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## **Republic of Armenia**

# **Export-Led Industrial Development Strategy: Implementation Review and Recommendations on New Toolset**

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## **ARMENIA –GOVERNMENT FISCAL YEAR**

January 1 – December 31

### **CURRENCY EQUIVALENTS**

(Exchange Rate Effective as of May, 2015)

Currency Unit = Armenian Dram (AMD)

US\$1.00 = AMD 485

### **ACRONYM LIST**

ADA	Armenian Development Agency	HEI	Higher education institution
AJA	Armenian Jewelers Association	HR	Hire and Recruitment
AMD	Armenian Dram	HS	Harmonized system
ANAU	Armenian National Agrarian University	ICARE	International Center for Agribusiness Research and Education
ANEL	Armenian National Engineering Laboratory	ICT	Information and communication technology
AP	Action Plan	IDF	Industrial Development Fund
ArmEN	Armenian Executive Network	ILO	International Labor Association
ASUE	Armenian State University of Economics	IP	Intellectual property
CAGR	Compound annual growth rate	IPHEX	International exhibition of pharmacy and healthcare
CBA	Central Bank of Armenia	IPO	Initial public offering
CBI	Centre for the Promotion of Imports from developing countries	IT	Information technology
CCD	Company Competitiveness Division	M&A	Mergers and acquisitions
CDP	Competitiveness Development Program	METU	Middle East Technical University
CIS	Commonwealth of Independent States	MNC	Multinational corporation
CJSC	Closed joint-stock company	MoE	Ministry of Economy
DB	Doing business	MPI	Medicine Producers and Importers
DFA	Development Foundation of Armenia	MSME	Micro small and medium enterprises
EBRD	European Bank for Reconstruction and Development	NSS	National Statistical Service
EDMC	Enterprise Development and Market Competitiveness Project	NTP	National Technology Park
EGP	Enterprise Growth Program	OECD	Organization for Economic Co-operation and Development
EIF	Enterprise Incubator Foundation	PCT	Patent cooperation treaty
EU	European Union	PE	Private equity
FDI	Foreign direct investment	PIC/S	Pharmaceutical Inspection Co-operation Scheme
FEZ	Free economic zone	PPP	Public-private partnership
FIAS	Financial and Insurance Advisor Services	PR	Public Relations
FYR	Former Yugoslav Republic	R&D	Research and development
GCR	Global Competitiveness report	RA	Republic of Armenia
GDP	Gross domestic product	RCA	Revealed competitive advantage
GFCF	Gross fixed capital formation	SEP	Scottish Equity Partnership
GFDD	Global Financial Development Database	SEUA	State Engineering University of Armenia
GIZ	German Federal Enterprise for International Cooperation	SME	Small and medium enterprise
GMP	Good Manufacturing Practice	SME DNC	Small and medium enterprise development national center
		SPZ	Special Economic Zone
		T-bills	Treasury bills

TDZ	Technology Development Zone	USAID	United States Agency for International Development
TRY	Turkish Lira	USD	United States dollar
UCO	Universal credit organization	VAT	Value added tax
UN	United Nations Commodity Trade	WB	World Bank
ComTrade	Statistics Database	WDI	World Development Indicators
UNCTAD	United Nation's Conference on Trade and Development	WEF	World Economic Forum
US	United States		

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## **Executive Summary**

### **A. REVIEW OF THE IMPLEMENTATION OF THE EXPORT-LED INDUSTRIAL STRATEGY**

#### **Export-led Industrial Strategy: Background and Approach**

1. The lessons learned from the implications of the global crisis for the Armenian economy led the Government of Armenia to refine its approach to economic development policy. With nontradable sectors increasingly dominant in the economy, the country's long-term growth prospects were vague. By 2010 Armenian exports of goods accounted for about 11 percent of GDP but the goods were mainly resource-intensive. Between 2003 and 2009, the export of goods-to-GDP ratio dropped by three times.

2. The business environment, the market structure, and the incentive pattern had not fostered reallocation of resources into more productive areas or the emergence of internationally competitive products and services. Despite numerous initiatives and multiple efforts, there was no holistic approach or actionable roadmap for supporting private sector development. The pressing need to restore economic growth despite a small domestic market led the Armenian government to search for new sources of growth in export-oriented industries.

