing and footwear) re-export growth has come at the expense of direct export growth

Figure 2.4: Growth of Own-Production Versus Re-Exports, 2000 and 2007 (top re-exports industries in 2007)

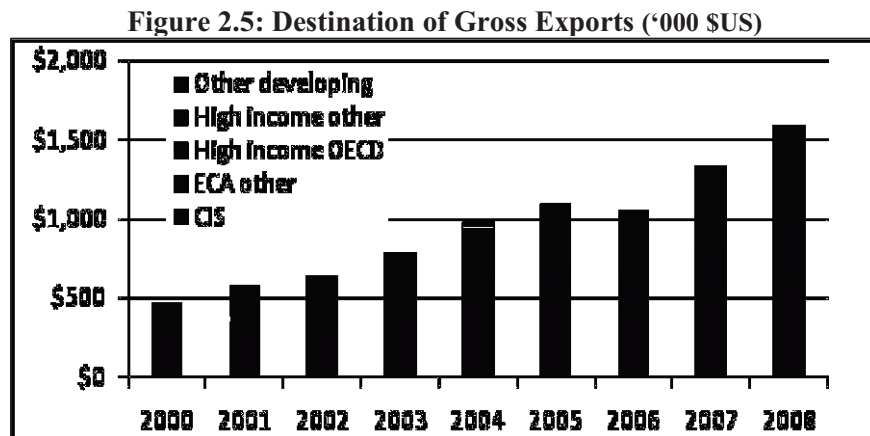


Source: World Bank Staff estimates from UN COMTRADE data.

2.7 **Re-exports do not create jobs, while direct exports do.** While re-export growth represents a growing external flow to Moldova, regression analysis of job creation at the industry level using business data suggests no positive relationship between re-export growth and job creation. However, a significant and positive relationship exists between job creation and the increase of direct exports¹⁵. Though domestic consumption is also significantly and positively associated with job creation, it clearly stems from the large service sector which has been sustained by remittance flows.

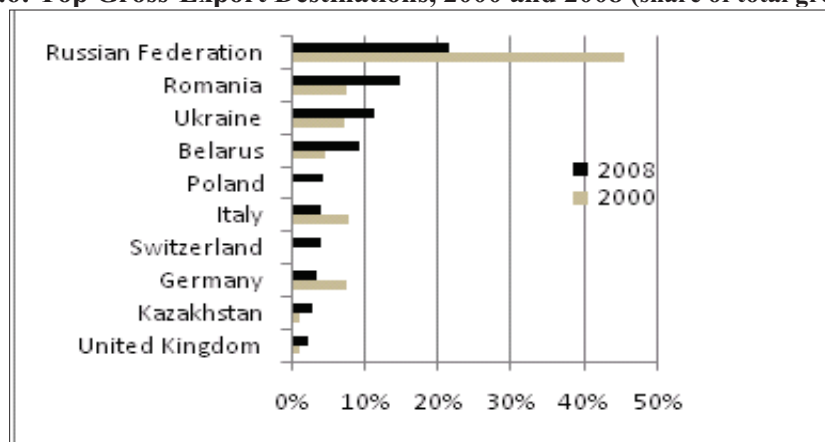
¹⁵ Our estimated equation for job growth in Moldova shows $\ln(\text{job growth } 2004-2008) = -0.157 + 0.28 \cdot \ln(\text{growth of sales for domestic consumption}) + 0.04 \cdot \ln(\text{growth of direct exports}) + 0.01 \cdot \ln(\text{growth re-exports}) + 0.03 \cdot \ln(\text{growth service exports})$. $R^2=0.72$.

2.8 **Export destinations for Moldovan goods diversified after Russian markets became tougher to access and, as a result, Moldova’s export base diversified to a modest extent.** CIS markets still account for the majority of Moldova’s trade, but with the decline in wine exports to Russia there is evidence of increasing export diversification (see Figure 2.5). In early 2006, Russia banned the import of wine from Moldova. Because wine exports to Russia represented some 25 percent of Moldovan exports (or about 10 percent of GDP), the wine ban had a strong negative impact on the real sector of the economy. The shock highlighted the risks associated with undiversified trade, and reinforced the growing awareness that the drivers of economic growth need to change. Partly as a result, over time, Russia has become a less important trade partner. Trade with other CIS countries and EU member states has risen (Figure 2.6)



Source: World Bank staff estimates based on UN Comtrade data.

Figure 2.6: Top Gross-Export Destinations, 2000 and 2008 (share of total gross exports)

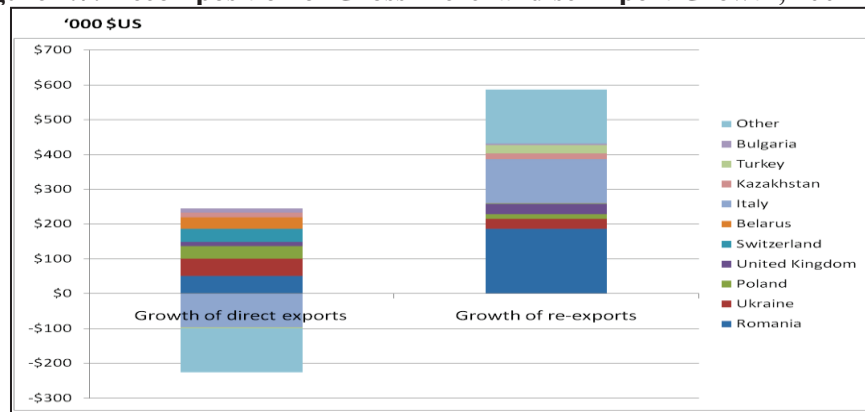


Source: World Bank staff estimates based on UN Comtrade data.

But, export diversification came from entering new markets with re-exports, not with direct exports. Accessing new markets with own-production exports remains a challenge. Since 2004, direct (own-production) exports have grown primarily in just a few traditional export markets including Romania and Ukraine. There has been little expansion of direct exports in non-CIS countries. The geographic diversification of exports into other (primarily European) markets came through re-exports (see Figure 2.7). Italy and the United Kingdom have become increasingly important destinations for re-exports, and in most cases, growth of re-exports came

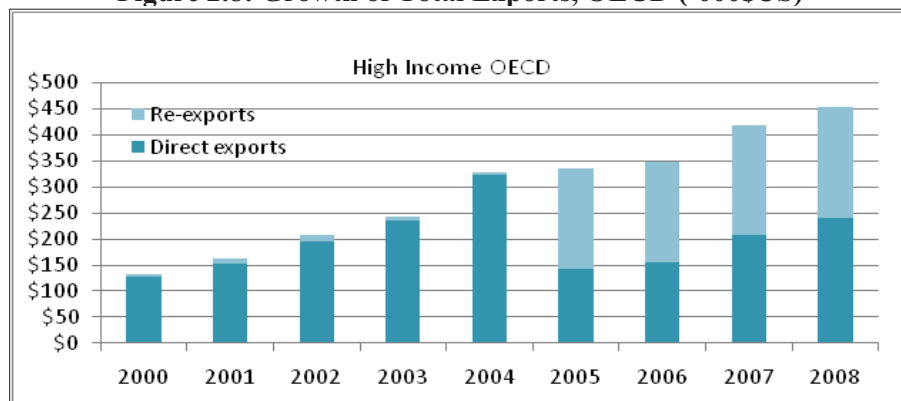
at the expense of direct exports. In OECD markets, 2005 marked a direct change in Moldova's exports from own-production to re-exporting (see Figure 2.8)

Figure 2.7: Decomposition of Gross Merchandise Export Growth, 2004-2008



Source: World Bank staff estimates from UN Comtrade data.

Figure 2.8: Growth of Total Exports, OECD ('000\$US)



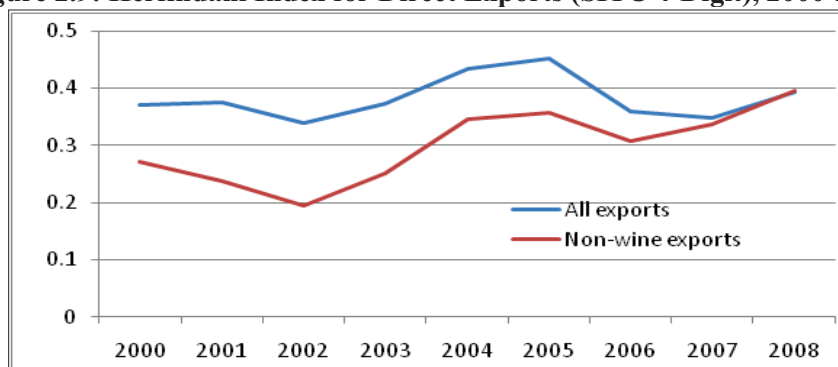
Source: World Bank staff estimates from UN Comtrade data.

2.9 **Exports remain relatively concentrated in a few industries, yet they are more diverse in product terms in Moldova than in other small countries.** (Figure 2.9) shows that at the 4-digit SITC level, the Herfindahl index of export concentration (for own-production exports) was increasing prior to 2005. The ban on wine exports by Russia generated a sharp increase in Moldova's export diversification,¹⁶ and supported by strong growth in exports of other industries (including rape and colza seeds, glass containers, and passenger cars). Moldova is a small country, and as a result, its capacity to produce a large number of exports successfully is limited. Worldwide, there is a negative relationship between export concentration¹⁷ and population (see Figure 2.10) Compared to other countries with similar labor forces, Moldova's exports are relatively more diverse.

¹⁶ By consequence of a sharp decline in a major element of the export basket (increasing the weights of all other export goods in the process).

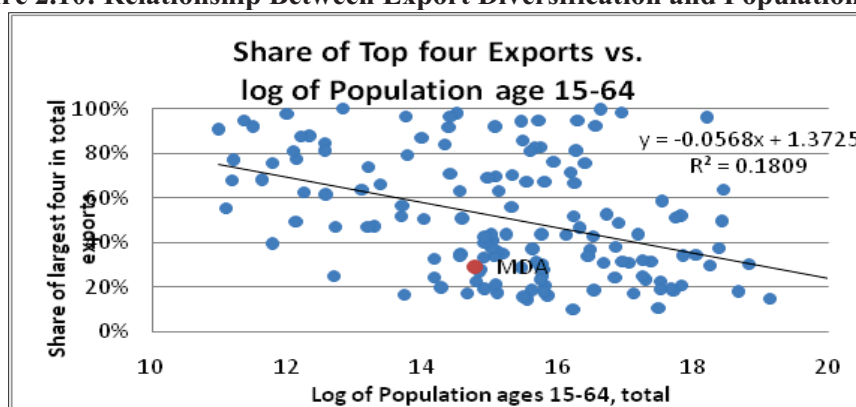
¹⁷ In this case, the share of total export value emanating from the top four export categories.

Figure 2.9: Herfindahl Index for Direct Exports (SITC 4-Digit), 2000-2008



Source: World Bank staff estimates based on UN Comtrade data.

Figure 2.10: Relationship Between Export Diversification and Population, 2008



Source: World Bank staff estimates based on- UN Comtrade data.

2.10 **It seems unlikely that Moldova will become yet more diverse in product exports, and the existing export basket holds some promise for growth.** The next section shows why. We therefore recommend that in seeking to promote exports, Moldova targets new markets with existing exports rather than seeks to develop new export lines.

C. Building an Export-Led Growth Strategy around Moldova's Comparative Advantage

2.11 **Moldova's best strategy for export growth is to increase the value of existing exports in new markets.** A country can grow through exporting more of the same goods to the same countries, more of the same goods to different countries, by diversifying into new goods with higher growth potential, by extracting more value from existing goods, or some combination of these. Probably the fastest growth path lies in continually developing and selling new higher technology goods to richer countries over time. Hausmann, Hwang and Rodrik (2005), show that this was a feature of China's growth acceleration. Not all countries can easily diversify into new products though, and many do not have, and cannot easily develop, a comparative advantage in higher value products. In the previous section, we concluded that Moldova should probably seek out new markets in the EU both because they have the potential to raise higher value and because they would increase diversification. Here we discuss *which* types of products Moldova show promise for export, by testing out the logic of the alternative export-led growth paths in turn. The status quo is not a viable growth strategy. We also dismiss the option of *more of the same*,

because with Russia’s periodic embargos on Moldovan produce, that strategy seems unlikely to succeed. We investigate the options of developing *new* goods, and seeking higher values from *existing* goods, and end up favoring the latter.

2.12 The quality of exports and their sophistication matters a lot for export value: moving up the export value ladder would allow Moldovan producers to offer higher wages while still competing in world markets. Indeed, for Moldova, moving from dependence on migration for jobs to reliance on exports for job creation depends on higher-value export growth. Evidence on migrant characteristics in 2006 suggests a large number of mid-skilled workers in Moldova take low-skilled jobs abroad (including secondary and tertiary educated workers performing construction work in CIS countries) (Table 2.1). Thus, there is significant room for better utilizing mid-level skills in higher quality production that can support higher wages. To do this, it requires building an export sector in which the wages the firms can offer are competitive with the wages workers would earn going abroad.

**Table 2.1: Socioeconomic Characteristics of Migrants in 2006
(percent of migrants unless specified)**

	CIS construction	CIS other	EU	Other	All
Age (years)	34.43	34.83	35.39	32.33	34.56
below 30 years	36.77	35.39	34.20	50.58	37.34
30–50 years	53.90	55.50	57.02	38.93	53.41
above 50 years	9.33	9.11	8.78	10.49	9.25
Female	15.51	46.13	58.53	67.75	41.62
Primary education	5.46	4.93	2.57	12.52	5.32
Secondary education	48.68	35.58	31.35	33.58	38.45
Tertiary education	36.75	36.37	35.37	32.83	35.76
University education	7.96	22.39	28.86	19.23	19.12
Rural	76.30	66.28	56.46	51.31	64.82

Source: International Organization for Migration, 2007.

2.13 Does Moldova have a revealed comparative advantage in exports of high value sophisticated products from which it is feasible to diversify into others? Accepting that the world is littered with examples of failed export promotion efforts which picked winners that turned out to be losers, we look here for products which Moldova is already successfully exporting, in which the country has a revealed comparative advantage. Which of these products already has high product sophistication, or the potential to become a high value export? Moreover, since literature shows that export value growth comes overwhelmingly at the intensive margin of products (i.e., that product discovery in exporting depends on how related a new export is to an existing one), we look for products that are “close by” in terms of the ease of movement of labor and capital into their production.

D. Sophistication

Export sophistication is low in Moldova compared with its neighbors, but is high relative to its GDP. To examine the quality content of Moldova’s exports, we utilize the measure of export sophistication created by Hausmann, Hwang and Rodrik. This methodology utilizes a constructed

index to define a country's export sophistication based on its overall export basket, with each product in the basket evaluated based on the GDP per capita of all the countries in the world exporting that product. The index uses the fact that not all goods are alike in terms of their consequences for economic performance, and specializing in some products will bring higher growth than specializing in others. Compared with other CIS economies, Moldova's export basket is relatively unsophisticated (see Box 2.1), but compared with Moldova's real GDP (PPP) export sophistication is above average (but below those of the faster growing economies with similar GDP (PPP) such as Indonesia and Vietnam)¹⁸. Between 2000 and 2008, the measure of export sophistication for Moldova (EXPY)¹⁹ has increased, in large part between 2003 and 2006 with the emergence of capital-intensive metal product exports and the increased significance of apples, wheat and luggage exports as the wine sector declined (see Figure 2.11).

Box 2.1: Export Sophistication Methodology

Hausmann, Hwang, and Rodrik, (2005). The index for export sophistication, EXPY, is constructed in two stages. The first stage involves measuring the GDP per capita associated with each product in the world. This product-level measure of sophistication is called PRODY, and it is calculated as the revealed comparative advantage (RCA)- weighted GDP per capita of each country that exports the good. So, if a product accounts for a large percentage of poor-country export baskets but a small percentage of rich-country export baskets, then it will have a lower PRODY as it is a "poor-country" export. One example of a low PRODY export is cotton, which represents a relatively large share of poor country exports, but not rich country exports. Conversely, if a product accounts for a large percentage of rich country export packages but is not significant among poor-country exports, it will have a higher PRODY as it is a "rich-country" export. An example of a high PRODY export is airplanes, which are only exported by a small group of countries (and mostly high income countries). The formula for calculating PRODY is as follows:

$$PRODY_{i,t} = \sum_c \frac{(x_{i,c,t} / X_c)}{\sum_j (x_{j,c,t} / X_c)} Y_c$$

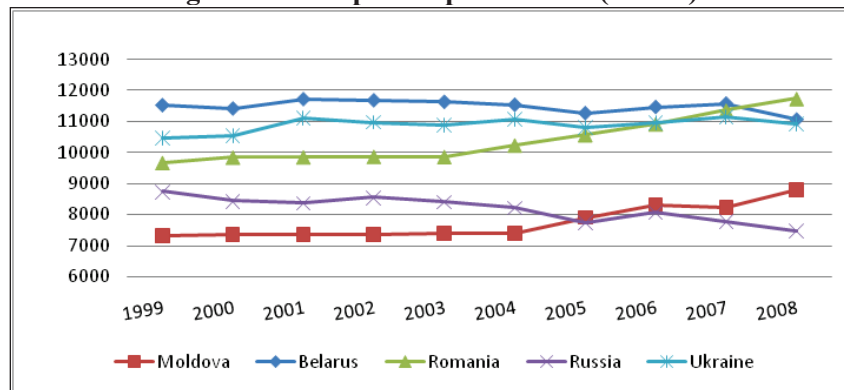
Where $x_{i,c,t}$ equals exports of good i by country c in year t , X_c equals total exports by country c , and Y_c equals GDP per capita of country c . For this analysis, products were disaggregated to the 4-digit industrial classification (SITC 2). EXPY, in turn, reflects the PRODY of each good that a country exports, weighted by that product's share of exports. So, if one country exports primarily rape and colza seeds, that country will have a low EXPY compared to another country than exports primarily airplanes. Formally:

$$EXPY_{c,t} = \sum_i \left(\frac{x_{c,i,t}}{X_{c,t}} \right) PRODY_{i,t}$$

¹⁸ Bailey Klinger (2010), op cit.

¹⁹ Hausmann, Hwang & Rodrik, (2007). "What you export matters," Journal of Economic Growth

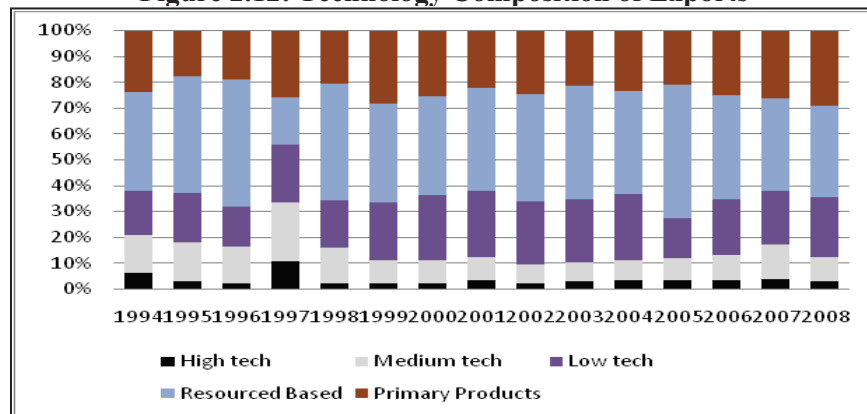
Figure 2.11: Export Sophistication (EXPY)



Source: World Bank staff estimates based on UN Comtrade data.

2.14 **High technology exports remain a very small fraction of Moldova’s exports.** Low technology, primary and resource-based (meaning in Moldova *agro*-based) products²⁰ continue to dominate Moldova’s exports (see Figure 2.12). Technology is associated with export sophistication, but even in resource-based and primary products, there is the capacity to produce and export products with greater sophistication and greater value, and overall export sophistication can rise by specializing in these products.

Figure 2.12: Technology Composition of Exports



Source: World Bank staff estimates based on UN Comtrade data.

2.15 **A few new exports have emerged over the decade in which Moldova demonstrates comparative advantage.** A decomposition of Moldova’s own production exports since 2003 shows that the main product groups accounting for two thirds of direct export growth between 2003 and 2007²¹ were: (1) plasters and cement;(2) food products, vegetable products, and oils; (3) metal products; and (4) mechanical goods. This was due in large part to the transfer of the labor-intensive activities to Moldova. Manufactured products with higher-skill and technology intensity also steadily increased between 2000 and 2008.