3. At the end of 2011, the Government of Armenia adopted its Export-led Industrial Development Strategy (the strategy). The strategy set as targets improving the general business environment and sector-specific initiatives to address market failures and expand exports. The Policy's guiding vision is to foster discovery and nurturing of new opportunities to turn Armenia into a country producing high-value and knowledge-intensive goods and services with creative human capital at its core.

4. The declared policy stated that it would strive for possible synergies between current and future initiatives to avoid duplications and ensure maximum efficiency. Armenia's Export-led Industrial Strategy identified six clusters with expansion prospects in the jumpstart phase: food, tourism, health, light industry, jewelry/diamonds, and high tech.

5. The document as approved recognized that the rationale and role of the clusters which alter at different stages of economic development. At present resource-based products and services dominate. In the next phase, economic growth should come mostly from skills-based sectors and then ultimately from knowledge-based industries.

6. The strategy builds on both a general (crosscutting) and an industry-customized toolset. In 2012–13, sectoral strategies for nine sectors were drafted, with six action plans and monitoring systems. The government tried to make the policy development and implementation an inclusive and iterative process. Overall, in terms of the logic of economic policy the new policy change marked a significant shift toward stimulating and facilitating more proactive growth.

#### **Interim Results of the Export-led Industrial Policy**

7. While the recent dynamics of Armenia's goods exports and the targeted sectors show tangible results, these results cannot be fully attributed to execution of the strategy. In 2010–13, Armenia's total exports went up by 13 percent (CAGR; compound annual growth rate), reaching nearly US\$1.5 billion—75 percent of the 2015 target average. Goods exports,

excluding metal and mining products and diamonds, more than doubled to \$786 million, just below the 2015 target average.

8. The exportable sector has grown: the export of goods-to-GDP ratio rose from 10.9 to 14.1 percent. The share of tradable sectors in GDP increased from 29 to 32 percent. The share in exports of the three largest sectors fell from 76.8 percent to 64.9 percent. The share of the processing industry in GDP went up from 9.5 to 10.1 percent, and its share in total foreign direct investment (FDI) has risen from 6 percent to 11 percent.

### ***Exports from Sectors Specified in the Industrial Strategy***

9. In 2013, total exports of the sectors identified by the Strategy reached US\$382 million, recording 17 percent CAGR in 2010–13. For comparison, the CAGR for metals and mining exports was only 4 percent. The target sectors grew faster than the entire economy. In 2010–13, the share of exports of these sectors in Armenia’s total export went up from 23.3 to 26 percent. The ratio of metals and mining exports notably improved from 0.44 to 0.64.

### ***Promising Dialogue but Slow Execution***

10. The new industrial policy has made it possible to shape a long-term vision for growth and launch its implementation through actionable sector strategies. Cooperation platforms have facilitated public-private discourse to formulate critical initiatives for sustainable economic development. This has fostered the consolidation of the efforts and resources of stakeholders toward long-term objectives. However, industrial policy dynamism has been quite uneven across the target sectors. Although the Industrial Strategy demonstrated early results, it has been picking up slowly. Gaps in execution capacity, inadequate resources, and bureaucratic inertia slowed the pace of implementation. Progress has clearly been better in sectors with an advanced collaborative culture, active private sector leaders, and established platforms for cooperation.

## **B. GROWTH AGENDA AND POLICY RECOMMENDATIONS**

### **Growth Imperative**

11. Ensuring prolonged and high economic growth in Armenia is critical. Slow economic development jeopardizes demography and national security. Poverty and immigration fuelled by high unemployment and the dominance of low-paid jobs is Armenia’s focal social challenge. With fewer than 3 million consumers and average monthly wages of about US\$350, the domestic market has little potential for fostering future expansion.

12. Although GDP is recovering from the significant decline caused by the global economic crisis, it is far below the double-digit growth rates recorded in the early 2000s. The growth of FDI inflows in most of the 2000s was followed by notable decline after 2009. While export volumes have more than recovered post-crisis, the 14 percent share of goods exports in GDP is not impressive considering that it was 24 percent a decade ago and is one-third lower than the average for economies in its income group. Armenia’s ability to compete in international markets is endangered by significant productivity gaps with comparator countries.

### **Economy-wide Constraints to Growth**

13. The current level of Armenia’s national assets demonstrates a base in certain endowments for further economic expansion. However, the portfolio has notable shortcomings that dim the

possibility of high-paced and sustainable economic development. The gaps in human and financial capital and economic institutions can be considered binding constraints to growth.