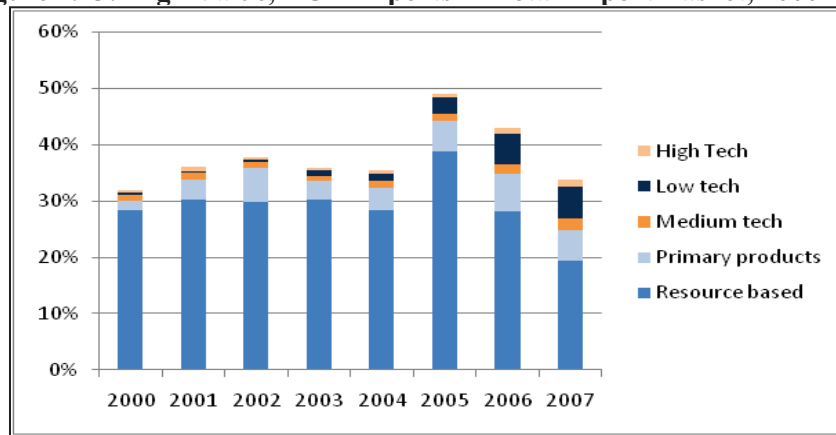
²⁰ Agro-based products, including animals and animal products, vegetable products, fats and oils, foodstuff products, alcoholic and nonalcoholic drinks, tobacco, and wood, pulp and paper products were two thirds of Moldova’s exports in 2000. Even after the decline in the wine industry, the Russian wine ban, and the garments boom, they are 40% of goods exports.

²¹ 2007 is the preferred end date, due to lags in reporting potentially affecting 2008 figures. Looks only at products where positive growth occurred (as share of total export growth over the period, product groups mentioned represent over 400% of value growth)..

2.16 **Within the exports where Moldova has comparative advantage, there are a few with high export sophistication.** The higher value exports (across all segments of technology: primary products, low-tech, resource based, etc) in which Moldova demonstrates revealed comparative advantage represent a relatively *large* share of the export basket, ranging from a third to half of export value. This is the good news. But there remains significant room for increasing the share of these that are higher-value exports in content, no matter the technology base.

2.17 **The majority of Moldova’s high-value exports with demonstrated revealed comparative advantage exports are traditional rural *resource-based* i.e. agro-based products** (see Figure 2.13). Wine is still the largest single contributor to exports in this category, even after it share has declined with the wine export ban. Strong growth has taken place in both low-tech high value industries (primarily iron and steel wires and structures) and high-tech industries (measuring equipment). As we shall see below, ease of movement is an issue for diversification across Moldova’s exports. For this reason, *an export strategy based around natural resource based rural products seems to be the most credible for Moldova.*

Figure 2.13: High Value, RCA Exports in Total Export Basket, 2000-2008



Source: World Bank staff estimates from UN Comtrade data.

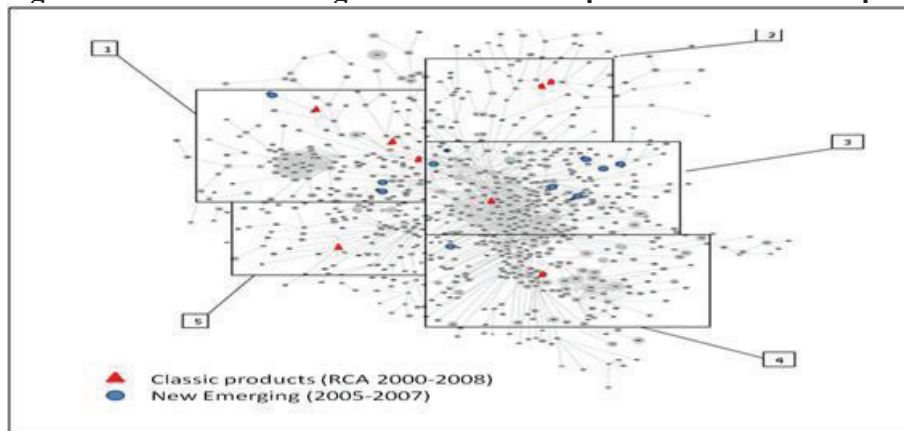
E. Ease of Movement to Diversify

2.18 Moving from present export products to higher-value export products requires the ability to redeploy factors easily to other production processes. An index of product relatedness²² allows us to identify the products “close by” to the products Moldova already successfully produces for export. While one goal for exporting is to move to more sophisticated (higher value) exports to support higher wages and job growth, Moldova needs to be able to get there from its current production endowments (physical or otherwise).

²² Hausmann and Klinger, 2007. The authors map a topology of the product space based on world trade over time, understanding that moving from production of one product to another will depend specifically on the products. Every product requires a large number of factors of production that are specific, and production assets cannot be costlessly redeployed from one product to a new product, since they are specific. But, their degree of specificity is relative: some pairs of products will use similar factors, while other will use very different factors. Since new products must use that which exists, future structural transformation depends on what is “close to” what is already produced.

2.19 **It would be risky for Moldova to base an export strategy on the discovery of new products for export.** The majority of higher-value products Moldova successfully exports²³ are not close to other products in a production sense (in terms of the ability to redeploy production assets). They are therefore unlikely to lead to new export discoveries. Moldova’s successful high-value exports are in primarily in food-based products²⁴. Moldova has demonstrated success in exporting some mechanical goods and leather/textile products, but as we saw above, these depended highly on re-exports to compete in the EU. Looking at the full product space mapped from world trade data, Moldova’s successful high-value exports lie often in areas of the map where only a few other exports (high value or not) are close by (see Figure 2.14). For these export products, the product choices for where producers could redeploy production factors to produce other higher-value products are limited. Classic exports, such as wine and apples (in area 2 in the product map), for example, have few paths to other exports. A few products, particularly in area 3 have technologies conducive to more higher-value product paths. These include packing articles, paper and paperboard, centrifugal pumps, and surveying equipment. Their export volumes remain very low however, insufficient upon which to build a growth strategy.

Figure 2.14: Moldova’s Higher-Value RCA Exports in the Product Space



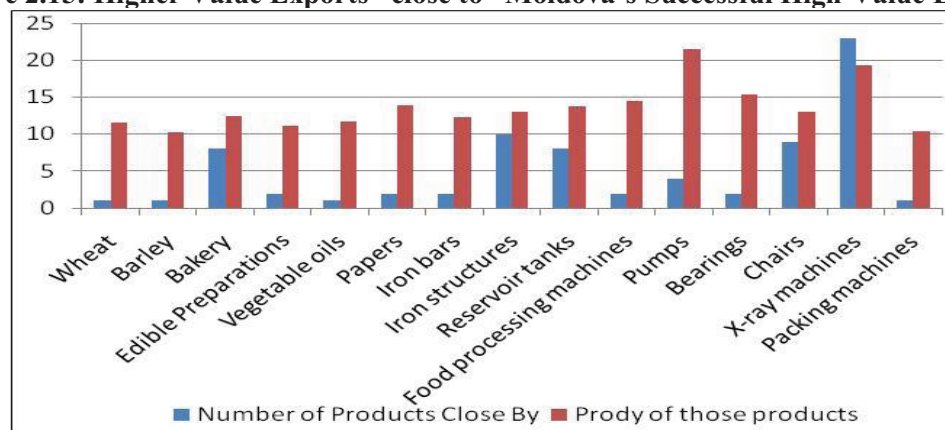
Source: Staff estimates from UN Comtrade Data using PRMED Export Diversification Tool, based on Hausmann, Hwang and Rodrik (2005) and Hausmann and Kingler (2007).

2.20 **It is worth ensuring that some emerging “incubator” export industries do not run up against export barriers, but they can probably not drive economic growth in the short-term.** Products within the industrial classification drawing, marking-out, disk calculators, for example (SITC 8742) point to more than twenty different high-value industrial classifications where other countries have demonstrated joint comparative advantage (where, if producing one product successfully, they have a more than 50 percent chance that they produce the other product successfully). Moreover, the close-by products demonstrate significant export-sophistication, with PRODY values averaging more than 20,000. Low tech-products such as chairs and seat parts (8211), metal reservoirs, tanks and vats (6921), fuel pumps (7422) and metal structures (6911) are also high-value products Moldova produces successfully which are “close to” other high-value products in the product space. Within resource based products, only bakery goods (484), paper and paperboard (6415) and edible products and preparations (980) provide potential export paths to other products, based on world experience (Figure 2.15).

²³ Products in which it demonstrates revealed comparative advantage in production.

²⁴ Fruits, juices and nuts, vegetables and vegetable products, grapes and wines, oils and fats, grain and pulses, animals and animal products, hides and skins, etc.

Figure 2.15: Higher Value Exports “close to” Moldova’s Successful High-Value Exports



Source: World Bank staff estimates from UN Comtrade data.

2.21 **It is also worth acknowledging that diversification into higher-value exports can also take place from low-value exports.** Moldova’s success with low-value exports, like outer garments point to a variety of other higher-value exports which other countries have been able to jointly-produce successfully. Products like glass containers and spirits and liquors, while low value (both well under 7,000 PRODY), are close by to at least a few products which have significantly higher export-sophistication levels. Most countries exporting spirits have also found it possible to successfully export other fermented beverages and beer. Both of these products have significantly higher levels of export sophistication than spirits, but the production processes are similar enough to producing spirits to make redeployment potentially feasible. In the case of glass containers, for example, most countries exporting glass containers have also successfully exported higher value products in the packing and conveyance fields.

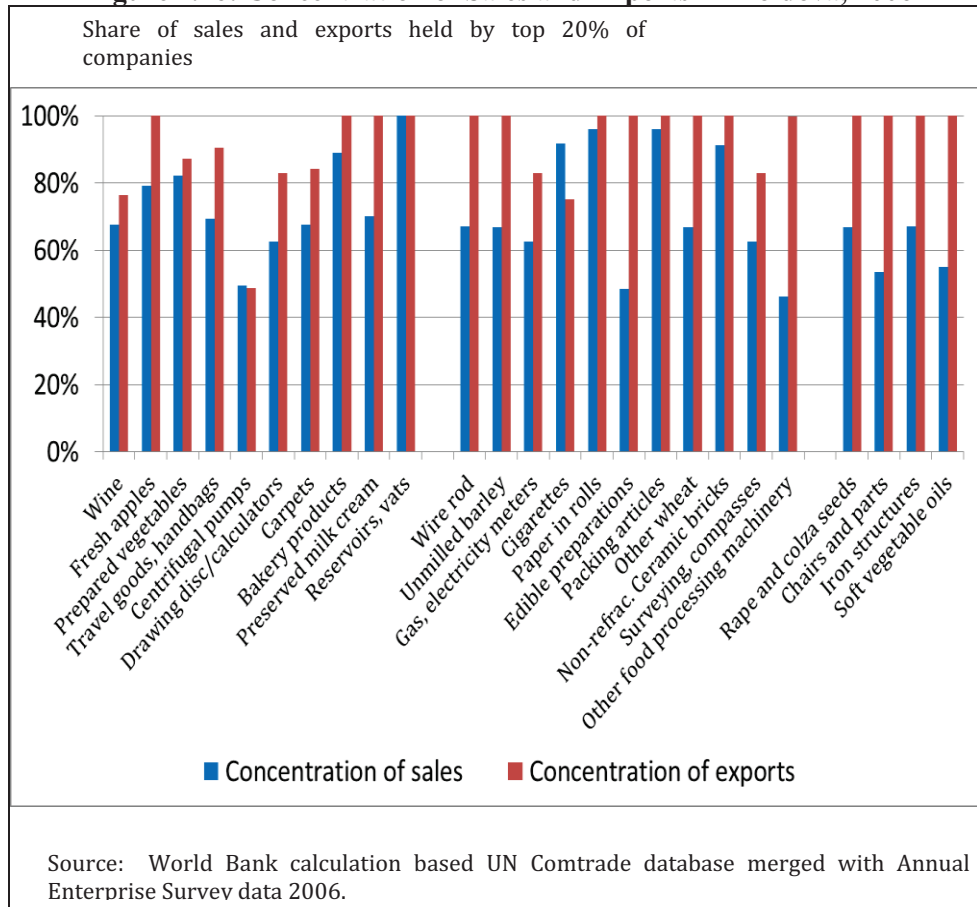
F. Conclusions and Policy Implications

2.22 **Nonetheless, the analysis of product sophistication and ease of movement and Moldova’s comparative advantage in high value agro-based products point to an export strategy based – in the short-term at least - upon existing rural-based export products.** Bringing into consideration the recent volatility of Moldova’s traditional markets, the obvious benefits of integration with the EU, and the economic logic that a small population in a relatively lagging area needs to benefit from integration with thin borders (WDR 2009), an export based strategy built around seeking higher value for existing products in the EU seems compelling. To begin to build such a strategy requires a better understanding of the barriers to agricultural growth and hurdles to export growth. Chapter 1 already discussed general investment climate barriers. In the remainder of this section, we consider the complaints in investment climate surveys of exporters. Then we present the symptoms of policy failure in agriculture – which Moldova must address to develop a second engine for growth from agro-based exports.

2.23 **There is strong evidence of exploitation of Moldova’s small farmers by monopoly exporters.** Average prices that Moldova’s farmers receive have been rising much slower than the costs of the inputs they use, and rising slower than the prices received by Moldova’s neighbors. Moldova exhibits a high degree of concentration of exports in the hands of just a few businesses. Firm level data from 2006 (the last year for which export information is available in the AES) suggests a relatively high level of concentration of sales and exports by a few firms. (see Figure 2.16) shows that between 50 percent and 100 percent of sales and exports are concentrated in the top quintile of firms producing these product lines. While economies of scale may account for

some sectors having limited ability for competitors to enter the market, it is much less clear why products that are relatively competitive in terms of overall sales are monopolistic or oligopolistic in exports. This is counter-intuitive because Moldova's domestic market is small relative to the world market, so if economies of scale were prevalent, they should apply to all sales. It seems more likely that policy such as licensing or regulation has created export monopolies. This could prove particularly damaging to the rural economy if it gives these exporters bargaining power over farmers (many sellers, one buyer) to drive domestic farm-gate prices below the international price the exporter would receive.

Figure 2.16: Concentration of Sales and Exports in Moldova, 2006

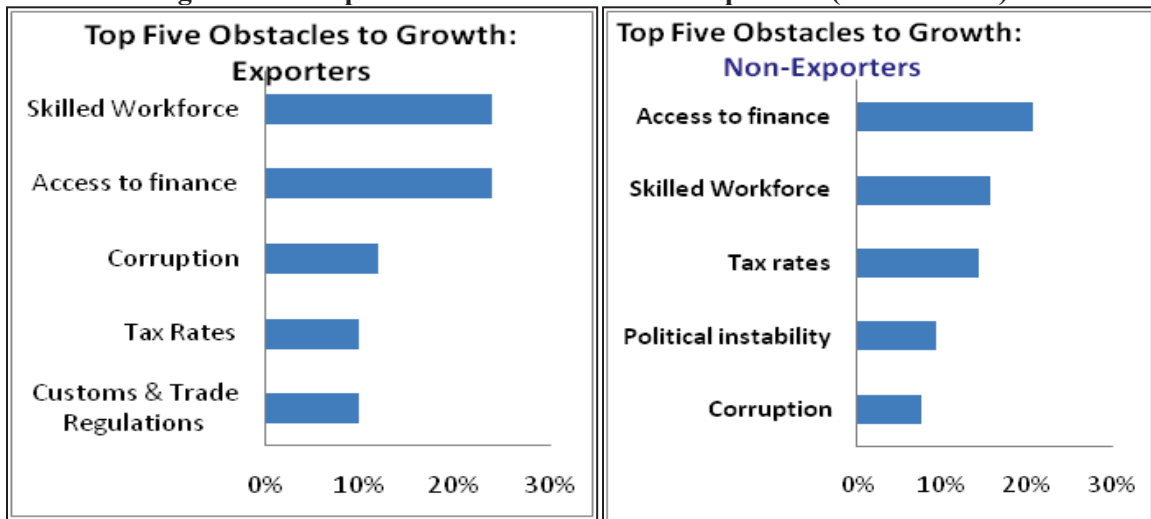


2.24 Moldovan exporters are unable to take full advantage of new trade opportunities largely because they are unable to meet quality standards. Fewer exporters in Moldova hold an internationally recognized quality certification compared with the rest of the region, the Low Middle Income Countries, Latin America or East Asia. This is a key issue given both the dominance of agro-based products for Moldova, and the Governments vision of European Integration. Despite the further liberalization of Moldova's trade regime with the EU, through the recently introduced ATP system, Moldovan exporters are unable to meet stringent, European quality standards. Similarly, trade relations with Russia normalized in 2007, but wine exports were subject to strict phytosanitary standards. Accelerating the adoption by firms of standards and technical regulations compatible with international norms and standards, along with the upgrading of metrology and testing laboratories, will be important reforms for export growth, European integration and rural poverty reduction.

2.25 Exporters complain most about skills, access to finance, corruption, customs administration and tax rates. (Figure 2.17) shows the top five obstacles to business expansion listed by exporting and non-exporting firms surveyed in the World Bank's Business Environment and Enterprise Performance Survey (BEEPS). Skilled labor constraints and access to finance appear as the highest ranked constraints. Access to finance ranks high across all countries but it is not possible using the BEEPS to test further whether those who complain in Moldova are genuinely credit constrained. Nevertheless, more than 50 percent of exporters in Moldova complain about finance being a significant barrier – higher than the average of any region of the world, and higher than in low-middle income countries. Similarly, only 40 percent of exporters in Moldova report having access to overdrafts compared to over 60 percent in the region. The high score for skills could reflect the large number of migrants, but also the uncertainty associated with people leaving the country to seek work abroad. It could also be associated with inadequate public vocational education (discussed in Chapter 3). This seems quite likely because non-exporting Moldovan firms *do* seem to provide more training than the average for wealthier countries in Eastern Europe – although exporters do not. In terms of the supply and demand for education, Chapter 3 will show that Moldova has created fewer new jobs than it has created graduates, so there does not appear to be a shortage of volumes of skills, more likely of quality.

2.26 Exporters' complaints about corruption seem to go hand-in-hand with complaints about customs and trade regulations. Customs and trade regulations are not rated significant problems by firms in other countries in the region or worldwide. Substantially more Moldovan exporters complain in the BEEPs about having to make informal payments or bribes to conduct business than the regional or low-middle income country (LMIC) average. (Around 48 percent of Moldovan exporters compared with around 30 percent in other countries in the region and about 25 percent for LMICs). Senior management of exporting firms in Moldova spent twice as much time complying with government regulations as their counterparts in non-exporting firms. This ratio is much lower in all other regions of the world, suggesting that the Government is right to target improvements in the regulatory environment – especially for exporters. Problems crossing the border would appear to be where the problems of corruption and over-regulation hurts. This is especially problematic given Moldova's small economy and remote, landlocked status because as the 2009 World Development Report shows, integration rather than isolation is the only feasible way for a lagging region of Europe that Moldova is, to begin to close the gaps on the rest of Europe. (The previous chapter presented policy options for reducing the costs of crossing borders).

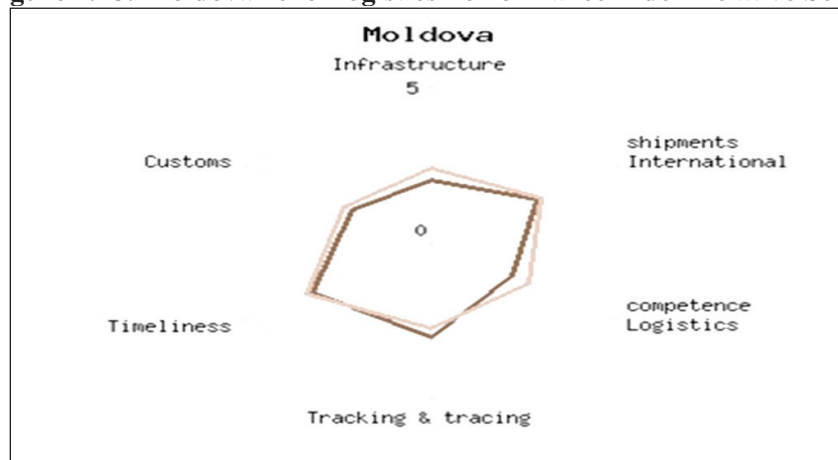
Figure 2.17: Top 5 Constraints to Business Expansion (2008 BEEPS)



Source: World Bank staff estimates based on National Bureau of Statistics Data.

2.27 **These conclusions are consistent with other World Bank Studies.** The 2004 DTIS study noted that although the statutory trade policy regime is liberal in Moldova, informal policy implementation, a bribe tax and high costs of customs, transport and export finance create major barriers to exporting. The findings also show up in Moldova’s relative rank in the World Bank’s 2010 Trade Logistics Performance Index. Overall Moldova ranks 104th out of 155 countries (Romania ranks 59th, Ukraine is 102nd). For the speed, simplicity and predictability of customs Moldova ranks 124th out of 155. For logistics competence, Moldova is 132nd. The darker line (see Figure 2.18) below represents Moldova’s scores, the lighter line is the ECA region.