14. Another major constraint to the long-term growth potential of the Armenian economy is the insufficient scale of discovery of new economic opportunities, particularly in export markets. The low sophistication of its export structure and the lack of uniqueness restricts the options for export growth.

### **Armenia's Growth Agenda**

15. The vision of fast-paced and prolonged economic development shapes Armenia's growth agenda with two major policy components:

- Sustained improvement of the general business environment and building up the national assets portfolio to nurture growth drivers and structural transformation across the economy
- Fostering economic activity in areas where endowments and competitive forces offer competitive advantage through vertical interventions and addressing critical market failures.

16. The core of Armenia's long-term growth agenda should be balanced development through removal of major constraints to growth. In critical areas—education, the financial system, the innovation ecosystem, and physical infrastructure—this entails sizable investments if the expected outcomes are to be achieved in the long run.

17. Meanwhile, like other resource-poor economies, Armenia has limited economic resources. This makes prioritization and sequencing of economic actions critical. To ensure that efforts have maximum efficiency and impact, the agenda for horizontal policies and the growth priorities of the private sector need to be synchronized. This process can be nurtured through established public-private dialogue forums to identify critical bottlenecks, shape a mutually inclusive operational agenda, and coordinate efforts invested in limited resources. In the short- to mid-term in particular, industrial policy will be instrumental for tackling the binding constraints to growth.

### **Agenda for Horizontal Policies**

#### **Human capital: Education for national competitiveness**

18. The need to enhance the quality of human capital Armenia is imperative. Low quality means low productivity, which impedes high growth because it means Armenian products and services are less competitive. Armenia needs to adopt the concept of education as a driver of or national competitiveness. This vision necessitates fundamental policy shifts:

- Large-scale investments in education are crucial to sustainable development.
- Armenia should strive to become an innovative technological hub.
- The teaching profession should become one of the most prestigious in society, which implies competitive compensation.
- Professional training and development opportunities need to be fostered.
- Professional repatriation can be used to change “brain drain” into “brain recirculation.”

## **Financial Capital: Need for a Multidimensional Financial System**

19. Diversification and expansion of financing sources for businesses in Armenia is a critical growth enabler. The strategic solutions rest on the following dimensions:

- Deleveraging the overleveraged sector: introducing and scaling up quasi-equity funding mechanisms, developing a capital market
- Funding mechanisms tailored for higher-risk companies: scaling up funding needs for micro, small, and medium enterprises (MSME) via existing mechanisms and introducing new one
- Upgrading governance and management.

## **Economic Institutions: Shaping an Even Playing Field**

20. The current flaws in the micro-economic business environment and public governance reflect the non-inclusive nature of the economic and political institutions that have emerged post-independence. The close connections between the political and business elites strongly affect political choices by inter-linked business interests. Constituents of this agenda are closely inter-linked. However, the reduction of the shadow economy needs to become an absolute priority and starting point. Initiatives addressing antimonopoly practices and triggering fair government procurement should follow to establish fair playing fields across the entire economy.

## ***Recommendations for an Industrial Policy Toolset***

21. **Implementation principles:** The effectiveness of the industrial policy will depend on the quality of the dialogue between the public and private sectors and the emerging leadership in pursuing effective growth initiatives balanced with strict early responses to flaws and inefficiencies. The following approaches will help institute such processes:

- Effective public-private partnerships and synchronization with other economic initiatives are critical success factors.
- Industry scope will be expanded in the next phase.
- The accent will be on sector-wide issues with increasing application in state financing of sunset rules.
- The institutional set-up needs restructuring and capacity enhancement.
- The operational efficiency of the Industrial Policy clearly needs improvements.
- The efficiency of results monitoring needs to be fostered by targeted evaluation and actionable policy adjustments.

22. **Strategic policy domains and the support toolset:** In the next phase, the Export-led Industrial Strategy will focus on three areas: development of export oriented local clusters, reinforcement of FDI promotion, and building innovation capacity. This policy focus necessitates a new support toolset to better achieve the strategic goals.

23. ***Export-oriented local clusters*** have potential to achieve quick wins through entry into new export markets and expansion in current markets. Effectively addressing binding bottlenecks to cluster value chains will increase the international competitiveness of the cluster segments.

*Policy focus:*

- Ensuring high-quality infrastructure.
- Fostering critical intangible inputs, such as education and training.
- Easing access to affordable capital investment and financing.
- Promoting exports and moving to country/product branding in target markets.
- Seeding a collaboration culture: building up within clusters cooperation platforms and dialog.

*The following new support tools can be considered to realize the policy focus:*

- Skills vouchers to co-finance training costs and skills enhancement programs.
- A graduates-for-growth program to ease business hiring of new graduates.
- Targeted advisory and managerial capacity building to reduce the costs of engaging new managerial talent.
- Sales presentations in target markets to facilitate promotion and sales of Armenian products abroad.

24. **Reinforcement of FDI promotion:** FDI can be an effective channel for rapid expansion of the economy's production potential. It can significantly intensify exports through technology transfer, sector expertise, managerial capacities, and access to fast-growing international markets.

*Policy focus:*

- Promoting the country with a specific value proposition
- Efficiently utilizing the resources of the diaspora
- Setting up targeted FDI incentives
- Working proactively and directly with targeted multinational corporations (MNCs) and other international companies.

*The following new support tools can be considered to realize the policy focus:*

- Exemption from corporate tax for strategic investments
- Land and property transfers at low prices.

25. **Innovation capacity building:** Enhancing innovation capacity in the economy will scale up the productivity of local businesses and lead to a new generation of innovative enterprises. A well-established innovation ecosystem is a prerequisite for Armenia's objective of transforming itself into a knowledge-based economy.

*Policy focus:*

- Building a local ecosystem for innovation
- Building collaboration between key actors: the private sector, universities, research institutes, and other hubs of innovation
- Facilitating attracting MNC research and development (R&D) to Armenia and building multilayer linkages with the local research community

- Nurturing technology entrepreneurship by easing access to capital, knowledge, and business networks

*The following new support tools can be considered to realize the policy focus:*

- R&D cost sharing
- Free land for R&D centers of MNCs
- Collaborative research grants

## Risks and Uncertainties

26. The main risks associated with the Industrial Policy, and mitigation/counter-arguments for the Armenian context, are the following:

27. ***The government cannot pick winner sectors:*** The sectors targeted by Armenia's Industrial Policy were selected based on rigid criteria, such as sector performance and potential. An effective industrial policy actually entails quickly eliminating losers. For this purpose, effective regular monitoring and evaluation (M&E) are critical to review the performance of the targeted sectors and make any necessary adjustments.

28. ***Developing countries lack the administrative capacity to implement industrial policy effectively:*** This is currently the major risk for Armenia. While the policy document envisioned a total functional and administrative restructuring of the Armenian Development Agency (ADA) as the main implementing agency, this was not done. Instead, a new agency, the Industrial Development Fund (IDF) was created outside of ADA. Recognizing the fragmentation, the government has recently merged of Industrial Development Fund (IDF), the Armenian Development Agency (ADA), and the National Competitiveness Foundation of Armenia (NCFA) into a new agency, the Development Foundation of Armenia (DFA), with enhanced functions and funding and supported by the new World Bank project.

29. ***Industrial interventions are vulnerable to political patronage and corruption:*** Industrial Policy is not much different from other forms of economic policy subject to political connections and corruption. To ensure that the Industrial Policy will be effectively implemented in Armenia, a number of measures were taken. The primary agencies making policy for sectoral strategies are sector councils, not the government per se. This creates some transparency and a balance of vested interests, with mechanisms for control and monitoring. Engagement of private sector and donor representatives is widespread in multiple layers of policy-making and implementation.

30. For all the initiatives and support mechanisms devised in the Industrial Policy, specific guidelines were drafted to grant them support under the control of the IDF (**now DFA**). For each sector targeted, sectoral council was established engaging representatives on public-private partnership (PPP) principles, which facilitated monitoring, and control of how the sectoral strategy is laying out. The Industrial Board, the supreme body under the Industrial Policy was established with high-level political engagement as an adjunct to the Prime Minister. Overall, mitigation of this risk is also dependent on how well the government's executes its anticorruption policy.