Figure 2.18: Moldova 2010 Logistics Performance Index Relative Score



Source: World Bank staff estimates based on National Bureau of Statistics Data.

G. Symptoms of the Agriculture Sector in Moldova

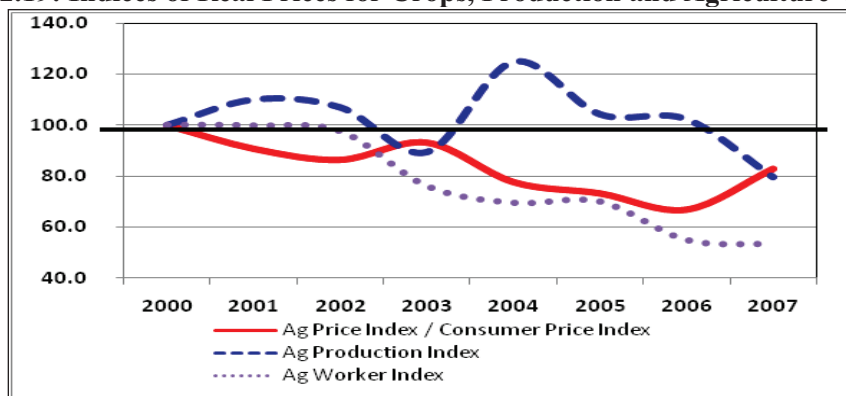
2.28 **If Moldova's second engine of growth is to come from agro-based exports to the EU, how vibrant is the (shrinking) agriculture sector?** In this section we show that policies in the agriculture sector seem to be generating anti-growth and anti-competitiveness outcomes. A strategy to export more agro-based products will require that agriculture policies improve rapidly and comprehensively.

2.29 **Some commentators have attributed the decline in agriculture and rising rural poverty over the period 2006-2008 to missed opportunities in the agriculture sector.** The delay in restructuring farms may have reduced income-generating opportunities for individual farmers. Distortions and imperfections in agricultural output and input markets meant agricultural producers received less for their outputs and paid more for their inputs relative to international parity prices than they should. Methodological improvements in the HBS prevent a comparison of poverty headcounts between 2005 and 2006, though some recent analysis suggests that poverty was essentially unchanged over this period. Recent data suggest that poverty may have fallen slightly between 2006 and 2007, but small farm profitability has been falling too. The World Bank, along with other development partners in the sector, is discussing detailed policy options for reform with the Ministry of Agriculture. In order to underscore the need for fundamental market-based reforms to underpin an agro-based export growth strategy, this section looks back over the period 2000-2008 at some key indicators which are symptoms of the ill-health of Moldova's agriculture sector.

The real value of agriculture in Moldova declined during 2000-2008. (Figure 2.19) (solid line) shows an index of weighted average crop prices deflated by the non-food items in the CPI. By 2006, real food prices were 38 percent lower than in 2000. They recovered to 80 percent of their real value in 2000 following the drought of 2007. Falling real food prices is part of a healthy development process because it means that the relative expense of food items in the average household's expenditures is falling, freeing up consumer spending for higher value manufactured goods and services. This is only a healthy sign of development though if productivity is rising faster than the fall in real price – otherwise real incomes from farming fall. (see Figure 2.20) shows that weighted average production in Moldova was volatile but broadly flat in real terms between 2000 and 2007. Between 2004 and 2007 production fell by more than 40 percent. The numbers behind (see Figure 2.21) suggest a fall in real farming incomes. Closer inspection of detailed crop figures shows that land area and weighted average yields (output per land area) are also falling. The rise in labor productivity is due to the flight of labor out of farming and abroad.

2.30 **In 2008 for the first time, Moldova imported food and agro-based produce with a higher total value than was exported** (Figure 2.22). This implies that Moldova's rural economy was failing to produce adequate volumes and quality for domestic food markets. The relatively rapid rise in agro-food imports from 2006 is most likely linked to the declining competitiveness of Moldova's real exchange rate.

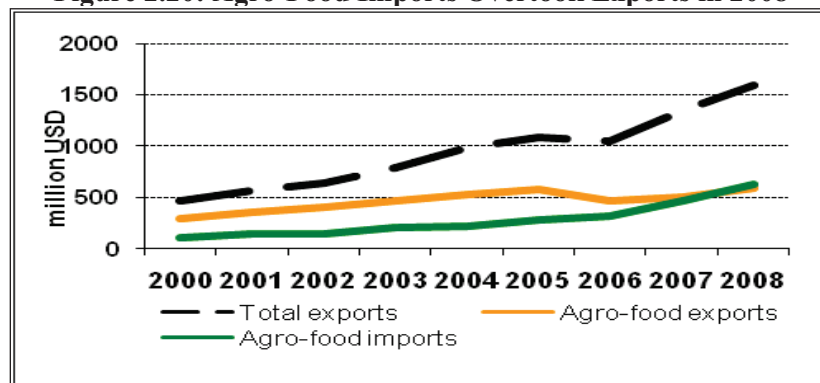
Figure 2.19: Indices of Real Prices for Crops, Production and Agriculture Workers



Source: National Bureau of Statistics Moldova.

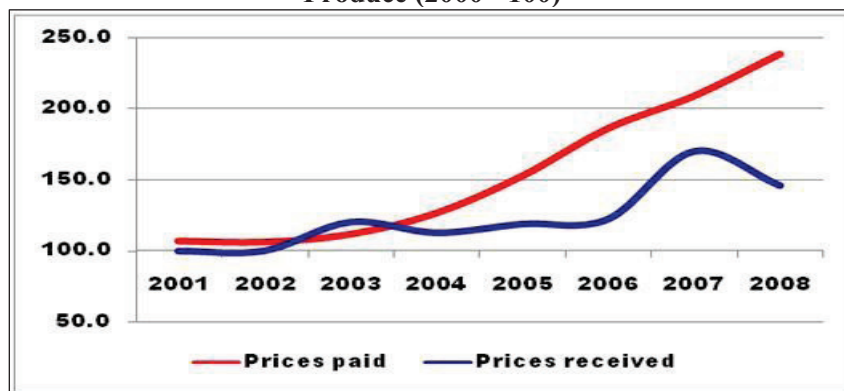
2.31 **Agricultural workers' wages have been rising faster than their labor productivity.** (Figure 2.21) illustrates more symptoms of decreasing farm profitability. Prices paid on inputs have risen faster than prices farmers receive. In the period 2000-2008, agriculture wages had increased over 5-fold. Agriculture output per worker on the other hand had increased by about 340 percent (see Figure 2.22). As a consequence, the labor share of value added was increasing over the period, and given flat real incomes in agriculture, profit was almost certainly falling.

Figure 2.20: Agro-Food Imports Overtook Exports in 2008



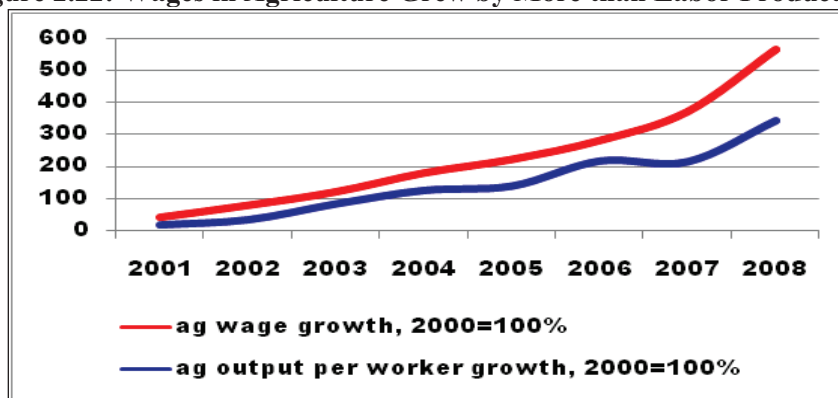
Source: World Bank & Ministry of Agriculture.

Figure 2.21: Index of Prices Paid for Farm Costs and Prices they Received for Their Produce (2000= 100)



Source: World Bank & Ministry of Agriculture.

Figure 2.22: Wages in Agriculture Grew by More than Labor Productivity



Source: World Bank staff estimates based on National Bureau of Statistics Data.

2.32 **Approximations using household data suggest the share of small farmers in Moldova that are making losses from farming is increasing.** Using agriculture modules of the 2006 to 2008 household surveys to estimate sales and own consumption and deduct the costs of inputs, we estimate that by 2008 15 percent of small farmers were loss-making in 2008, compared to just 5 percent in 2006 (Table 2.2). Average and median profits in 2007 were down relative to 2006, perhaps the result of the drought. A longer time period than is possible given the data will be needed before these results can be conclusive, but they are consistent with conclusions drawn from sector data and from the National Bureau of Statistics. Analysis of the profitability and acreage of crops grown in Moldova suggests that these results may be reflective of market distortions, coordination gaps or trade impediments.

Table 2.2: Small Farms Are Becoming Less Profitable

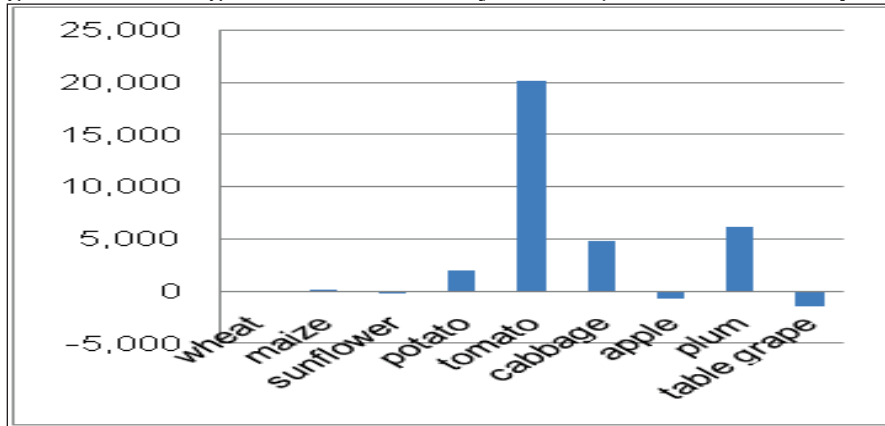
	Median profit	Average profit	Share of farmers with negative profit
2006	8,364	11,159	0.05
2007	6,915	8,896	0.07
2008	7,689	10,094	0.15

Source: World Bank staff estimates based on National Bureau of Statistics Data.

2.33 **Whereas the real profitability of some farm products in Moldova has increased between 2000 and 2008, farmers seem to be planting less of them and planting more of the products for which real profitability has fallen.** For instance, although tomato, cabbage and plum productivity increased, acreage fell. In contrast cereals, maize and sunflower, which saw flat land productivity, grew in acreage. There could be many other reasons for this, but analyzing what they are is beyond the scope of this study. Possible reasons could include subsidy schemes that offset the market incentive to grow more of the most profitable crops, and public policies favoring a “home grown” approach to food security over trade in food products. Worryingly perhaps for Moldova, the real profitability of grapes has fallen, and the acreage under fruit and

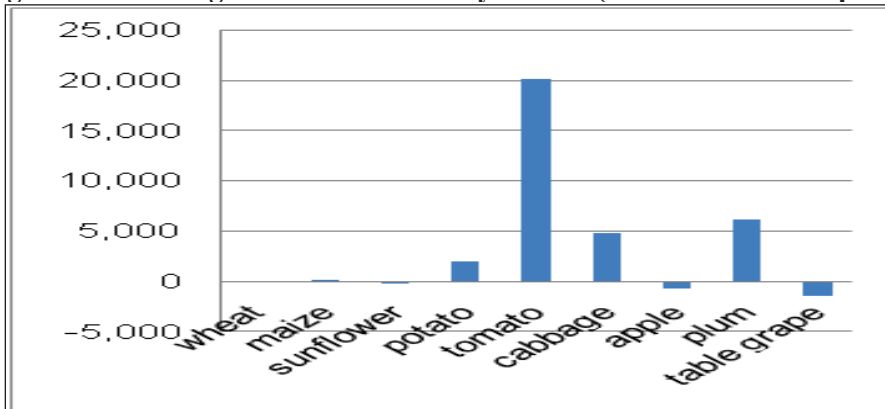
grapes and wine – traditionally the most important exports to CIS countries - also fell (see Figure 2.23 and Figure 2.24).

Figure 2.23: Change in Real Profitability Per Ha (2000-2008 in 2000 prices)



Source: World Bank staff estimates based on National Bureau of Statistics Data.

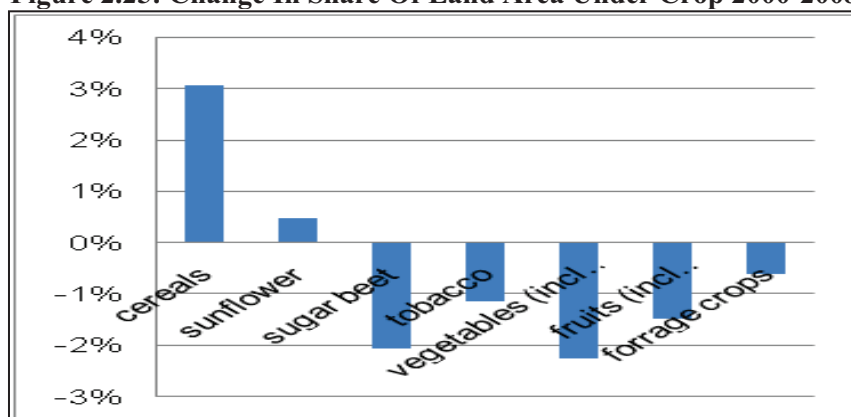
Figure 2.24: Change in Real Profitability Per Ha (2000-2008 in 2000 prices)



Source: World Bank staff estimates based on National Bureau of Statistics Data.

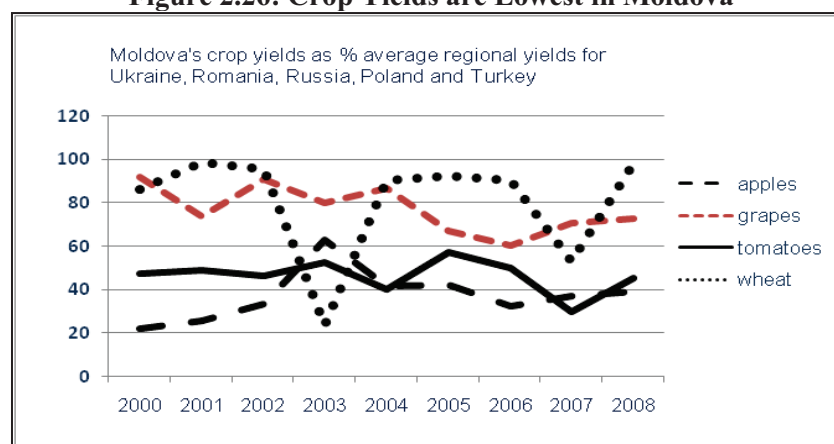
2.34 **Crop yields in Moldova are systematically below those in neighboring countries and food trading partners.** (Figure 2.25 and Figure 2.26) shows Moldova's yields as the percentage of arithmetic average yields in Ukraine, Romania, Russia, Poland and Turkey. For high value fruits and vegetables, Moldova's yields are significantly lower, for instance apples yields in Moldova were about 30 percent of the average for the period 2000 to 2008. This is one important determinant of the profitability of crop production. Another is the price received for the product.

Figure 2.25: Change In Share Of Land Area Under Crop 2000-2008



Source: World Bank staff estimates based on National Bureau of Statistics Data.

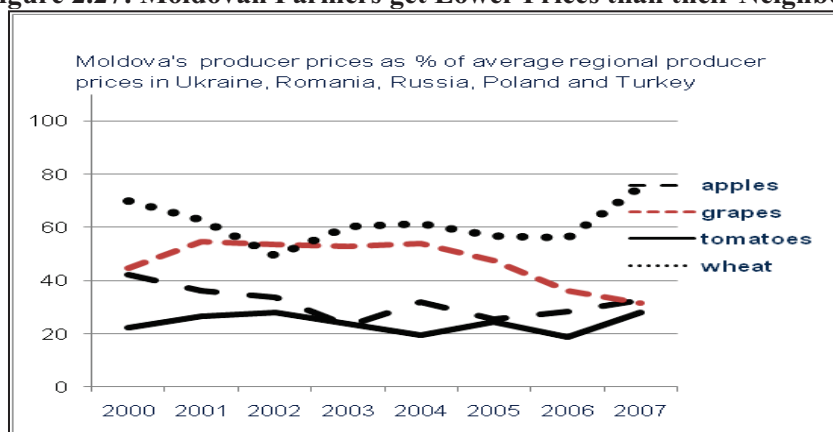
Figure 2.26: Crop Yields are Lowest in Moldova



Source: World Bank staff estimates based on National Bureau of Statistics Data.

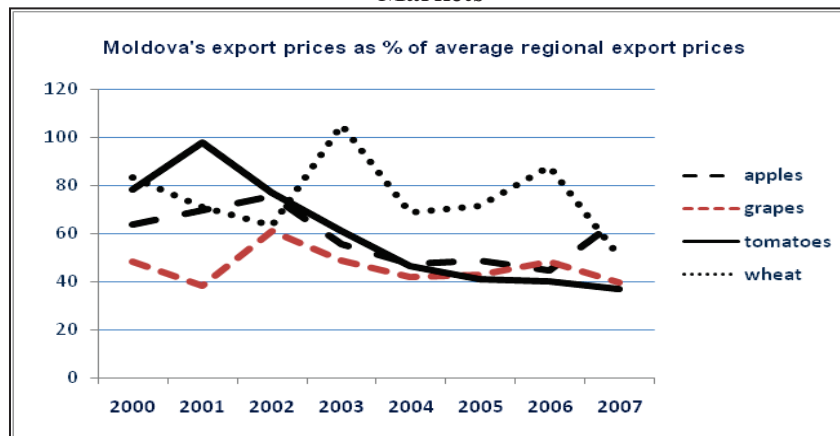
2.35 Moldovan farmers receive much lower producer prices than those received in neighboring countries and food trading partners and the gaps are widening for high-value fruit and vegetables. (Figure 2.27) shows the percentage of average regional producer prices for the same four major crops that Moldova’s farmers receive. The discount in Moldova is even wider than the gap in productivity – with Moldovan farmers receiving just over 20 percent of the regional price for tomatoes and about 30 percent for apples. For the period 2000 to 2008, the gaps appear to have widened. Looking at these same relativities on export markets, the pattern repeats itself (see Figure 2.28). Moldovan exporters receive substantially lower prices than those on offer to regional exporters. Whereas one would expect this gap to be even wider, reflecting that Poland and Romania are within the lucrative EU market and producing higher quality exports as a consequence, in fact the discount to Moldovan exporters is lower than for producers. It seems probable that trade and transport logistics factors and internal market buying power for crops in Moldova continue to reduce domestic process relative to export prices.

Figure 2.27: Moldovan Farmers get Lower Prices than their Neighbors



Source: World Bank staff estimates based on National Bureau of Statistics Data.

Figure 2.28: Moldovan Agricultural Products Receive Prices at the Low-End of Export Markets



Source: World Bank staff estimates based on National Bureau of Statistics Data.

2.36 **The implication of this analysis is that Moldova should correct any distortions preventing improvements in trade, productivity and competitiveness in agriculture.** The recent abolition of crop-specific grower subsidies and the liberalization of trader licenses for bulk wine exports are steps in the right direction. Removing import licenses, restrictions on importation of EU approved seeds, and removing monopsony practices in the purchase of grain and vegetable oils are logical next steps to make rural areas more profitable and competitive. This agenda will be fundamental to resurrecting agro-based exports. The price and productivity gap between Moldova and its neighbors suggests that there is substantial growth potential for Moldovan agriculture if such barriers can be removed, allowing farms to respond to better market incentives, become more competitive, and raise productivity and quality in line with the region. To illustrate what some of the barriers may be, the annex to this chapter explores micro constraints by investigating the value chain in apples production for export. Constraints to exporting will be crop-specific; what is needed for higher value apple exports will not be the same for wine, nuts, or vegetable oils. Ensuing efficient land markets will be essential to allow those owning vacant plots to get a fair price, and allowing those profitable farmers seeking to expand their farm-size to bring new land into cultivation.

2.37 Further analysis of the data of firms in the agriculture and agro-processing industries reveal key elements in the investment climate that affect productivity. Evidence shows that firms are constrained by government regulations: the percentage of management time spent complying with regulations and the number of inspections from government agencies have a significant negative impact on productivity, mirroring results in paragraph 1.38 above. Financially-constrained firms i.e. firms barred from credit markets as a result of high interest rates, high collateral requirements, and burdensome application procedure, are also less productive, as are firms receiving subsidies. On the other hand, evidence shows that training employees, access to broadband internet, and access to land improve the productivity of firms in the industry, especially agro-processors. Market dominance, however, has the largest impact on productivity. Firms that dominate industry sales are more productive than others, signaling monopolistic benefits.

Towards a Reform Program

2.38 Many of the constraints faced by agriculture and agro-processing investors are however, common to other producers and exporters and need to be addressed; high costs of finance and foreign exchange, expensive inputs, public and private monopolistic practices, skills gaps, poor customs and transport logistics, excessive licensing, over-regulation, difficulty getting construction permits, difficult land and property registration procedures, low access to new technology, poor information about price and market opportunities. All of these reduce Moldova's export competitiveness and constrain productivity. A comprehensive export strategy will go hand-in-hand with removing regulatory barriers and streamlining public sector interventions in Moldova's economy as mentioned in Paragraph 1.45 above.

2.39 Moldova should seek higher value from exporting existing products in new markets rather than seeking to diversify into new goods for export. Reform emphasis must be on correcting the myriad of policy failures that have eroded the competitiveness and profitability of farming and agro-processing, including:

Facilitate farmers' access to modern inputs

1. Accepting all annual crop varieties from the EU common Catalogue and varieties registered in neighboring CIS countries without further tests (with appropriate phytosanitary safeguards).
2. Allowing (for perennial crops) producers to import seedlings of unregistered varieties to be planted on own land, subject only to phytosanitary considerations.
3. Adjusting Government seed regulations and regulatory practices to EU practices.
4. Revising procedures for certifying inputs that are already certified in line with standards of other countries with which Moldova has mutual acknowledgement certificates.
5. Accepting all fertilizer and pesticides approved EU and encourage entry of market participants.
6. Adopting the Chemical management law.
7. Providing farmers better access to information on new inputs and research (including through training programs and ICT systems)

Improve access to financial products for farmers

8. Taking legislative and regulatory measures to ensure the proper functioning of a warehouse receipt system.

9. Developing a land re-parceling strategy aimed at reducing the regulatory load for land purchase and sale, swap and inheritance transactions.
10. Reviewing the current agricultural insurance schemes and associated subsidies, with the aim of increasing efficiency, outreach and diversification of insurance products.
11. Strengthen government support in marketing domestic products abroad.
12. Concentrate budget support to agriculture on infrastructure needed to facilitate exports and other WTO green box items (as opposed to input and productions subsidies)
13. Adjust the agricultural research system and education to better fit the needs of the private sector.

2.40 To create opportunities for service exports, reform emphasis should be to unleash the potential of ICT to generate productivity gains throughout the economy, and in particular to support nascent exports of software and business service outsourcing. Analysis prepared for the World Bank publication entitles Policy Notes for the New Government suggests that reforms should:

1. Reduce the costs of external calls by rebalancing Moldtelecom tariffs to closer match market rates for domestic and international land line calls
2. Create a competitive market for band width by making Moldtelcom sell on its excess capacity at market rates to other internet service providers (ISPs) and by issuing licenses to new ISPs.
3. Generate new ICT products by removing administrative or legislative barriers that prevent innovative cell phone applications – such as providing agricultural price information, mobile banking, mobile remittances, etc
4. Prepare Moldtelecom for eventual privatization.

3. MIGRATION: BENEFITS, PROSPECTS, CHALLENGES, AND OPPORTUNITIES

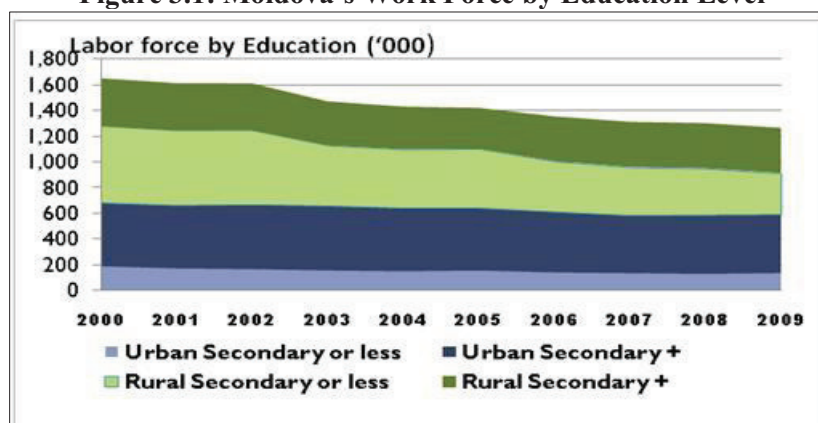
Since human capital and education are vitally important in migrant countries, this chapter considers the impact of migration on the labor market, and the implications of out-migration for education and skills development in Moldova. First, we look at the impact of migration on poverty reduction, the benefits of migration to Moldova, and the incentives migrants have to leave – which will not decline in the short-term. Looking then at the prospects for future migration, we conclude that migration will continue to be a key factor in Moldova’s development and fight against poverty for a long time to come. Moldova’s Government should therefore embrace migration and remittances as an opportunity, implementing policies that maximize the gains from remittance flows. The next section looks at the impact of migration on skills and wages, presenting some findings from a unique survey of migrants and return migrants, and evidence from labor force surveys. Finally, the chapter analyzes labor dynamics on Moldova and the relative returns to education and their implications for education policy. We conclude that Moldova is not short of student places at post secondary and tertiary schools, nor short of graduates. But we conclude, if Moldova is to increase labor productivity to offset the impending rapid decline in its labor force, and to match skills to the demands of a more vibrant exporting economy, then the quality and relevance of what is taught at vocational and tertiary training needs to radically improve.

A. Magnitude of Migration in Moldova

3.2 **The share of Moldova’s potential workforce located abroad increased dramatically in the recent decade.** Between 1990 and 2004, the working population in Moldova declined rapidly, both with outmigration and with aging. Figures from the National Bureau of Statistics suggest that the labor force fell by half a million workers during this period (about one quarter). Including informal migrants, by 2007 there were reckoned to be around 700,000 migrants working outside of Moldova.

3.3 **Most of the net migration came from rural areas, with migrants having secondary or vocational education.** (see Figure 3.1) shows that whether by rural urban migration or direct out-migration abroad, the impact of migration has been felt in rural Moldova and amongst those with secondary education only.

Figure 3.1: Moldova's Work Force by Education Level

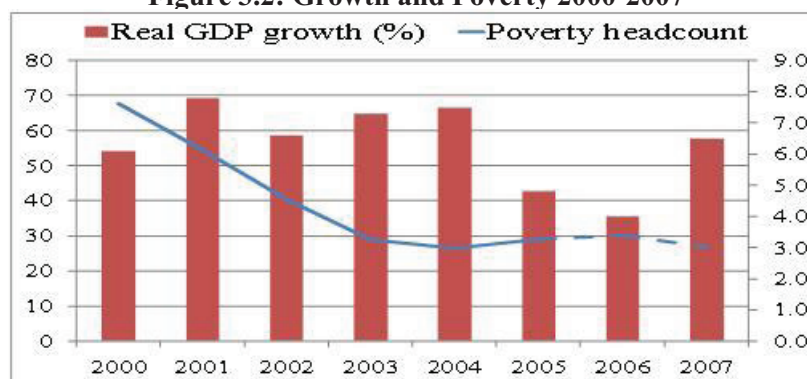


Source: World Bank based on household data and National Bureau of Statistics Data.

B. Benefits of Migration

3.4 **As a strategy for poverty reduction, the remittance-financed model has worked well.** Moldova's economic recovery led to a massive movement out of income poverty. Between 1999 and 2004, over 40 percent of the population moved out of poverty (see Figure 3.1) This was the largest absolute decline in the ECA region over this period. The fall in absolute poverty through this period was broad-based, as poverty decreased through all locations. Between 2004 and 2005, poverty reduction appeared to stall despite sustained economic growth, (see Figure 3.2) underpinned by rising rural poverty²⁵. By 2008 the rural self employed (mostly farmers) along with pensioners and households with 3 or more children made up the largest categories of poor people. As discussed in chapter 2, the profitability of small farms appears to have fallen consistently from 2006-2008, although rural wages for those who remained employed in waged jobs in agriculture seem to have increased. Without labor exports, it seems unlikely that poverty in Moldova would have fallen because declining farm profits and declining labor productivity in agriculture would have driven down rural wages.

Figure 3.2: Growth and Poverty 2000-2007



Source: World Bank staff estimates based on National Bureau of Statistics Data.

²⁵ There are comparability issues, see Annex 3 and refer to background paper by Ferre, C. (2009), "Updating Poverty Profiles between 2005 and 2006: A Case Study of Moldova".

3.5 Migration provided a release valve from declining employment, stagnant productivity and declining profitability. Analysis of household data suggests that remittances (amounting to around 30 percent of GDP) have proven more effective in reducing poverty than all of Moldova's (mostly untargeted) social protection programs combined. Those households who have 'exported' their workers to more prosperous economies typically enjoy per capita consumption that is 20 percent higher than in households without migrants, who in rural areas are struggling. The World Bank estimates that the presence of a migrant increases the consumption of a poor Moldovan household by up to 40 percent.

3.6 Remittances also allowed the Moldovan economy to withstand several macro external shocks. Starting in 2006, Moldova, which is completely dependent on imported energy, had to cope with rapidly rising natural gas prices and export bans on its main export (wine). In the summer of 2007, the Moldovan agricultural sector, representing 14 percent of GDP (or 30 percent if one includes agro-processing), was severely affected by a drought with losses in the sector estimated at nearly 30 percent of production. These shocks caused real GDP growth to slow to 4 percent in 2006. Nonetheless, Moldova's economy has also proved quite resilient in the face of these external shocks.

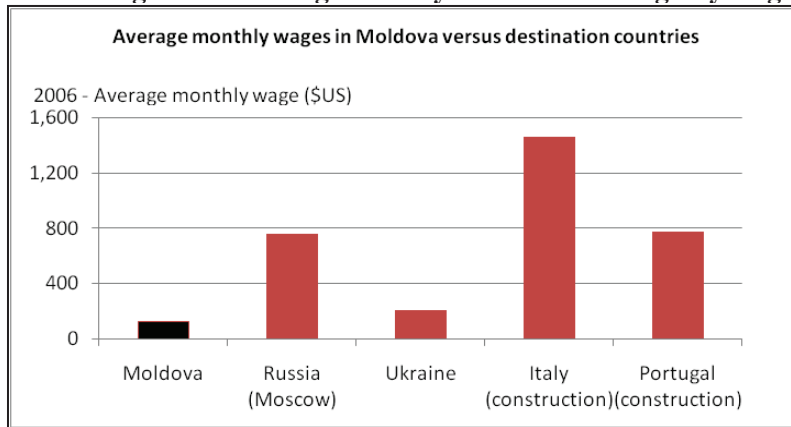
3.7 Early indications are that remittances will also help Moldova's economy bounce back following the global crisis-induced recession of 2009. The combination of a weaker Leu, a stronger Ruble, and early recovery in Russia have already seen a rebound in remittances by around 8.2 per cent in the first half of 2010 over the same period in 2009, although little is known about what lies behind the macro numbers; for instance whether migrants were forced to repatriate their earnings and return home.

3.8 Migration and remittances can have positive direct effects on households. For the families of those who work abroad, remittance receipts increase consumption. Analysis of household budget survey data suggests average household expenditure is 20 percent higher for households with a migrant (other things equal). Second, remittances increase human capital investment for receiving households. Third, they reduce poverty: we estimate that household expenditure for a poor family increases by more than 40 percent with the presence of a migrant. For everyone else, there have been indirect benefits from economic activities and job creation financed by large remittance inflows—such as in construction and service sectors. For workers who stay behind, and particularly for those who belong to skill groups that experienced large outflows, migration significantly increased real wages. Finally, as noted in the first section, remittances can help offset domestic economic shocks by diversifying Moldova's income sources without requiring domestic production. In hard times, they tend to be a stable flow of counter-cyclical income. In fact it can be argued that remittances are more reliable than exports as a foreign exchange earnings during recession because of search factors: it is more likely that a migrant will find alternative work in a foreign economy than that an export will find an alternative market.

C. Prospects

3.9 **Post-crisis out-migration may not increase beyond the current share of the work force, but in the short-term recovery and for the foreseeable future it will remain significant to Moldova’s growth and development into the next decades.** There are several reasons: first, the labor importing countries have aging populations and labor deficits. Second, their economies (which are considerably richer than Moldova’s) are forecast to start growing again in 2010. Third, Moldova can simply not create enough jobs for both new entrants into the workforce and the many Moldovan workers abroad. Fourth, migration will remain significant because migrants earn significantly more income outside Moldova (see Figure 3.3).

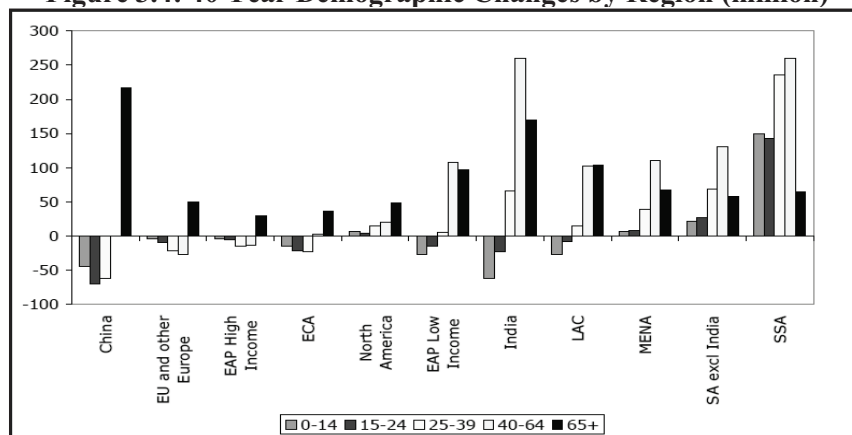
Figure 3.3: Migrants Earn Significantly More On Average By Migrating



Source: UN.

3.10 **UN labor market projections suggest increasing labor deficits in the regions that take Moldovan migrants.** The EU countries and Moldova’s Eastern European neighbors are – in common with most other regions in the world – facing significant aging coupled with reductions in their working age populations(see Figure 3.4)

Figure 3.4: 40 Year Demographic Changes by Region (million)



Source: UN.

3.11 **Some of the main economies to which Moldovan’s migrate – which were hard hit by the crisis - are expected to rebound in 2010** (Table 3.1). In particular, growth in Russia is expected to be around 4 percent in 2010. The appreciation of the ruble against the Leu in late 2009 has already greatly favored remittance receivers in early 2010 and prospects look more solid for the employment of Moldovans in Russia’s construction sector than they did last year.

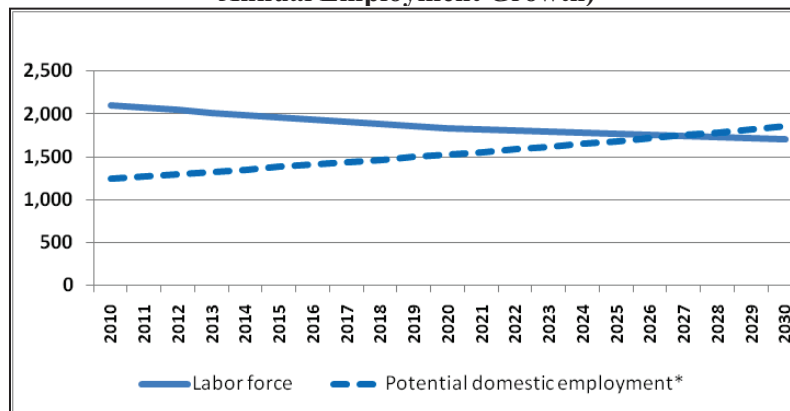
Table 3.1: GDP Growth in Selected Economies

	2008	2009	2010	2011
World Output	3	-0.6	4.2	4.3
Advanced economies	0.5	-3.2	2.3	2.4
Euro area	0.6	-4.1	1.0	1.5
Italy	-1.3	-5	0.8	1.2
Germany	1.2	-5	1.2	1.7
Spain	0.9	-3.6	-0.4	0.9
CIS economies	5.5	-6.6	4.0	3.6
Russia	5.6	-7.9	4.0	3.3
Other CIS	5.3	-3.5	3.9	4.5

Source: World Bank.

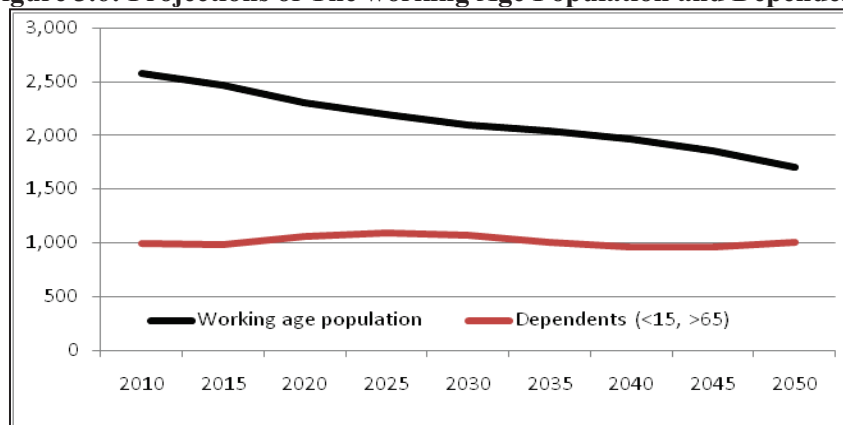
Even if Moldova was to turn around the jobless growth of the recent decade, and could attract workers back home, it would take many years to create enough jobs to reduce dependence on remittances. Assuming rapid growth in employment of 3 percent per year, it would take Moldova more than 15 years to create jobs for all workers at home and those living abroad (see Figure 3.5) This ignores the obvious incentive that workers would still have to migrate given the wage differentials in (see Figure 3.6)

Figure 3.5: Projections of Moldovan Employment and Labor Force (Assumes 3 percent Annual Employment Growth)



Source: World Bank.

Figure 3.6: Projections of The working Age Population and Dependents



Source: World Bank.

D. Opportunities

3.12 How can Moldova maximize the economic gains from remittance flows?

Recognizing that migration is ‘here to stay’ in Moldova, we discuss here what other countries have done to maximize the gains from migration²⁶. These include: lowering the cost of sending remittances through *formal* channels; using remittances to deepen the financial sector and to reduce the costs of borrowing; managing the macro-economic impact of high remittance inflows into the economy, and involving migrants and return migrants as partners in development – including by linking migrants with employment opportunities at home and abroad. Government could also improve the security of Moldovan migrants abroad through bilateral agreements with destination countries

3.13 Countries use a variety of policies and strategies to lower the cost of sending or receiving remittances.

Reducing the amount of commission paid abroad - either through formal routes or through switching from informal to formal remittance channels can increase the total volume of resources received. To increase consumer awareness, Governments can publish information on the costs and charges of alternative means of transmitting funds, including daily currency rates and charges. Greater transparency of costs and public awareness of these alternatives can allow remitters and their families to make price comparisons and build financial literacy. Technological advances like the use of the internet and cell phones for remittance transfers, is lowering costs around the world. If government were able to develop secure banking, and make the payment system more competitive, there may be options for remittance transfers by internet or cell phone. Finally, Governments can also ensure competition between domestic intermediaries by opening the remittance handling market to reputedly licensed foreign operators.

3.14 Some countries, principally in Central America have facilitated financial sector development through allowing banks to issue remittance-backed bonds.

Various schemes exist to capture and intermediate remittances to reduce the costs of capital through the banking sector. These typically introduce remittance receivers to financial products and services. Financial sector reforms can promote new on-line savings instruments for migrants, can promote safe banking, and facilitate competition and diversification in the financial sector, which should lower borrowing costs and fees and handling for remitters. Finally, improving the proportion of

²⁶ World Bank “Impact of the Global Financial Crisis on Migration and Remittances” – Economic Premise series number 2, February 2010.

remittances that flow through the banking sector can increase a country's capacity to monitor the flow of remittances and to react proactively to mitigate any shocks.

3.15 Some countries have worked with migrants and return migrants as part of their economic growth strategy. Migrants can support trade, provide direct and financial investments, can participate in knowledge exchanges, and can act as bridges for transactions with foreign nationals. Return migrants are a potentially important source of overseas knowledge and can provide important investment funds. However, these options work only if migrants can be matched with the private sector through institutionalized networks at home. Finally, some countries have worked with migrants and foreign investors to build service outsourcing potential that build on the migrants' language skills. As firms in Western Europe seek to cut their administration costs, the market for office outsourcing may pick up during the recovery period.