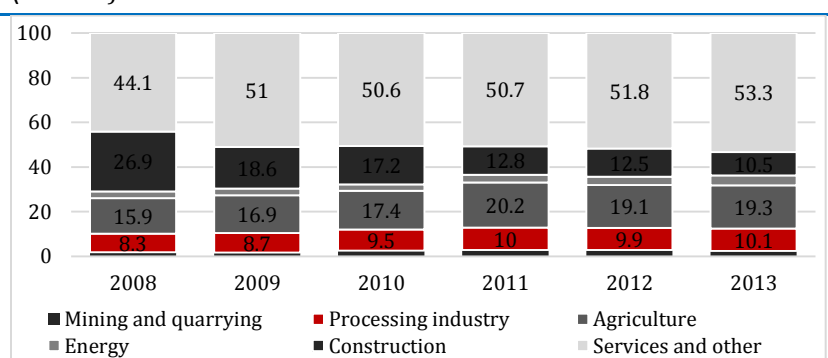
31. ***The initiatives may be ineffective in achieving the intended results:*** This may be due to misidentification of critical constraints, ineffective execution, a changing external environment, etc. Constant M&E and early signals embedded in the system should help mitigate this problem.

# 1. Review of the Implementation of the Export-Led Industrial Strategy

## A. EXPORT-LED INDUSTRIAL STRATEGY: BACKGROUND AND APPROACH

1.1. The lessons learned from the effects of the global economic crisis on the Armenian economy forced the Government of Armenia to rethink its approach to economic development. The dynamics of the Armenian economy in the 2000s had resulted into an economic structure that proved to be highly vulnerable to external shocks, such as the global crisis. Until 2008 nontradable sectors of the economy, mostly construction, were the main drivers of economic growth. The downturn caused by the economic crisis showed that construction was not a sustainable source of growth and highlighted the significance of economic diversification.

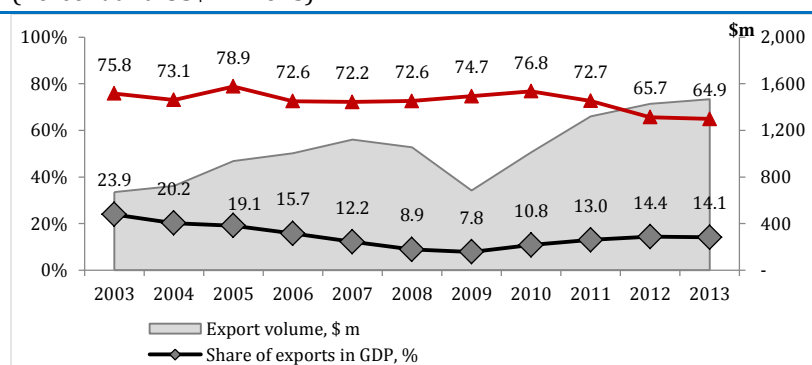
**Figure 1.1.: Armenia's GDP Structure, 2008–13**  
(Percent)



Source: Republic of Armenia (RA) NSS

1.2. Armenia's exports recorded notable progress pre-crisis, growing at an average rate of 14 percent annually throughout 2003–07. Meanwhile, export growth fell behind the pace of nominal GDP growth because non-exporting sectors were the main source of expansion. By 2010, merchandise exports accounted for about 11 percent of GDP. In fact, export of goods-to-GDP ratio was three times lower than it had been in 2003–09.

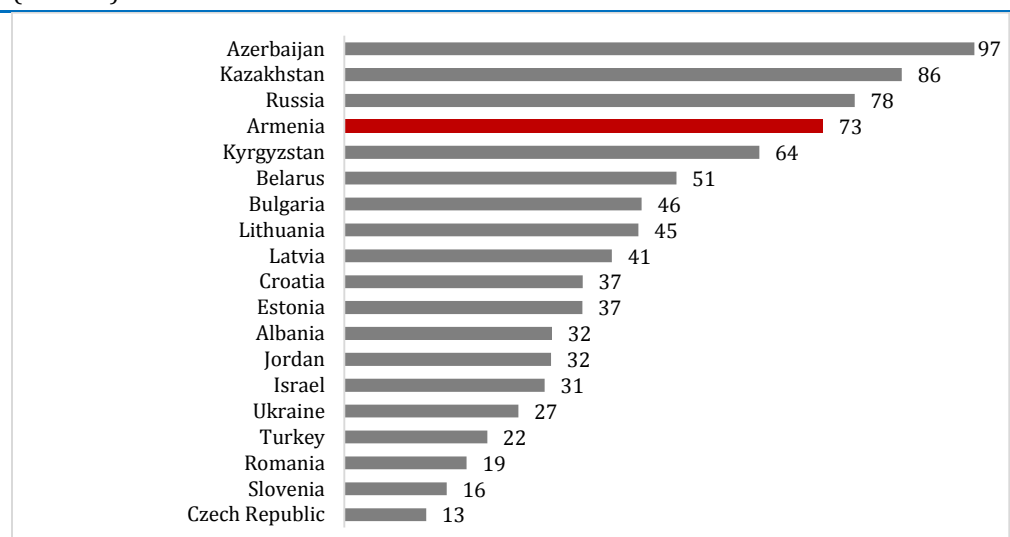
**Figure 1.2: Armenia's Merchandise Exports, 2003–13**  
(Percent and US\$ Millions)