3.16 Some countries manage the macroeconomic risks of high migration. Monetary and exchange rate policies can minimize negative impacts on prices and competitiveness. Central Banks can collect and analyze migration-related data to understand and react to impacts on the domestic economy. Governments can coordinate with migrant-destination countries to reduce vulnerability of their nationals abroad, and to identify and support mutually beneficial policies.

E. Challenges: Migration and Macroeconomic Management

3.17 On the down side, exporting labor brings macroeconomic challenges. Like a booming export sector (Box 3.1) or foreign direct investment (FDI), or even like large inflows of foreign aid, absorbing and spending remittances appreciates the real exchange rate in an economy, making imports relatively cheaper and exports less competitive. However, absorbing remittances does not automatically generate productivity gains for the economy. Exports and FDI usually bring new productive technologies or management innovations. Aid can – if spent wisely - improve the stock of productive public infrastructure. Remittances lack these dynamic gains. Declining traded goods sectors is a worrying symptom of the “*policy trap*” because these sectors – and especially exports - tend to generate higher productivity gains than non-traded sectors. The welfare gains remittances offer are offset by this dynamic growth potential lost by reducing the relative attractiveness of Moldova's low cost labor to international capital. Remittances can drive inflation, weaken export competitiveness, widen the trade imbalance, increase vulnerability to external economies, and fundamentally alter domestic growth by reducing incentives for broad based export-orientation.

3.18 The likely resumption of emigration flows out of Moldova over the next few years, as the global economic outlook improves, will usher back familiar challenges associated with the benefits of emigration. For example, as the inflow of remittances rebounds, Moldova may again experience rising macro pressures on its exchange rate and on its competitiveness, more generally. The emigration of workers will also likely revive some long-standing debates on whether such outflows are associated with the loss of vital skills for Moldova's economy, and what this does to real wages and their relationship with labor productivity. More workers may be set to return to Moldova following disruption to their incomes during the crisis.

Box 3.1: Remittances and Dutch Disease

Like other countries confronting large foreign exchange inflows, Moldova faces a challenge in developing an appropriate policy response to its own “resource curse”. Such inflows put pressures on the real exchange rates with a potential loss of export competitiveness. The phenomenon is also known as the “Dutch Disease,” a term coined during the 1970s after the Netherlands experienced large windfall gains following the discovery of natural gas deposits in the North Sea. Increased domestic demand then raised the price of non-tradable goods leading to an appreciation of the Dutch currency. Dutch exports fell and imports replaced domestically produced goods; output and employment in trade-oriented sectors subsequently declined.

More generally, the term currently applies to any situation in which large inflows of capital (whether due to an export boom or some other source) lead to a real exchange rate appreciation and deterioration in the competitiveness of the export sector.¹ This appreciation draws resources out of the traded goods sector through upward pressure on wages. Higher non-tradable prices lead to higher wages in that sector, causing an expansion of the non-tradable sector. The increase in production costs leads to a contraction in the tradable sector, making exports substantially less competitive. The patterns of growth set out in chapter 1 certainly suggest symptoms of Dutch disease in Moldova.

Source: Gomez Sierra, R, (2009) “Remittances and the Dutch Disease: Case of Moldova”.

F. Challenges: Emigration, Wages and Skills in Moldova

Evidence on the link between emigration wages & skill gaps:

3.19 As workers move to other countries, and labor becomes scarcer (at least in selected skill-groups or sectors), the people who stay behind may experience substantially higher wages. The literature on the effect of migration on source countries has typically focused on the direct effects of remittances on household consumption and investment (Box 3.2). However, the emigration of labor and the growing volume of remittances open up many indirect general equilibrium issues for further research, many of which have not been fully explored. This includes the wage impact from a change in labor supply due to emigration.

3.20 Using 2006 household data for Moldova, there is evidence of a positive impact of emigration labor shock on national wages. Overall, a 10 percent increase in the emigration rate is associated with an average 3.2 percent increase in wages. At the same time, there are substantial differences in the impact of emigration on wages across sectors: the impact of emigration is, in general, significantly higher in the construction and service sectors. In these sectors, the implied wage elasticity is at least double those of agriculture and industry.

Box 3.2: Emigration and Wages: International Evidence

The microeconomic literature on emigration and wages has thus far focused only on the North American experience with international migration—particularly in Canada, the United States and Mexico.

In large part, this has been out of convenience, as close to all migrants from Mexico and Puerto Rico are in the U.S., allowing for empirical analysis drawing on U.S. data. Recent evidence shows that although United States is the largest immigrant recipient (in absolute size) of any country in the world, most of the top emigration source countries (in percent of the population) are outside North America. There is, however, no accumulated empirical evidence on the impact of migration on wages in these other countries. Thus, there is a significant knowledge gap in the emigration literature on countries outside North America.

Because of the size of its emigrant population, Moldova offers an ideal case to study the impact of emigration on source country wages. In addition, Moldova also represents what is arguably a more typical source country, with its migrant workers spread out across multiple host countries rather than residing in a single host country, as in the case in North America .

Mishra (2007) is the first econometric study to model the impact of emigration (i.e., a negative labor supply shock) on individual wages in a source country, building on an approach introduced by Borjas (2003) using the supply shifts in education-experience groups to assess the labor market impact of immigration. Using U.S. census data to track the volume of Mexican emigration to the United States combined with Mexican census data on individuals in the Mexican labor market, this study finds that a 10 percent increase in emigration, on average, increases wages in Mexico by almost 4 percent.

Some papers predate Mishra (2007) but they focus on geographic averages (or sector averages), rather than individual-level outcomes. Lucas (1987), for example, uses annual time series data from 1946 to 1978 on agricultural wage and employment and finds that mine sector workers' emigration to South Africa has raised wages in Malawi and Mozambique. Hanson, Robertson and Spilimbergo (2002) find a marginal negative impact of border enforcement on wages in cities along the U.S.-Mexican border. Robertson (2000), Chiquiar (2004), and Hanson (2004) provide evidence that those Mexican states that have greater international trade and migration links have enjoyed faster growth in average income and labor earnings. In addition, the impact of emigration on wages in Mexico has been largest in states with well-developed U.S. emigrant networks (Munshi, 2003). In yet another study, Hanson (2006) suggests that average hourly earnings in states with high emigration rates increased by 6 to 9 percent, compared to states with low-emigration rates.

Since Mishra's (2007) paper, a few other studies that focus on national wage effects have found similar results. Using data drawn from the Canadian, Mexican, and U.S. Censuses, Aydemir and Borjas (2007) conclude that a 10 percent change in labor supply is associated with a 3 to 4 percent change in wages in the opposite direction. In a study of Puerto Rican workers, Borjas (2008) finds that a 10 percent emigration-induced fall in the number of workers in a particular skill group raises the average wage by about 2 percent.

3.21 Recent changes in labor demand may explain some of the results differentiated by sector. Although real GDP grew at an average of around 7 percent per annum between 2003 and 2006, growth in labor demand was much more muted. As with many other transition economies, increases in labor productivity resulted from shedding excess labor. Indeed, over this period, employment generation in Moldova was stagnant with practically no net job creation. Looking across various sectors, however, the lack of job creation was largely the result of significant job loss in the agricultural sector, stagnant job creation in industry (excluding construction), rapid job growth in construction, and modest job growth in the service sectors, led by the wholesale and retail trade and finance sectors. More generally, as experienced in other transition economies, Moldova's enterprises increasingly face market pressures, leading them to shed the excess labor inherited from central planning; in the agriculture sector, labor shedding has been taking place since the end of the 1990s. The lack of job creation in the agricultural sector and the expansion of

the construction industry and service sectors are thus possible explanations for the different impact of the emigration variable.

3.22 Some of the estimated emigration “premium” may be due to rising reservation wages of workers who belong to households with migrant members. Such migrant members typically send home sizeable remittances, thus boosting the income of households who stay behind. Such inflows, for example, have been associated with measurable increases in non-work activity—such as schooling—in part, likely due to higher reservation wages. The results of reasonable efforts to account for higher reservation wages—such as by restricting the analysis to workers who belong to households without migrant members—suggest that the emigration premium is slightly slower, but still positive and significant.

Factors determining whether there is a “brain gain” or “brain drain”

3.23 The net impact of emigration on the availability of skills in an economy with out-migration depends on whether skilled workers who were productively employed just prior to emigration account for the majority of the emigrant population. In part, this depends on the average educational attainment of emigrant workers and how it compares with that of workers who stay behind in Moldova, and how this skill composition has evolved over time. It also depends on whether emigrants were working at all just before they left to work abroad. In this case, emigration is also associated with loss of skills and experience acquired on the job.

3.24 Data from the 2008 LFS suggest that Moldovan migrants are neither more educated nor better qualified than non-migrants. In fact, there is evidence that migrants are, on average, less educated than those who stay. Migrants tend to have lower educational attainment and tend to have worked in low-skilled jobs such as agriculture and had a higher probability of unemployment prior to departure. In addition, there is no evidence that skilled and qualified workers relocate permanently abroad. On average, only 11 percent of migrants report that they intend to leave for 6 years or more. And while longer-term migrants tend to be more qualified, as a group they are still less skilled than the average non-migrant. These descriptive results are confirmed by the results of a simple multivariate regression analysis of the determinants of longer-term or permanent migration. Qualification and educational attainment appear to play no role in self-reported, intended duration of work abroad.

3.25 Recent emigrants appear to be less skilled than those who emigrated earlier. Emigrants who left Moldova sometime over the last two years are likely to be less qualified than those who departed earlier. In part, this tendency towards more low-skilled emigration may be due to network effects. That is, growing migration networks typically lower the costs of migration and hence make migration more accessible to lower-skilled workers. Multivariate regression analysis of the determinants of emigration supports the view that there is no positive self-selection into migration. However, there seems to be a different pattern in urban and rural areas. While university-educated individuals from urban areas are less likely to migrate, the opposite seems to be true for migrants from rural areas. This may indicate that the lack of well-paid job opportunities in rural areas contributes to the departure of the highly skilled. This again reinforces the notion that higher value exports could be a way to enhance growth in Moldova, by creating higher skilled jobs.

3.26 Few emigrants were employed prior to emigration (Table 3.2). In particular, pre-departure employment rates of migrants (36 percent) are considerably lower than those of non-migrants (59 percent). Most migrants worked before departure in sectors requiring relatively low

skill such as agriculture (41 percent), construction (14 percent) or wholesale and retail trade (9.34 percent).

Table 3.2: Comparing Migrants and Non-Migrants

	Migrants (before departure)	Non- Migrants
Employment Status		
Employed (in %)	36.17%	58.57%
Unemployed (in %)	49.11%	2.47%
Inactive (in %)	14.71%	38.96%
Duration of unemployment (avg months)	19.29	15.90
Works in agriculture (in %)	41.07%	29.15%
Works in construction (in %)	14.01%	6.83%
Works in education (in %)	9.39%	9.11%
Is manager, professional, technician (in %)	16.69%	28.89%
Education and Experience		
Has higher education degree (in %)	9.64%	20.81%
Years of education (avg)	12.46	13.05
Years of work experience (avg)	17.91	22.15

Source: World Bank staff estimates based on National Bureau of Statistics Data.

3.27 Despite the low rates of pre-departure employment, emigrant workers still represent an important fraction of the workers in sectors where they previously worked. In each of the construction, mining, education and agriculture sectors, the equivalent of more than 10 percent of the current workforce is working abroad. In absolute terms, over 18,000 construction workers have left the country, mostly to work in Russia or Italy. Data from the LFS also indicate that about 5,000 teachers (9 percent) are currently working abroad. In line with anecdotal evidence then, there may be skill shortages in selected sectors after all. Plotting the emigration rate by occupation gives some further insights. More than 15 percent of machine operators, skilled agricultural workers and craft workers migrated. However, only a relatively low share of managers and professionals appear to have left.

The Impact of Return Migration – A “Brain Gain” for Moldova?

3.28 Return migration is another important factor for Moldova – its impact on skills can offset the “brain drain”. The existence of return migration makes the link between emigration and skills shortage more complicated than generally understood. Few Moldovan emigrants were in productive employment just before they left for work abroad. Of those employed in Moldova prior to emigration, many were in the declining agriculture sector. On the other hand, return migration has partially met reported labor shortages in growing sectors. The size of return migration is non-trivial in Moldova, accounting for as much as a third of the emigrant workforce, by some measures. There is some negative self-selection in return migration, as many of the returnees are less educated than migrants who stay abroad, but most returnees seem to return to Moldova more productive than when they left.

3.29 There is little analytical work on the net impact of the skill composition of return migration flows. The magnitude of the skill shortage in Moldova that is due to migration is not clear, as the evidence is typically anecdotal. The results of the value chain analyses in Annexes 1

and 2 help shed some light on the nature and magnitude of some sector-specific shortages. In principle, skill shortages may be larger or smaller, depending on the skill level and labor market activity of the average emigrant, and the rate at which new skilled workers enter the market from colleges and technical vocational schools (see later section). Return migration may offset skill shortages, depending on size of the returning population, the average skill level, and the re-employment rate for returnees.

3.30 Return migration is large and the re-employment rate among returnees is high. In principle, returnees bring back valuable skills and work experience acquired abroad, a phenomenon sometimes referred to in the literature as “brain gain”. There are some recent sources of information on the economic activities of returnees. These include a recent survey conducted by the European Training Foundation (ETF) and the 2006-2008 the CBS-AXA survey. The results of these data collection efforts suggest the following:

3.31 The size of return migration in Moldova is nontrivial. The CBS-AXA survey suggests that up to 100 thousand workers have recently returned with no plans to migrate in the near future. This represents a large group, compared to workers still currently working abroad (about 320 thousand). Both the CBS-AXA and ETF surveys were conducted prior to the global crisis, so the numbers do not reflect the adverse impact of the global downturn on employment abroad.

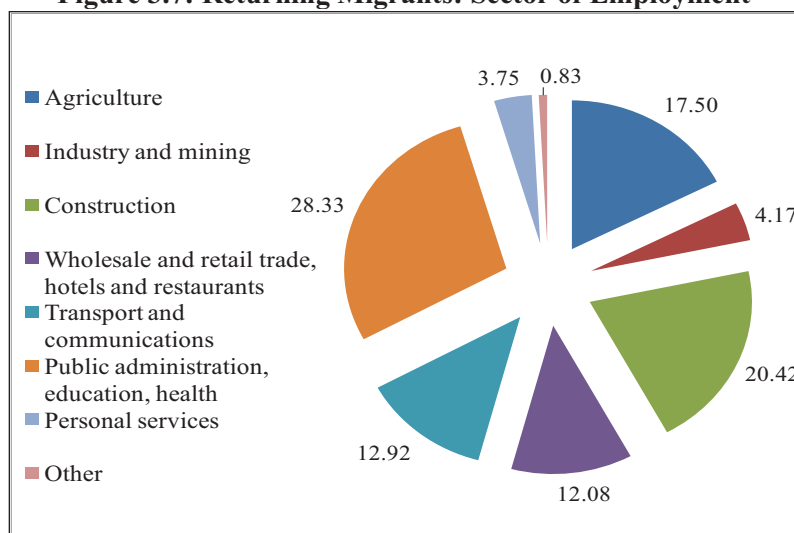
3.32 Most returnees found employment immediately. The CBS-AXA data suggest a re-employment rate of about 63 percent. The ETF data indicates an employment rate of about 46 percent among returnees. Notwithstanding the discrepancy between the two figures, both compares favorably with the aggregate employment rate and with the employment rate among non-migrants.

3.33 Returnees have found employment in the growing sectors of the Moldovan economy. About a fifth of employed returnees, for example, have found jobs in the construction sector. Over a quarter are in public administration. Another tenth has found employment in the wholesale and retail trade sector and another tenth in transport and communications. Most returnees work in the same sectors as they did before migration, though many workers move on to other sectors, particularly the returnees who were employed in construction before departure.

3.34 There is consequently some evidence of some “brain gain.” Returnees credit the experience and skills acquired abroad as having been essential to their immediate re-employment.²⁷ Even in the midst of the current crisis, anecdotal evidence suggests that returnees—especially those returning from Western Europe—are being absorbed by the fledgling call center industry. This industry is reportedly enjoying new business, as Western European firms cut costs and outsource some of their services and moving them lower cost offshore locations. Because returnees typically move back to Moldova now completely fluent in one or more of the languages of their host countries, they are in a position to work for the call center industry immediately.

²⁷ ETF (2008).

Figure 3.7: Returning Migrants: Sector of Employment



Source: CBS – AXA.

3.35 Notwithstanding the gains from the skill content of return migration, some features of the returning population offset them.²⁸ There is, for example, some degree of negative self-selection, at least according to ETF data. Returnees tend to be less educated than the emigrant population. They are more likely to be seasonal migrants and poor compared to other migrants. Almost all of them cite family or personal reasons as the main reasons for coming home, suggesting that their migration experience has likely yielded substantial personal costs, much higher than they expected. This also suggests that economic reasons—such as the availability of well-paying jobs that match their skills—do not play a role in the decision to come home. Many of the returnees also report that the skills they acquired abroad have not been useful at all in their job search in Moldova.

3.36 A more systematic statistical analysis of the determinants of recent return to Moldova, however, does not provide evidence that returnees are any less (or more) skilled than other migrant workers. Host country effects seem much more important drivers of return behavior. Migrants in Italy and other parts of Europe are less likely to move back to Moldova. This may in part reflect initial motives for migration. Migration to Western Europe is typically opportunity-driven, sometimes with a view to start a better life abroad. Migration to CIS destination, on the other hand, seems driven by needs. Households engage in seasonal migration to these countries to earn additional income, but not to permanently settle abroad.

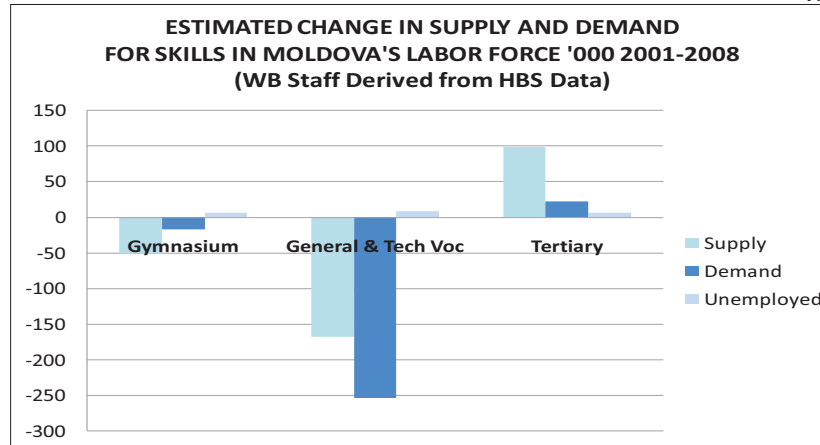
G. Skills: Is Human Capital a Binding Constraint to Growth?

3.37 Firms who complain about skills are almost certainly signaling a mismatch between the education and skills graduates have, and what their business needs. Considering the possible positive impacts of emigration and return migration, there is no evidence that the recent path of jobless growth with migration has left Moldova short of school graduates in aggregate. In fact, as (Figure 3.8) clearly shows, given what we know of falling employment and the increase in students staying on and qualifying from schools, the supply of graduates has exceeded demand for secondary and vocational, as well as for tertiary graduates. Only for primary and gymnasium

²⁸ IOM (2009) and ETF (2008).

education holders in the work force (a declining number with aging) did the demand for jobs exceed the supply of net new entrants to the labor market between 2000 and 2008.

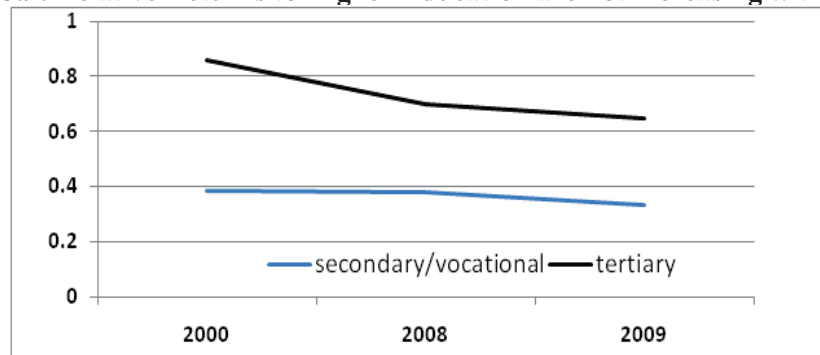
Figure 3.8: There is No Evidence That Moldova Lacks Graduates in Aggregate



Source: World Bank Staff Estimates from Household Surveys.

3.38 **Our estimates of relative returns to education confirm this.** (see Figure 3.9) shows that relative to gymnasium-level education, relative returns have actually fallen for both those with secondary and vocational education, and for those with a tertiary qualification. Also concerning for Moldovan policy makers, should be the finding from household data that the proportion of those unemployed who have a tertiary education has doubled from 9 percent in 2000, to 18 percent in 2008. It seems that skills gaps in Moldova have more to do with inefficiencies in the provision of relevant skills to students than with skill shortages from migration.

Figure 3.9: Relative Returns to Higher Education are not increasing with Growth



Source: World Bank staff calculations from HBS data.

H. Implications for the Education Sector

3.39 Most of the mismatch of skills seems to be to the quality of the education system. This section chapter discusses the education sector in Moldova and its linkages with the labor market. We explore options for reorganizing the education and training system to provide individuals with higher levels of education and skills, a critical ingredient in Moldova's economic growth. Box 3.3 provides a snapshot of the calculation system.

Box 3.3: Public and Private Roles in the Moldovan Education System: A Snapshot

The Ministry of Education and Youth (MEY) is responsible for the system as a whole and comprises departments, directorates and sections. VET is the responsibility of the principal Directorate of secondary professional education. The Ministry of Economy and Trade proposes the listing of the trades to be taught in VET institutions, defines the enrollment plan for secondary vocational education and training and higher education, based on their projections on the current and medium term needs of the national economy. They also set the intake for all types of education, public (state- funded or fee-based) and private. Primary and lower secondary education are compulsory and provided by the state. In VET and higher education, enrolment is based on competition.

The state finances a set number of places and the rest are fee-based. Education accounts for about a fifth of government expenditures. As a percentage of GDP, the education budget is 8.4 percent and has risen steadily over the past 8 years. The MEY and the Ministry of Finance (MOF) set up funding norms and methods of financing. Primary and secondary non-vocational education is financed from the local budgets according to the Law on Local Public Finance. Professional schools are financed from district budgets. According to the Law on Local Public Finance, secondary vocational enrollments should be based on agreements between the vocational schools and private sector enterprises who are to transfer 2 percent to vocational schools for training—this in addition to the allocations from the budget that the schools receive. However this stipulation in the law is not enforced assisted by the lack of cooperation between enterprises and the Ministry and lack of coherence between different laws.

Private provision of education in Moldova is limited. There are two private vocational schools, 6 colleges and 14 higher education institutions. Private institutions are limited in the number of students they can take in per year in that it is dictated by the MEY and need to be registered with the Ministry in order to operate. Most private tertiary level vocational institutions provide technician training in the service industry including specializations in management starting up SMEs. One such institution visited by the authors claimed that the 897 students they enrolled (as per the MEY's decree) in 2007 was far less than demand and that at graduation, their graduates get 100 percent placement in jobs (aided by them).

3.40 In general, the system is inefficient, with decreasing numbers of students but high numbers of poorly paid teachers and non-teaching staff. During the past decade, the demographic decline continued due to low fertility rates and massive outward migration, but reductions of teaching and non-teaching staff have not followed the decline in the number of students. In the absence of optimization measures, fewer students lead to excess schools, unused school space and high running costs. The number of students has decreased significantly, with 26.7 percent fewer students in 2007-2008 compared to 2002-2003. The reduction in the number of schools has been minor in comparison, with 1534 schools in 2007-2008, compared to 1580 schools in 2002-2003. One explanation may be that three quarters of schools (serving about 60 percent of students) are in rural areas, where school consolidation is more problematic given the poor transport infrastructure and greater distances. Excess space is registered in most schools leading to very low rates of use of the designed school capacity. The heating bill is unjustifiably high and, with high expenditures for salaries, little is left in budgets to cover essential education needs, such as teaching/learning materials and textbooks.

3.41 **Outdated norms, dating since Soviet period, have allowed unnecessary increases in the number of teachers and non-teaching staff.** Schools with few students have difficulties in meeting teaching norms that are based on the number of classes. In response, classes are created artificially through division. During the 2007-2008 school year, the student/teacher ratio was 13, which does not compare favorably with the European average of 18. At the same time, the non-teaching staff/total staff ratio was as high as 37 percent (compared with the European average 27 percent).

3.42 **The lack of timely and relevant data hampers policy planning and formulation.** For example, Moldova does not have a consolidated Education Management Information System (EMIS) and policy level management remains constrained by routine activities and directives from the top. An EMIS would include education statistics and results from various student evaluations and would allow for timely analyses to inform policy and decision making.

I. General Education

3.43 **Although access to schooling is not as large an issue in Moldova as it may be with other countries in the region (particularly some of the other lower income CIS countries), there is continued inequity in enrollment in pre-university education that is of relevance in a discussion of skills and training.** While enrollments in preschool education increased significantly (from 38.5 percent in 2000 to 68.5 percent in 2006), access of children from vulnerable families is still low. Net enrollment rates declined, possibly in the context of migrating parents leaving behind children without proper adult guardianship: (i) for primary education, from 93.5 percent in 2000 to 87.6 percent in 2006; and (ii) for lower secondary education from 87 percent in 2000 to 86.1 percent in 2006. Urban-rural discrepancies persist and poor students are less likely to seek post-compulsory education. Persistent disparities in enrollments starting from the final years of compulsory schooling reinforces the process of poverty transmission from one generation to the next one and contributes to lower levels of skills and training in the labor force.

3.44 **Declining education quality in Moldova is an issue.** According to the Government's National Strategy for Education for All, quality has deteriorated owing partly to the big fall in the real value of allocations from the budget, the persistence of old curriculum and pedagogical methods, and the lack of objective classroom assessments. Although the reliability of data on student achievement is poor, there is evidence of quality and relevance challenges in Moldova's performance in international assessments. According to the report of TIMSS (2003) International Study Center, the achievement of Moldovan students in Math and Science is below the international average (Table 3.3). Moldovan pupils in the fourth grade perform well relative to their international peers, but there is a measurable decline in quality by the eighth grade. This is not surprising; imparting skills at higher grades is more complex than at the basic level. In Moldova's case, there appears to be minimal emphasis on critical learning and reasoning at higher grades.

Table 3.3: Student Achievement in Math and Science

	Grade 8		Grade 4	
	Math	Science	Math	Science
Moldova	460	472	504	496
Armenia	478	461	456	437
Estonia	531	552		
Latvia	508	512	536	532
Lithuania	502	519	534	512
Russian Federation	508	514	532	525
International Average	467	474	495	489

Source: TIMSS (2003) and PIRLS International Study Center.

J. Vocational Education and Training

3.45 Enrollment projections for the vocational education and training subsector remain a matter of central planning and are unrelated to the demands of the labor market. Those responsible for the decisions are the MEY, Ministries of Economy and Finance who tend pursue different objectives. Vocational education and training schools aim to maximize state funding by getting the highest possible enrollment figures. The MEY is generally interested in an even distribution of funds for all institutions under its responsibility while the Ministry of Economy and the Ministry of Finance are keen on pruning budgets. Not surprising, VET programs are in many cases completely outdated; they do not provide graduates with marketable skills and knowledge. Although the number of specialties offered by vocational schools decreased from approximately 350 in 1990 to 85 in 2005 to respond to economic developments, no new specialties were introduced. There is very little cooperation between the private sector and the public sector, fortified by a lack of incentives for collaboration and the continuing dwindling demand for vocational education (Box 3.4).

3.46 Vocational schools are unattractive and reportedly considered second-tier or third-tier choices for students who cannot get into universities and are from disadvantaged families who cannot afford to pay for it. First, these schools are perceived as not offering the necessary knowledge and skills and secondly learning conditions are below expectations of basic standards. There is no scope for movement between vocational and general education streams because the system lacks flexibility and does not allow VET graduates to access higher education or for a secondary vocational student to move into the general stream at a later grade. There is also no system of professional orientation and career guidance to the graduating students. Furthermore, many vocational schools—especially the “trade schools”—are used more for social protection purposes than for equipping students with useful competences and skills. Such schools take in students with low levels of general education and the skills provided in the large majority of these programs are in trades/industries that are in decline. Some trade schools are used to keep students in schools until they reach the age of 15, when they are legally allowed to get a job. A para-trade school in Chisinau for example, has a certificate course on how to be a checkout clerk that lasts 12 months. Even those students enrolled in relatively costly vocational schools do not receive sufficient general education and do not seem to have the skills needed to get jobs.

3.47 **In secondary vocational schools learning outcomes are adversely affected by obsolete skills and ineffective teaching methods of many teachers; outdated curricula (typically leftover from the Soviet period); lack of involvement of social partners in curriculum development; and lack of modern equipment, manuals, teaching materials.** There is no provision of pre-service training for VET teachers and trainers. VET staff has low qualifications--only 56 percent have higher education and 7.6 percent have secondary professional education.

3.48 **Many of these schools are resource-constrained.** Low wages, for example, compound the difficulty of attracting qualified staff. VET teaching personnel earn 25 percent less than the average wage in other sectors. Even among the few schools that are reputed to impart skills relevant to the current labor market, resource problems are acute. For instance, a school outside Chisinau that trains wood processors, carpenters and carvers for what was until recently a booming construction industry, has outdated woodworking equipment. It also has no equipment for working with metal and plastic and only has two computers. The allocation from the MEY covers half its costs, forcing it to try to generate revenue by sales of its products (accounting for 35 percent of its budget in 2005).

Box 3.4: Vocational Education and Training: What Do Employers Want?

Focus groups conducted with employers in sectors ranging from construction to military aviation parts found a lack of trust in the vocational training system. There are however at least two companies that have an existing partnership with the Technical University of Moldova and provide training on factory sites for students in construction (Supraten) and aviation parts (Topaz). Supraten, a large construction company, is the only example found in Moldova by the authors of a company that liaises heavily with the Technical University. It participates in curriculum development in the construction department and provides construction materials for classroom use. The company also pays bonuses to select instructors of the Technical University who perform well in the classroom. However, Supraten itself is unable to hire graduates, as they are a company that produces construction materials. Clearly, the biggest incentive for Supraten's partnership with the University is that of fostering wider use of its materials. Nonetheless, this workable partnership improves the quality and relevance of training provided by the University's construction department. However, this partnership seems to be based on the management's personal interest and is not facilitated by any legal framework that allows enterprises to work with Vocational Schools and/or Colleges.

Most companies seem to have little interest in concluding contracts with education institutions and becoming involved in training activities. Although most managers of enterprises agree that lack of skills of the labor force is a constraint to the development and growth of their enterprises, very few invest in on the job training. In 2006, only 8.2 percent of employees surveyed in Moldova received training in the workplace, a large majority in the construction sector and some in very specialized areas such as gas and thermal energy companies. Focus groups also revealed that employers do not think it cost effective to invest in on the job training in areas of mid level management, as there tends to be a high attrition of such employees. Anecdotal evidence suggests that many employees who receive substantial on-the-job training have reportedly migrated.

According to existing legislation, 2 percent of a private company's profit should be allocated to training activities. At the end of the year, if the company does not use these funds, 1.5 percentage points should be transferred to the state (to be used for training purposes). However, these legal provisions are not enforced and many enterprises neither contribute to professional training nor do transfer the funds as required by law.

3.49 **The demographic changes discussed earlier affect the VET system as well.** The number of students declined between 2004 and 2008. Official projections indicate further decreases through 2014. As a result, there is an excess of units and specializations. A reform program that reduces the number of auxiliary and technical staff in the VET system may allow for a more significant increase of the teachers' salary overall in the sector.

K. Conclusions for a Reform Program

3.50 **Migration will remain on the Moldovan economic landscape for some time to come.** The *symptom* of mass emigration from Moldova need not be regarded as harmful in economic terms; because it can be managed, it can bring benefits, and with better skills provision and managed return migration, the "brain drain" can be offset. **The benefits of migration could be much better harnessed than is presently the case.**

3.51 **The implications that emerge from analysis of migration, skills and the education sector in Moldova are as follows:**

- 1) Migration will not cease any time soon - it must therefore be embraced by Government policy and facilitated; As noted in chapter 1, reforms to help remittances work better for growth should aim to:
 - a) Improve communication with the public about the benefits of using the formal financial remittance transactions partnership with the banking and related sectors, including through public access to information on currency rates and charges (costs of sending remittances) through alternative channels.
 - b) Improve remitters' confidence in the formal banking sector through banking product innovation (ie alternative savings instruments)
 - c) Modernize the payment system to retain remittances within the financial system and investigate the option of remittance transfers by internet or cell phone from EU member state.
 - d) Help Encourage the development of on-line savings instruments for migrants – this would allow to facilitate banks to capture and intermediate remittances, which taken along with measures to reduce lending risk would reduce the costs of capital.
 - e) Improve the security of Moldovan migrants abroad through bilateral agreements with destination countries.
- 2) Migration may accelerate a rapidly declining work force, but in terms of human capital, it may actually provide a net addition to skills through return migration.
- 3) Moldova, unlikely to grow through accumulating more workers, will need in future to grow through labor productivity. In addition Government should consider re-training programs for adults and the unemployed.
- 4) Moldovan labor productivity can be increased by improving the quality of learning and skills of children who are now staying on longer in schools, so long as:
 - a) The quality of secondary education can increase through efficiency gains in basic education. (The World Bank's 2010 Public Expenditure Review for Moldova notes that Moldova gets average secondary school results with much higher than average unit costs);
 - b) Moldova's post-secondary education system is reformed to make it more relevant to the evolving needs of the labor market; and so long as,

- c) Moldova is able to generate higher-end jobs in both rural and urban areas – which in turn depends upon addressing the investment climate issues discussed in chapter 1.

3.52 The inescapable conclusion of this report is that Moldova needs to rapidly accelerate improvements in the investment climate., Generating higher-end jobs requires a second engine of growth to come from exports, which should increasingly target more lucrative EU markets. That in turn requires that Government addresses the causes of the “policy trap” that drives the symptom of mass emigration from Moldova. Policy priorities to escape the trap were set out in chapters 1 and 2 and should be the cornerstone of Moldova’s growth and competitiveness strategy in the coming years.

ANNEX 1: VALUE CHAIN ANALYSIS: THE MOLDOVAN APPLE SECTOR

1. **Apples were an important contributor to the Moldovan economy during the Soviet period.** Prior to independence, Moldova had 220,000 hectares of apple orchards and was exporting up to 400,000 tons of apples to the former Soviet Union. Under a centrally planned economy, this production was coming from typical soviet state (sovkhoz) and cooperative (kholkoz) farm structures. The production systems were relatively efficient, though packaging and distribution systems were basic and little sophistication existed in the marketing of the crop.

2. **Following independence in 1991, this mode of production disappeared and the apple areas were split into small subplots and distributed to the rural population.** This has led to a rapid decline in the sector with the new small plot owners struggling to organize marketing of their fruit and failing to invest in effective maintenance of their orchards or in new planting. While this has been done in a way to create a land market and this land can be bought and sold, in reality the purchase of a large piece of farmland was until recently very difficult. Plots are very small and owned by a large number of individuals, many of whom have left the area either to move to the city or work abroad. There is therefore no ready market for medium or large farms. However, over the past few years, a number of enterprises have been going through the difficult process of commercially consolidating land and some larger tracts of agricultural land are entering the market. Although this market is far from efficient, access to land does not appear to be a binding constraint to investment in the apple business, although the emergence of new apple clusters has not yet happened.

3. **The apple orchards of Moldova are now old and in decline with no mechanisms in place for their owners to sustain the sector.** The large majority of apple orchards is very old, well past their economic life and will soon cease to produce altogether. Most are not attracting any investment, many are not being harvested and those that are being maintained are low yielding. Average yields from these old orchards are around 3 tons/hectare, with a high proportion of those low yields only fit for processing. This compares poorly with other countries. New Zealand, Chile and the Netherlands have yields of over 40 tons/hectare. At the lower end of the global scale, the Russian Federation and Bulgaria have yields below 5 tons/hectare, still higher than Moldova's average yield (Table A1.1).

Table A1.1: Yields and Trees per Hectare in Major Apple Producing Countries, 2007

Country	Trees per hectare, 2007	Average yield per hectare, 2005-07
New Zealand	950	58.2
Netherlands	2,300	41.4
Chile	451	40.7
Belgium	1,951	36.9
Germany	2,056	30.2
United States	800	28.2
Austria	2,285	27.7
United Kingdom	1,057	27
Hungary	766	16.2
Poland	1,037	15.3
Slovakia	1,637	13.5
China	250	12.8
Serbia-Montenegro	520	11.8
Romania	600	6.2
Bulgaria	1,120	4.8
Russian Federation	389	4.6
Source: World Apple Report, 2008		

4. **There are some encouraging signs, such as investment in new apple orchards from pioneering entrepreneurs.** These new orchards are being planted using a range of systems with different investment costs and productivity profiles. New planting is aimed at production primarily for international fresh apple markets. Most of this is targeted at traditional Moldovan markets in Ukraine, Belarus and Russia, but some producers and exporters aim to enter the EU fresh apple market and in two instances have obtained GlobalGAP certification to improve their access to the major retailers. An industry source estimated that approximately 1,000 hectares of ‘super-intensive’ has been planted and 10,000 hectares of ‘intensive’. At full production, this can produce around 235,000 tons of fresh apples. No estimate is available of new planting using traditional systems. The Ministry of Agriculture figures show that 2,650 hectares were planted in 2007 (averaging 45 hectares per enterprise) of which 450 hectares (ten producers) was super-intensive.

Box A1.1: Value Added in the Apple Business

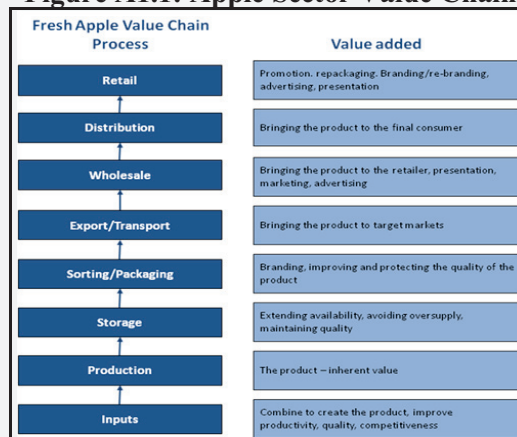
The fresh apple trade is not a commodity business. As with many food products in the modern economy, value is added throughout the value chain and the apple product is differentiated to enable further value to be achieved. This means that competitiveness is not simply a result of comparative advantage in production and distribution costs, but also depends on the organization of the supply chain and a range of marketing skills.

The apple value chain, summarized in (Figure A1.2) below, shows how the final value represented by the price paid by consumers, is built up along the production and supply chain. In the apple value chain, each value-addition stage involves a cost. The final competitiveness of the end-product depends on total of these costs, with respect to the value addition that is achieved.

Value is created in the fresh apple ready for harvest through its color, size, shape, variety and lack of disease or damage and from the moment it is harvested further value us added is many ways before the consumer hands over the cash at the point of sale or market stall. There is considerable scope for product differentiation in the fresh apple trade, which is a key way to add value to the product.

Concentrated apple juice (CAJ) is much closer to a commodity and is differentiated by a few characteristics only, such as acidity and brix. This means there is much less scope to add value in this business. The opportunities to add value occur in the production of the products that include the CAJ. CAJ is used to produce single strength juices and in a wide range of other food products and in these products packaging, branding, promotion and marketing are the main sources of value added.

Figure A1.1: Apple Sector Value Chain



Source: World Bank staff estimates based on Bureau of Statistical Data.

5. **Notwithstanding some encouraging new developments, the sector's factor markets have been under great stress.** The emigration of Moldovan labor, the gradual development of financial markets, and the constrained access to finance all have had adverse implications for the sector. Land markets have had to develop following the distribution of collective land to the rural population. Output markets have also been volatile, as relationships with Russia have varied affecting access to this key and traditional market.

6. **Not surprisingly, constrained access to finance is a typical complaint.** Government offers grants of around \$2,000 per hectare for planting apples (and other fruit trees) with an annual budget to cover around 2,700 ha. However, this is less than 10 percent of the cost of planting an acre of super-intensive apples. A number of donor-funded initiatives, primarily the World Bank's Rural Investment and Services Project (RISP) and another initiative supported by IFAD are aiming to increase the availability of medium-term investment capital to agricultural enterprises and producers. The RISP project provides two credit lines – a general credit line for agricultural producers as well as a special credit line with a matching grant component, which is currently being implemented through six financial institutions throughout Moldova. Despite these efforts, investment financing for agricultural producers is virtually non-existent.

7. **There are few services available to support the sector.** The major apple producing nations have well-developed and effective service sectors supporting their apple farmers. Key services include research and development, advisory consultancy, equipment supply and maintenance, packaging, transport, marketing and the standard business support services. In most countries, these are provided by the private sector and often by grower organizations. In some countries such as China, the state plays a dominant role. In Moldova, while apple growers can access some of the services they need, many gaps are slowing development of the sector. Crop insurance products are not available meaning that high input systems involve high risks to growers (for example, in the event of weather damage). This could further hinder access to finance even if affordable finance was on offer. Markets for packaging are under-developed with limited choice available from local manufacturers and higher costs involved with importing. Smaller producers do not have easy access to a range of packaging materials.