Source: RA NSS.

1.3. Armenia was in the top ranks of benchmark countries on the resource intensity of its exports at 73 percent.

**Figure 1.3: Resource Intensity of Merchandise Exports, Armenia and Benchmark Countries, 2009**  
(Percent)



Source: UNCTAD.

1.4. Three product groups (metals, alcoholic beverages, and diamonds) accounted for over 75 percent of total exports (setting an upward trend record in the second half of the 2000s). Export volumes of other exporting sectors did not exceed US\$15 million annually each. Meanwhile, the increasing resource intensiveness of exports continued due to rapid growth of the metal and mining sector. In 2003–10 period, metal and mining exports grew on average 29 percent annually and metallurgical products by 21 percent, surpassing the growth of overall exports.

1.5. On the other hand, Armenia's exports had a negligible presence in global volumes. Only two sectors had a significant share: brandy-making (2.8 percent) and the metal mining and metallurgical sectors (1.7 percent).

1.6. Pre-crisis, the main macroeconomic factor inhibiting the growth of non-resource exports was the steady appreciation of the national currency. However, at the micro level, more fundamental factors were impediments<sup>1</sup>:

- Low-scale production restricted capacity to supply the export markets in the volumes demanded and to secure enough resources for promotion and innovation.
- Product quality was inconsistent, conditioned by gaps in the quality assurance infrastructure.
- Logistics were expensive due both to geographic location and problematic customs administration: Armenia ranked 111<sup>th</sup> among 155 countries on the World Bank Logistics Performance Index in 2010.<sup>2</sup>

<sup>1</sup> Findings from company interviews and competitiveness assessment of major export-oriented sectors were done in 2011.



- Collaboration between the main stakeholders was not sufficient to secure the availability of key inputs (skilled workforce, lab infrastructure, etc.).
- Innovation was low and market knowledge insufficient for new product development; complicated by minimal R&D and a lack of collaboration with academia and research institutions.
- Entrepreneurial skills lacked sophistication.
- Institutions (both formal and informal) for cooperation had little capacity, e.g., producer associations were weak.
- Except for a few traditional products, Armenia lacked a distinctive positive country image for Armenia in post-Soviet markets.

1.7. Despite numerous initiatives and assessments, there was a lack of a holistic approach and an actionable plan to supporting private sector development. The pressing need to restore economic growth, given the small domestic market, led the Armenian government to search for new sources of growth in export-oriented industries. Given the current level of resource-intensive exports, the country's long-term development prospects were still uncertain. Apparently, the business environment, market, and incentive structure had not ensured the reallocation of resources into more productive areas and the creation of internationally competitive clusters. In response to this situation, the Government of Armenia has adopted the Export-led Industrial Strategy (Industrial policy), which was conceived to facilitate enhancement of the international competitiveness of export-oriented manufacturing sectors. Tangible achievements in tourism and the information technology (IT) sectors (Box 1), where the government has been implementing development programs, further supported the rationale for the Industrial Policy<sup>3</sup>.

#### **Box 1.1: Armenia's IT and tourism sectors**

##### **Information Technology**

The IT sector is one of the Armenia's most dynamic sectors and is largely export-oriented. The sector is marked by unusually high productivity, which surpasses the economy average by nearly four times. IT has been a government priority since 2002. In 2008, an IT development strategy was adopted.

##### **Main IT Performance Indicators**

	2013	2008-2013 CAGR
Output	US\$ 259m	32.2%
Share in GDP	2.6%	
Export	US\$ 241m	23.8%

*Source:* RA NSS, Enterprise Incubator Foundation (EIF).