8. **The apple sector does not have integrated storage systems and the storage service sector is not equipped to provide apple storage.** Storage is an important tool in adding value to fresh apples. Apples are harvested over a short period, but storage can maintain them with good quality allowing a steady release onto the market. Total capacity has increased at around 8 percent per year. Although this rate of growth is impressive, the total capacity available is still very low when one considers the full range of products that require cold storage in the economy. There is as yet no well developed market for cold storage services. For the majority of apple producers, the only options available are on-farm storage at ambient temperatures (which is feasible for two or three months – although at declining quality) or no storage at all, with sales made directly by farmers to traders as soon as the fruit is harvested.

9. **At the post-harvest stage, a number of relevant treatments are not available.** In most apple producing countries, a number of treatments are available to maintain quality and extend storage/shelf life of apples. Most common are the use of diphenylamine (DPA) (for apple scald) and fungicides. Although used extensively within major apple producing countries, at present these treatments are not common in Moldova.

10. **Apples are not being exported to markets requiring more sophisticated packaging and the packaging used remains basic with little added value being created.** Bulk storage is handled with large wooden crates, there are very few sorting lines and apples are usually packed loose in 18-kilogram cardboard cartons for transport to wholesale markets. Apart from the most basic cartons, packaging materials have to be imported and this may place the industry at a cost

disadvantage. Even when duties on imported packaging can be reclaimed on export, the process of obtaining the refund involves cost and delays.

11. **The large majority of fruit is exported without branding, limiting the ability of the sector to enhance value addition.** The large apple exporting countries spend heavily on promotion and often use generic branding. This promotion is organized by industry associations who help the trade develop markets, often linking with particular varieties. Some of the major producers in Moldova have recently come together and formed the Moldova Fruit Association, which is developing a Moldovan generic brand and offers a labeled box with this generic brand. In 2007, the association exported 500 tons of apples under the “Moldova-Fruct” brand. This is a good start, but more efforts would be needed.

12. **For the processing sector, there is no major problem in marketing their main product—concentrated apple juice—although they will face increasing competition in the future.** This will be particularly from China where farmers are planting orchards specifically for processing with varieties tailored to deliver the best quality concentrate, the market segment that Moldova serves. The major challenge for the processors will be to continue to source sufficient volumes of apples for processing at economic cost, as the old orchards cease production. All new orchards will be focused on fresh apple export markets and if well managed will export a high proportion of their production. Processors may have to consider planting their own apples and at least one is planning to do this. There is little scope to add value to their main product, concentrate. Most value added in the processed market is in the production and marketing of the products that use this concentrate. The three Moldovan processors are all exploring the development of their branded retail pack products. Now they have focused on simple ‘made from concentrate’ juices, which have to compete at the low end of the juice market, where they may struggle to compete in major markets.

13. **In Moldova, there is no exporter able to offer the volume and consistent quality of particular varieties of fruit to a category manager, together with the capacity to work together on promotional and packaging requirements for a major multiple.** Currently the large majority of fresh apples are exported by road with the private sector providing transport services. The service is in temperature-controlled trucks to maintain acceptable temperatures in both hot and cold weather. Trucks collect apples from farms/stores/cold stores and deliver to wholesalers/importers. Palletisation is not the norm with hand loading and unloading of cartons common. Transport companies often sub-contract jobs to owner operators. Although there are reports that a major Russian supermarket chain is showing interest in securing apple supplies from Moldova, at present the distribution systems in use are unsophisticated. Many growers make their own marketing arrangements, which involve either sale at a wholesale market in the destination country or sale to a buyer from the destination market that buys in Moldova and organizes transport. This high level of vertical integration makes sense given the small size of the sector and the lack of coordinating institutions and support services. It is safer to make one’s own arrangements, capturing the value added through transport and distribution rather than trying to sell through marketing systems which are very thin and undeveloped.

14. **If the apple sector is to grow and become a major supplier of high value markets, Moldova will need to improve the operating environment to enable more producers to invest in high productivity systems.** Further, if small farmers are going to be able to participate in a new apple sector, then organizations and institutional arrangements must be developed to enable them to invest in efficient production systems and market their fruit through modern distribution systems. Moldova must understand and develop its post harvest systems and marketing to achieve the value addition that its competitors achieve. This requires not only the technical systems to maintain quality and appearance but also the development of the organizational and coordination skills to link into high value markets through the sophisticated

marketing systems used in these destinations. Target markets must be selected and a strategy developed to gain access to them. This means gaining access to the major retailers through their suppliers/category managers which in turn requires the capacity to deliver the right varieties at the right time at pre-agreed volumes and packs as part of a coordinated supply strategy for those retail suppliers. This absolutely requires integrated systems and the coordination of, and cooperation between growers and the other stakeholders in the sector.

15. **Russia is the most rapidly growing market for fresh apples in the world.** Russia is a market that is geographically close to Moldova and prefers Moldovan varieties as well as the leading international varieties. The initial focus for Moldova should be to achieve high value added outcomes in this market, rather than selling into lower value wholesalers. However, as history has shown, over-dependence on a single market is not wise and as volumes increase, the sector should target other high value markets. A great opportunity to re-develop the Moldovan apple industry exists and the key to success will be coordination, with the many constraints facing the industry tackled in parallel. If this is achieved the fresh apple sector will make an important contribution to the growth of the Moldovan economy.

ANNEX 2: VALUE CHAIN ANALYSIS: SOFTWARE DEVELOPMENT SECTOR

1. **The software development sector has been one of the most dynamic sectors in the world economy for over two decades.** Competition for market share is extremely fierce, leading to rapid changes in the nature of the business possibilities and the status and positioning of other countries pursuing the same business. These rapid changes in the industry as a whole are also mirrored and amplified in the software outsourcing sector. This sector is already witnessing a movement from cost arbitrage to skills arbitrage with clients now looking for greater levels of innovation and industry specific expertise. In particular, there is increased focus on vertical domain expertise will soon become important service provider-selection criteria. This is a potential space where Moldova's outsourcing service providers can complement expertise and develop international recognition. More recently several call centers were opened in the capital Chisinau (Box A2.2).

2. **During the Soviet era, Moldova was a centre for technology development in electronics.** The country primarily focused on electronics for military applications, which enabled it to develop a high concentration of skilled professionals in physics, mathematics, and engineering. At independence, the country possessed a significant computer and technology-related pool of talent in relation to total population; approximately 40,000 people were employed at its peak. The difficult transition period had a significantly negative impact on human capital within the sector, which led to much of the existing talent pool either exiting the industry or emigrating. However, after a period of considerable contraction, the early 2000s has witnessed the resurgence of the industry with the emergence of international players into the sector and the growth of niche players both in software development products and systems integration.

3. **Moldova's software development sector has made significant strides over the past 5 years, driven primarily through the establishment and growth of a few international software development outsourcing firms.** The industry currently provides a wide array of products and services including consulting services, custom and ready-made software production, data base development, technical support and repair, and other computer-related services. In reality, many firms operating in Moldova specialize in more than one of these activities. Despite this diversity of product and services the sector can be categorized effectively into three sectors: (1) developers of IT products and services primarily aimed at the domestic market, such as Deeplace, and DAAC System focusing on government tenders to generate revenues; (2) developers of proprietary products for primarily the export market with very limited sales in the domestic market, primarily dominated by companies such as Ritlabs, Dekart, and Q-Systems; and (3) developers offering outsourcing services, such as Endava, Allied Testing and S&T. The largest companies are in the outsourcing segment, which are effectively providing program development support and business process consulting services for their parent companies.

4. **The software subsector in Moldova consists of many small enterprises and a few larger firms that are subsidiaries of international software development firms.** (Refer to Box 6 and A2.1 and A2.2). Although there are no disaggregated government figures, it was estimated through discussions with various stakeholders that there are around 200 registered firms involved in software development, although firms operating in the sector estimate that in reality around 100 of these formal businesses are active. It is estimated, through discussions held with industry stakeholders as part of this study that around 60 percent of firms active in the sector are smaller companies with between 3-5 staff. The remaining firms are subsidiaries of international outsourcing/software firms predominantly based in Western Europe and the United States. Anecdotal evidence suggests that the influx of these foreign outsourcing firms has been steadily increasing over the past five years.

5. **Basic data on the performance of the software sector is not collected in Moldova.** What is available is aggregated data for the ICT sector as a whole, and has been used by many stakeholders as a proxy indicator for the growth in software development. Given the broad range of economic activity that the ICT sector encompasses it is less than an ideal proxy indicator. However, in the absence of any other data source, it is used in this respect. It has been estimated that the ICT sector has been growing at over 10 percent per annum in recent years, with the sector as a whole estimated to generate around 9-10 percent of GDP. Despite the growth in the ICT sector, and likely contribution that software development has played in this growth, it is estimated by industry experts and government officials that the software development sector currently employs less than 5,000 people - well below the 40,000 that the sector could boast at independence.

Box A2.1: The Software Development Value in Moldova

Traditionally value chain analysis has been used as methodology for “accounting and presenting the value that is created in a product or service as it is transformed from raw inputs to a final product consumed by end users”. In the case of software development, this value chain needs to be adapted as most of the value addition is undertaken internally often within one company. Thus using quantitative measures in terms of disaggregating metrics such as cost, time, productivity, and value addition along the various segments of the software development process is not feasible. Furthermore, since software is not a generic product, but as in the case of Moldova a tailored product suited to fit the needs of individual businesses, such measures will have little meaning if compared to both local and international competitors. Therefore, the approach adopted for this study is to analyze a typical software development value chain and assess the Moldovan software industry in relation to this situation.

The key input in any software development value chain is human resources, primarily software engineers and IT specialists. In Moldova, interviews with major software development firms indicate that human resources costs account for 65 -75 percent of firms total costs base. The other costs are office rent, communication costs, and to much lesser extent the cost of hardware including computers and servers.

In the case of Moldova’s largest software product services companies such as Endava and S&T, provide the full array of activities in-house and through their parent companies in based in Western Europe. Systems integrators often undertake the bulk of the process and combine various components and programs into a functioning system, customized for a particular customer's needs. They tend to benefit from being generalists and undertake a substantial amount of diagnostic and troubleshooting work. In Moldova there are a few indigenous systems integrators (such as DAAC System Integrator) focusing primarily in regional markets and in particular Russia as well as the local market. Other actors can be broadly categorized as being customization and application consulting firms, these in Moldova are typically bespoke operators including Dekart and Ritlabs. There is very little by way of local firms engaged in developing application consultancy support outside of the large, internationally owned outsourcing companies. Very few companies specialize in installation and support as this is primarily undertaken through parent companies that are closer to the end users/clients (for those that are part of larger international groups), or undertaken in the domestic market, which is currently extremely limited. However, there are other niches, which could be exploited particularly in software testing, although this is currently under-developed in Moldova. The main player is Allied Testing, which primarily focuses on offshore software testing.

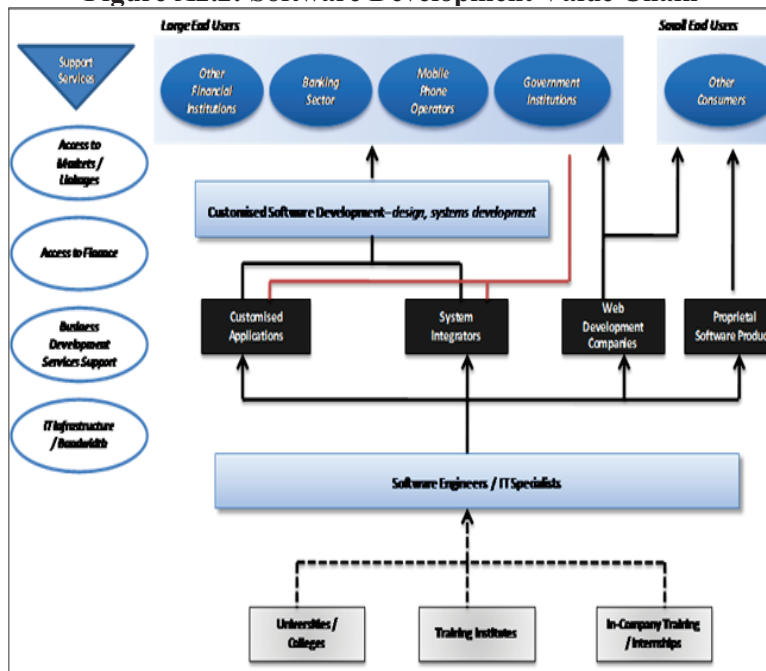
represents such a value chain based on discussions with industry experts and experience of other countries both in the region and internationally that have developed a software services sector.

The key input in any software development value chain is human resources, primarily software engineers and IT specialists. In Moldova, interviews with major software development firms indicate that human resources costs account for 65 -75 percent of firms total costs base. The other costs are office rent, communication costs, and to much lesser extent the cost of hardware including computers and servers.

In the case of Moldova’s largest software product services companies such as Endava and S&T, provide the full array of activities in-house and through their parent companies in based in Western Europe. Systems

integrators often undertake the bulk of the process and combine various components and programs into a functioning system, customized for a particular customer's needs. They tend to benefit from being generalists and undertake a substantial amount of diagnostic and troubleshooting work. In Moldova there are a few indigenous systems integrators (such as DAAC System Integrator) focusing primarily in regional markets and in particular Russia as well as the local market. Other actors can be broadly categorized as being customization and application consulting firms, these in Moldova are typically bespoke operators including Dekart and Ritlabs. There is very little by way of local firms engaged in developing application consultancy support outside of the large, internationally owned outsourcing companies. Very few companies specialize in installation and support as this is primarily undertaken through parent companies that are closer to the end users/clients (for those that are part of larger international groups), or undertaken in the domestic market, which is currently extremely limited. However, there are other niches, which could be exploited particularly in software testing, although this is currently under-developed in Moldova. The main player is Allied Testing, which primarily focuses on offshore software testing.

Figure A2.2: Software Development Value Chain



Source: World Bank staff estimates based on National Bureau of Statistics Data.

Box A2.2: Call Centers in Moldova are they the Newest Drivers of Growth?

As FDI flows to Moldova rose in the pre-global crisis period, anecdotal evidence suggested that the opening of several call centers in Chisinau might have been one of the key drivers of the surge in private investment. This should not have been surprising. A recent McKinsey report suggests that Eastern Europe can be an appealing option for Western European companies intending to outsource their IT and business processes to a nearby region that can offer substantial labor cost savings and the appropriate language skills. To date, the region accounts for only a minuscule share of this global industry worth several billion dollars. In part, this seems to be due to Western European companies being slower to outsource their processes compared to their UK and US counterparts. There is not much documented information about the call center industry in Moldova, however, and no official information exists on the subject. The CEM team spent some time making a very preliminary assessment of the industry, drawing from, among other sources, desk reviews and interviews with key informants and industry players.

In fact, the industry seems to be much smaller than generally believed. It is difficult to assess its current size, as there is no “call center” category in the Classifier of Economic Activities of Moldova. There are about eight (8) key call centers operating in Moldova now and are all foreign-owned. These centers include Pedersen & Pedersen, Mox Telecom AG Germany, Iricom Company, Thomas Hook Communications, Teleperformance, Samres, Pentalog, and Global Phoning Group. On average, they employ about 20 to 150 workers. There are other smaller call centers, some of them with five or fewer staff members. Many of these small centers are informal, operating as unregistered enterprises, and combining call center services with other types of services. The number of these smaller call centers could be as many as 30.

Call centers employees are typically fluent in one or more of the following languages: English, Italian, French, Spanish, German, Romanian and Russian. All call centers are located in Chisinau. The main service provided by most of the of key call centers is telemarketing to French, Italian, Russian, German, and British markets, as well as to the local market (telecom, utilities, etc.). With respect to the French-speaking market, Moldova currently finds itself in stiff competition with Morocco and other lower-cost French speaking countries. The Russian-speaking call center market is still small but could be a future growth opportunity. Moldova’s call center industry can easily orient itself to serve the Russian market, given Moldovan workers’ fluency in the Russian language and familiarity with the culture. Moldova’s call centers serve several industries, including the IT sector, utilities, public relations, mobility and medical service, and others. Some call centers reportedly process as many as 8,000 calls per day. The widespread perception of a difficult business environment in Moldova poses a challenge for call centers to attract international contracts, particularly in financial services and in areas requiring the handling of sensitive financial data.

Most call center workers are young (30 years old or younger) and female — a common feature of the call center workforce around the world. They are relatively educated (typically with post-secondary education), specializing in one or several foreign languages. Although highly educated, new hires still require training to function fully in the industry. The education system produces language specialists but their skills and number are not enough to meet current requirements. Thus, finding skilled language operators who speak French, Italian, German and Spanish is a major challenge. In addition, call center operators claim that there is sufficient awareness of the call center business and insufficient familiarity with the demands of customer relationship among recent graduates. Newly hired workers reportedly receive up to 4 months of initial training, which is much longer than the average of 15 days around the globe. The starting salary for a call center operator is about EUR 300, which compares favorably with the current EUR 185 average salary in the Moldovan labor market

Although the global economic downturn has had adverse effects on most sectors, it appears to be creating new business for Moldova’s call centers industry, as Western Europe cuts costs and moves activities offshore. In parallel, as unemployed migrant workers return from abroad, the industry is able to recruit from a larger pool of applicants who speak the relevant foreign language fluently, have lived abroad, and are familiar with cultural references. For example, between last November 2008 and February 2009 the pool of Italian speaking applicants doubled, a lot of them were returnees from Italy. They still required language training, however, as they worked as unskilled workers abroad and are fluent in a more colloquial version of Italian.

Source: Prepared by Viorica Strah, the World Bank.

6. **The size of the software development sector is extremely difficult to estimate, particularly in the absence of even basic data.** However, given the number of programmers, and industry approximations gained through detailed discussions undertaken as part of this study and assessment of other countries with similar software development profiles, it is estimated to be in the range of US\$ 25 – 30 million per year. Out of this total, the local market for software products and services is currently estimated to be below US\$ 10 million per annum.

7. **The increasing awareness amongst international clients of the capabilities of Eastern European players in the market place and a greater willingness to outsource services offers further opportunities for Moldova.** With the rapid globalization of software and IT services, and their relative proximity to the large EU market, the vast majority of Central and Eastern European countries are currently under intense scrutiny for their potential as a base for software development. The imports of IT-based services from Central and Eastern Europe into the EU-15 rose by an average of 13 percent per year between 1992 and 2007. Imports from India, by comparison, increased only slightly faster during the same period at 14 percent per year. The total value of software development and IT services outsourcing in the region (excluding Russia) was estimated to be US\$ 2.95 billion in 2007. Although it seems infeasible at this stage that Moldova can rival much larger countries in the region—such as Romania, Ukraine and Poland—in terms of breadth of expertise across application development, Moldova is showing signs of excelling and obtaining international acclaim in a few discrete areas which could form the platform for deepening penetration into existing and new export markets.

8. **The country's language skills as well as its price competitiveness provide additional incentives, though the low cost advantage is gradually being eroded.** Average graduate entry-level salaries in the software development sector are between US\$ 450 – 550 per month. For more experienced programmers (with around 4 years experience and knowledge of more advanced programming languages) average wages are over US\$ 2,500 per month. Moldovan rates are low and similar to those in Ukraine and Bulgaria, although greater than Belarus. The new EU member countries have significantly higher average wage rates than Moldova ranging from 20 percent higher in the case of Romania to over 25 percent higher in Poland.

9. **Locally, software development workers are among the highest paid workers in Moldova, reflecting the insufficient number of qualified personnel.** The number of graduates passing through the university system has rapidly increased over the past 5 years, with an average of 600 students per annum graduating in software engineering and IT specialties over the past 3 years, which is considerably more than the current estimated demand for new graduates, which stands at around 200 – 250 graduates per annum. Despite this, unfilled vacancies abound. Many companies claim that there are insufficient numbers of qualified graduates in the market place, which has pushed up average wages. Average entry-level salary is over double the national average wage and considerably greater than official estimates of average wages in the IT sector as a whole, which is put at around US\$ 400 per month. The claim that has been frequently leveled at the universities is that they teach the students little in the way of practical skills that could be used in the work environment. These criticisms have been echoed in previous studies undertaken on the quality of IT and software development education in Moldova as part of USAID's Competitiveness Enhancement and Enterprise Development Project. The lack of relevance of courses is not surprising given that the increase in the number of students in IT specialties has not been accompanied by adequate increases in the new teaching staff that can bring up-to-date experience in the development and implementation of recent IT projects.

10. **The competition for the limited pool of exceptional graduates makes the use of internships a useful tool to handpick and select their future employees.** Recent surveys undertaken by USAID in 2007 indicate that about 60 percent of students employed after graduation in software development firms also undertook an internship at the same organization. A few software development firms have begun sponsoring courses and additional skills

development in a few well-respected academic institutions. Endava, for example sponsors specific laboratories at the Technical University of Moldova and provide some staff time to lecture latest techniques, but this is very limited at present.

11. **Moldova has very few professional in-country training programs.** Thus although a significant proportion of software development firms in surveys undertaken in 2007 indicate that they send their employees to professional training courses, many of these courses are either undertaken on-line or in neighboring countries, in particular Romania. Notwithstanding the limited opportunities for training in the sector, a number of positive recent developments have occurred. In 2007, DNT Association acquired Regional Cisco Academy (RA) status allowing it to teach the Cisco Certified Networking Associate (CCNA) course, as well as the fundamentals of UNIX and Network Security. It aims to provide training to up to 200 students per year, of which 100 student places have been earmarked for the Cisco Certified Networking Associate (CCNA) qualification. DNT is currently in the process of launching four new local Cisco academies based in local universities. Microsoft is also becoming increasingly active in the training market, despite Moldova being the last Eastern European country in which they opened an office. Internal training is also becoming an increasingly important tool to support the dissemination of new technologies, techniques and approaches. It is a common practice among system integrators, around 50 percent of systems integrators surveyed by the USAID CEED project (2007) indicated that they organize internal training for IT personnel. However, within software development companies only 29 percent reported they carry out such internal training.

12. **Despite recent successes of a number of firms in the sector, there is very limited awareness internationally of Moldova's software development potential.** Although Moldova is moving up the quality ladder and slowly establishing its credentials in the market by increasing the number of companies with IT Mark and ISO accreditation, internationally quality is to large extent taken for granted. What Moldova needs is branding which highlights its key attributes, creativity, value added services, a multi-lingual workforce which is by regional standards extremely price competitive.

13. **Complementary services and expertise, such as marketing support and management services or Business Development Services (BDS), which are tailored to the needs of software development SMEs are virtually non-existent.** Donor organization such USAID's CEED project have been providing some marketing support to a few companies but for the industry as a whole to flourish more sustainable, business driven models of support will need to be developed. For many firms the lack of marketing expertise has meant lost sales opportunities, and a lost opportunity for Moldova in terms of increasing awareness amongst international firms.

14. **A substantial financing gap remains for small and medium-sized firms in the development stage and first expansion particularly in terms of in securing the necessary investment and working capital.** The software industry, both in Moldova and globally, has traditionally used alternative financing sources, as firms frequently have low cash reserves and little in the way of assets to pledge as collateral. However, alternative financing sources through non-bank financial institutions (NBFIs), such as leasing, and microfinance institutions provide very limited opportunities for software development SMEs in servicing their financing needs.

15. **The Government has shown its commitment to supporting the sector, but has not yet developed a set of coherent policies.** It has attempted to introduce a number of ad hoc initiatives primarily aimed at providing tax incentives for software development firms, supporting the development of large scale IT projects, and developing e-development in Moldova. The Government in collaboration with the industry needs to develop a vision of where they expect the sector to be in the longer term. This includes playing a catalytic role in supporting the development of the sector by improving the basic infrastructure, promoting the greater

penetration of computer use and increasing competition within the telecommunications sector to improve the quality and penetration of broadband.

16. Ensuring a level playing field for Internet service providers by improving connectivity and moving towards universal access to all regions of Moldova, builds the foundation for a dynamic and strong sector. Although internet connectivity is relatively good, it concentrated around Chisinau. Connections to other regions of the country have developed more slowly and are expensive. Until the very recent approval for private licensed providers to provide cross-border fiber optic cable, the state-owned incumbent, Moldtelecom, controlled fiber optic cable which other Internet Service Providers (ISPs) used to provide services to businesses and home users. Moldtelecom is the dominant operator in this sector with about 60 per cent of broadband and 50 per cent of Internet subscribers. There are frequent allegations amongst ISPs that Moldtelecom makes it extremely difficult or in some cases does not allow competitor's equipment in their exchanges as well as access to underground ducts to pass through cabling. If such allegations are substantiated, it is likely to hamper the ability of ISPs to grow their businesses and provide a higher quality service. The presence of such a dominant player in the sector means that the regulatory and institutional framework needs to be robust to ensure that there is a level playing field for all. ANRCETI, the regulator, has faced difficulties in enforcing its powers in the past, particularly in terms of intervening in disputes between service providers and Moldtelecom.

ANNEX 3: RECONCILING 2005 AND 2006 POVERTY DATA

In 2006, the National Bureau of Statistics (NBS) revised the sampling frame, sampling methodology and the questionnaire of the Household Budget Survey (HBS), the key source of data for measuring living standards at the household level. The revisions were to make the survey more representative and improve the measurement of consumption. The changes in methodology, however, are bound to explain in part some of the observed (unadjusted) changes in poverty numbers between 2005 and 2006. Comparisons of welfare measure over these two years should then make an effort to establish sufficient comparability. Ignoring these issues yields poverty estimates for 2006 that are similar to those for 2005 (30.2 percent versus 29.1 percent), but extreme poverty estimates in 2006 are substantially lower than in 2005 (4.5 percent versus 16.1 percent).

Comparability can be established using a method previously used by Kijima and Lanjouw (2003), the Small Area Estimates (SAE) methodology that they applied to data on India. The aim is to predict household per capita consumption in a later round (t+1) based on a model of consumption estimated using an earlier round (t), thereby ensuring that the definition of welfare remains constant across the two data sources. The methodology assumes that the relationship between consumption and its correlates is stable over time. Given that the time elapsed between the two surveys is one year, the assumption is reasonable.

This approach was previously employed by Elbers, Lanjouw and Lanjouw (2002 and 2003) in a series of efforts to produce "maps" of poverty and inequality (by imputing consumption from a household survey into the population census) and by Luoto (2007a, 2007b, 2006) in an attempt to establish comparability between survey data in Serbia, Bosnia and Herzegovina, and Uganda.

The results of recent efforts to apply the same methodology to Moldova's HBS data—by either using the 2005 data to predict the 2006 consumption, or the 2006 data to predict 2005 consumption—suggest that aggregate poverty rates essentially remained unchanged between 2005 and 2006, though extreme poverty and rural poverty may have increased somewhat.

Official and Predicted Poverty: 2005 and 2006

^{1/} All poverty lines are the official poverty lines given by MET. They are constructed per adult equivalent per month, according to the OECD methodology ($AE=1+(0.7*(adults-1)+0.5*children)$).

^{2/} MET, "Policy and Poverty Impact Report 2005", Chisinau, November 2006.

^{3/} MET, "Policy and Poverty Impact Report 2006", Chisinau, November 2007.

ANNEX 4: TOTAL FACTOR PRODUCTIVITY (TFP) AND IMPACT OF THE INVESTMENT CLIMATE.

Estimating TFP

The methodology of estimating TFP is derived from Escribano and Guasch (2004),²⁹ which uses a non-linear Cobb-Douglas function ($Y = AL^{a_1} K^{a_2} M^{a_3}$) in the following logarithm form:

$$\log(Y) = \log(A) + a_1 \log(L) + a_2 \log(K) + a_3 \log(M)$$

where: Y = Sales, L = Labor (number of workers), K = Capital stock (net book value), and M = Materials (cost). The parameters, a_1 , a_2 and a_3 are estimates of the elasticities of labour, capital, and material respectively to output (Y). A is the natural logarithm of total factor productivity (TFP).

3.53 Using robust estimators, this model is estimated for an unbalanced panel dataset of 36,000 Moldovan firms from 2003 to 2009 (about 87,000 observations), obtained from the Annual Financial Statements Survey (AFSS) of the National Statistics Bureau of Moldova, with the results presented below:

$$\begin{array}{ccccccc} \log(Y) = 3.44 & + & 0.18 \log(L) & + & 0.03 \log(K) & + & 0.7 \log(M) \\ R^2=0.76 & & & & & & \\ & & (64.6)^{***} & & (37.2)^{***} & & (0.07)^{***} & & (136.6)^{***} \end{array}$$

Factor inputs (labour, capital stock, and materials) face diminishing returns (each coefficients is less than one), and there is decreasing returns to scale (the sum of the coefficients of the inputs is less than one). Evidence from the results above shows the importance of the level of technology, relative to factors inputs, in the economic growth of Moldova: a 1 percent increase in the level of technology raises output by 3.44 percent, whereas a 1 percent increase in factor inputs raises output by 0.9 percent.

²⁹See Escribano Alvaro and J. Luis Guasch (2004). “Econometric Methodology for Investment Climate Assessments (ICA) on Productivity using Firm Level Data: The Case of Guatemala, Honduras and Nicaragua”. Mimeo World Bank, June.

Productivity and its Correlates: Relating Firm Characteristics and the Investment Climate Conditions to Firm-Level Performance.

To better understand the dynamics and drivers of productivity, we follow again the Escribano-Gausch methodology that links productivity to (i) firm characteristics such as size,³⁰ age, location (within or outside Chisinau), ownership structure, and industry; and (ii) investment climate variables obtained from the Business Enterprise and Economic Performance Survey (BEEPS) (see full list of variables analyzed); as expressed in the model:

$$\log Y_{it} = \log A_i + a_1 \log L_{it} + a_2 \log K_{it} + \alpha_3 \log M_{it} + \alpha_{IC}^i IC_{p,t} + \alpha_C^i C_{p,t} + D_t$$

where: Y_{it} is firm i 's output (sales) at time t , L is labour (number of workers), M denotes materials (cost of sales), K is the capital stock, IC vector is a firm's perception on the investment climate at time t , and C are fixed effect vectors of firm characteristics (size, age, location, ownership structure, and industry). D_t is the year dummy.

The investment climate (IC) variables tested in the model include:

1. **Access to Land:** percent firms successful in acquiring land.
2. **Infrastructure** (percent of sales lost to water and electricity outages and in transit in 2007); ICT – ‘have email’, ‘have website’, ‘have broadband’.
3. Sales: number of days of inventory (days of production) on hand.
4. **Business-Government Relations:**
 - regulatory compliance: percent of management time spent complying with regulatory requirements;
 - Corruption: a “Bribe” dummy variable indicates whether or not the firm makes gifts or informal payments to public officials *to get things done*;
- **Competition:** three measures of the firm's market share of the Sector/Industry's sales, employment, and capital stock.
5. **Capacity Utilization** (percent change in capacity utilization from: 2006 to 2007);
6. **Finance** – represented by four dummy variables for whether or not firm has a loan, whether or not it has an overdraft, and whether or not the firm is externally audited (an indicator of corporate governance, whether firms are constrained);
7. **Labor relations and management skills**, reflected by:
 - percent of workers who are skilled,
 - percent of workers who are unskilled,
 - a “training” dummy if the firm has a training program for its staff
 - Mean percentage of employees with university education.
 - Mean years of Managerial Experience (only 2009)
8. **Quality consciousness:** a dummy variable if the firm has received an internationally recognized quality certification
9. **Innovation**, three dummy variables for:
 - whether or not the firm has an R & D department;
 - whether or not the firm developed an important new product line;
 - and whether or not it upgraded an existing product line.

³⁰ The following are the definition of firm sizes according to Moldovan Law: Micro - annual average no. of employees 9 max, annual revenue from sales max 3 million lei and total asset value of max 3 million lei; Small - annual average no. of employees 49 max, annual revenue from sales max 25 million lei and total asset value of max 25 million lei with the exception micro firms; and, Medium: annual average no. of employees max 249, annual revenue from sales max 50 million lei and total asset value of max 50 million lei, with the exception of micro and small size companies. There are no thresholds for large firms.

- Whether use foreign technology or not
- **Inspections:** number of inspections
- **Certificates:** working days spent by staff to obtain compulsory certificates.
- **Permits:** How many days to obtain permit
- **Crime:** (i) dummy if the firm experienced theft, robbery, (ii) dummy if firm paid for security.
- **Gender:** Female ownership.

BEEPs surveys are not carried out annually – only two surveys (in 2005 and 2009) were carried out during the sample period 2003 – 2009.³¹ As a result, the model is estimated in two ways:

- (i) Investment climate variables are excluded from the model i.e. regressions on firm characteristics: size, age, location (within or outside Chisinau), sector, ownership type, and competition (i.e. market share) to allow full utilization of the entire sample; and,
- (ii) The full model (including investment climate variables) is estimated, using data for 2005 and 2009 only – to correspond with BEEPs surveys available. As such, we ‘impute’ the responses from the BEEPs survey into the AFSS data, on the basis of firms characteristic – size (small, medium, or large, as defined in the BEEPs), location (Chisinau versus non-Chisinau), age (start-up (less than five years), versus older firms), Sector (2-digit ISIC), and ownership (government, private, or foreign). Therefore, five values – on each of the investment climate variables listed above – were generated for each firm, based on the firm’s size, sector, ownership, location, and age. Subsequently, the five values are averaged, resulting in one observation per firm for each of the IC variables. This “five-criterion” method of imputing is therefore an improvement over the two-criterion (based on region-industry average) method prescribed in Stucchi (2007)³² for (a) addressing low-response rates on IC variables, and (b) solving possible endogeneity of IC variables, and also the country-location-size-year averages in Alam et al (2008).³³

A caveat must be issued in respect of (ii): the validity of the results will depend on (a) the extent to which firms interviewed during the BEEPs survey are representative of the Moldovan economy - which is already an implicit assumption of the BEEPs exercise; 34 and, (b) the assumption that, based on firm characteristics, there is some homogeneity in experiences of investment climate constraints. For example, large firms may have the capacity to undertake R&D unlike smaller firms, hence positive responses to the BEEPs question “whether the firm undertakes R&D or not” will be heavily skewed towards large firms. Likewise, firms in the manufacturing sector may be more constrained by a shortage of skilled labour than firms in the primary sector. Finally, the location of firms (a proxy for distance from markets) may influence the importance of the poor transportation infrastructure as a constraint. Numerous ICA studies

³¹ Analyzing the link between productivity and the investment climate with the actual data from the BEEPs survey would have been ideal. However, the limited responses on financial information by firms has severely curtailed the degrees of freedom (to around 60 observations) resulting in the poor quality of statistical inferences, unlike the asymptotic AFSS dataset. Furthermore, financial information in the mandatory AFSS survey is used in building the National Chart of Accounts, and is therefore likely to be more authentic than similar information in the BEEPs survey.

³² R. Stucchi (2007), *Hands-On Training on the Investment Climate and Firms’ Performance*. The World Bank.

³³ Alam, A, et al. *Unleashing Prosperity: Productivity Growth in Eastern Europe and the Former Soviet Union*. World Bank.

³⁴ See World Bank (2009): *Enterprise Surveys and Indicator Surveys – Sampling Methodology* (available at www.enterprisesurveys.org) for a full discussion of the sampling methodology.

and BEEPs analysis show that firm characteristics explain the heterogeneity of responses to the investment climate survey.³⁵

Models are analyzed with robust estimators. Table A4.1 presents results of the link between productivity and firm characteristics over the period 2003 to 2009 (results in Table 1 are similar to results obtained when 2005 & 2009 data only are used), while Table A4.2 presents the results of the impact of the investment climate on productivity using data for 2005 and 2009 (for brevity, only significant IC variables are presented in Table A4.2).

Table A4.1: Productivity and Firm Characteristics 2003 to 2009.

	Explanatory Variables	Coefficient	t-stat
Factor Inputs	Log Capital	0.03	23.2***
	Log Materials	0.69	127.50***
	Log Labour	0.18	36.48***
Firm Size	Large	0.50	18.6***
	Medium	0.35	20.4***
	Small	0.22	24.1***
Firm Age	Age	-0.003	-3.4***
Ownership	Private	n/a	
	State	-0.27	-9.03***
	Municipal	-0.39	-10.96***
	PPP	-0.26	-10.04***
	JV	0.08	4.4***
Industry¹	Foreign	0.14	5.8***
	Primary	n/a	
	Manufacturing	0.13	8.9***
	Services	0.31	22.5***
Location²	Chisinau Dummy	0.22	28.49***
Market Share	Sales Market Share	7.97	2.21**
	Employee Market Share	-4.29	-3.82***
	Capital Stock Market Share	-1.01	-0.5
Year	Year dummy	0.05	44.7***
Constant	Constant	-104.35	-43.72***
	R ²	0.77	

*, **, *** indicate significance at 10%, 5%, and 1% levels of significance.

1- results presented are for 1-digit ISIC classification. Result using 2-digit classification follows similar trends i.e, primary industries (excluding mining) has significantly lower productivity than manufacturing and service sector firms. Service sector firms – particularly financial intermediation, real estate, education, wholesale and retail, and construction – have the highest productivity (in that order).

2 – An alternative specification of the model including all 35 regions (except Chisinau) was estimated with similar results i.e. all regions have lower productivity than Chisinau.

³⁵ See A. Stone (2010). *Investment Climate Enterprise Surveys in MENA*. MNA Knowledge and Learning Fast Brief. See also A. Escribano and L. Guasch, *Robust Methodology for Investment Climate Assessment on Productivity: Application to Investment Climate Surveys in Latin America*. Universidad Carlos II Madrid Working Papers, June 2008.

Table A4.2: Productivity and the Investment Climate (2005 & 2009)

	Explanatory Variables	Coefficient	t-stat
Factor Inputs	Log Capital	0.04	27.5***
	Log Materials	0.65	293.4***
	Log Labour	0.21	33.5***
Firm Size	Large	0.71	20.0***
	Medium	0.55	22.6***
	Small	0.32	26.7***
Firm Age	Age	-0.12	-7.3***
Ownership	Private	n/a	
	State ¹	-0.14	-1.12
	Municipal ¹	-0.18	-1.4
	PPP ²	0.40	1.94**
	JV	0.43	8.3***
	Foreign	0.65	11.53***
Industry	Primary	n/a	n/a
	Manufacturing ²	0.02	0.62
	Services	0.19	11.5***
Location	Chisinau Dummy	0.72	7.11***
	Sales Market Share	7.01	5.98***
Market Share	Employee Market Share	-16.31	-3.26***
	Capital Stock Market Share	2.80	1.18
Investment Climate (from analysis with 2-digit industry dummies)	Research	0.05	5.71***
	Inspections	0.03	-1.75*
	Crime	-0.02	-2.56**
	Audit	-0.07	-7.89***
	Mgt time	-0.1	-4.85***
	Bribe	0.02	3.89***
	Skilled ³	0.02	5.11***
	Unskilled	-0.01	-1.66*
	Training ³	0.02	5.4***
	Univ degree ⁴	-0.03	-4.48***
	Loss in Transit	-0.24	-7.46***
	Day stock ⁵	0.02	4.38***
	Capacity Utilization ⁶	0.07	5.29***
	Gender	-0.01	-2.80***
	Broadband	0.02	2.50**
	Land ⁷	0.02	6.9***
	Security ⁸	0.02	4.48
Cons	-0.76	-1.06	
	R ²	0.80	

Notes:

1. The private sector is more affected by the investment climate than state-owned firms i.e. the difference (in productivity) between the private sector and public enterprises is captured by investment climate variables.
2. The superior productivity of the manufacturing sector as a whole relative to the primary sector pales out after accounting for the investment climate i.e. agriculture sector is severely affected by the investment climate.
3. Skilled labour and Training are only significant when 1-digit industry dummies are used i.e. using the primary sector as the base, manufacturing and service sectors are more productive (or more constrained) with skilled labour than the primary sector, and firms that offer training are in these sectors are more productive.
4. Proportion of staff with university education is significant and positive when 1-digit industry dummies are used. As expected, university education may only be relevant for manufacturing and service sector firms.
5. The positive correlation between productivity and days of stock is insignificant in the 1-digit industry analysis. As expected, days of stock can only be relevant for manufacturing and perhaps services sector.
6. Capacity utilization is insignificant in the 1-digit analysis.
7. Access to land is significant for manufacturing and service sectors i.e. at the 1-digit industry classification.
8. Security is also only significant when 1-digit industry dummies are used.



This map was produced by the Map Design Unit of The World Bank. The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.

MOLDOVA

- SELECTED CITIES AND TOWNS
- ⊙ AUTONOMOUS TERRITORIAL UNIT CAPITALS
- ⦿ RAIONS OR MUNICIPALITIES CAPITALS*
- ★ NATIONAL CAPITAL
- RIVERS
- MAIN ROADS
- RAILROADS
- AUTONOMOUS TERRITORIAL UNIT BOUNDARIES
- RAIONS OR MUNICIPALITIES BOUNDARIES
- INTERNATIONAL BOUNDARIES

*Names of the raions or municipalities are identical to their capitals.