In the last few years, a number of initiatives in the sector have expanded its potential, particularly regarding innovation:

- Establishment of Armenian-Indian Center of Excellence in ICT
- Establishment of the Nokia Mobile Lab (mLAB ECA) serving Eastern Europe, the South Caucasus, and Central Asia
- Establishment of Gyumri Technopark, with the support of the World Bank

The sector has attracted a number of MNCs, such as Synopsis. Currently, there are negotiations with a few large global MNCs to establish R&D centers in Armenia.

<sup>2</sup> Armenia recorded the worst performance on tracking and tracing (139<sup>th</sup>), customs (125<sup>th</sup>), and international shipments (123<sup>rd</sup> rank). Its highest rank was 77<sup>th</sup> on timeliness.

<sup>3</sup> IT and tourism sectoral strategies were adopted in 2008.

## Tourism

Tourism is one sector of the Armenian economy that has recorded healthy growth in recent years. Its drivers are ethnic and cultural-historical tourism. Inbound tourism is Armenia's second largest export sector of Armenia and constitutes about half of services exports.

### Main Tourism Performance Indicators

	2013	2008-2013 CAGR (%)
Revenue from inbound tourism	US\$ 457m	6.7
Share in GDP (%)	4.4	
Number of inbound tourists	957,240	11

Source: RA NSS, UNCTAD.

The government has made tourism a priority, and in 2008 adopted the sector development strategy. A number of state initiatives have helped to enhance of Armenia's attractiveness as an international destination for cultural tourism:

- Nationally important cultural-historical anniversaries held on the state level
- Participation in international tourism expositions
- Promotion in global tourism markets.

In recent years, a number of developments have expanded the potential of tourism, largely through PPP:

- Development of Tsakhkadzor as a ski resort: Government investment in modernizing the lifts and roads triggered private investment in tourism businesses.
- The Tatev Revival project was designed to restore Tatev monastery and build tourism infrastructure in neighboring communities.
- Modernization of Zvartnots International Airport and new terminals have increased its passenger flow capacity from 1.6m to 3.5m annually.
- Seven new hotels were established in 2012-13 – 5 in Yerevan and 2 in the marzes—and a number more are planned.

The growing attractiveness of tourism has attracted internationally renowned hotel chains like Marriott and Hyatt. In 2013, Armenia liberalized the aviation sector and adopted an “open air” policy that is expected to increase the number of inbound tourists because of lower flight costs.

## The Export-led Industrial Strategy

1.8. Creating foundations and new sources of growth, diversification of the economic structure and development of export-oriented industries is the overarching goal of the Industrial Policy. The Export-led Industrial Strategy adopted in 2011 marked a paradigm shift in the logic of Armenia's growth policy. The approach, based on the new industrial policy concept (Rodrick 2004; Hausmann and Rodrick 2006), addresses critical market failures hindering the restructuring and diversification of the Armenian economy (as is common in low- and medium-income economies)<sup>4</sup>. These are the externalities reflecting informational spillovers in the discovery of the cost structure of the economy and coordination externalities related to economies of scale.

1.9. The main objectives of the Export-Led Industrial Policy are to

- Cooperate with the private sector in implementing development strategies.
- Enhance the sophistication of strategies and operations of firms, especially SMEs that have export potential.

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<sup>4</sup> With the support of the World Bank, the Government of Armenia invited Hausmann to Armenia in 2007; he helped shape the thinking for Armenia's the industrial policy.

- Identify new sectors with export potential and foster capacity-building in these sectors.
- Enhance creation of economic value creation in Armenia.
- Attract multinational corporations:
  - Guide and formulate objectives for business environment reforms, particularly, business regulatory framework and infrastructure.
- Build the capacities of business support structures.

1.10. The Government of Armenia has announced that building a knowledge-based economy is its long-term strategic objective. The guiding vision for the Industrial Policy has been to open up and enhance opportunities to turn Armenia into a country that produces high-value and knowledge-intensive goods and services with creative human capital at their core.

1.11. Economic competitiveness depends on a series of macroeconomic and microeconomic factors. A sustainable macroeconomic environment is an important prerequisite for successful execution of Armenia's Industrial Policy. Sustainability refers in particular to price stability and predictable exchange rate dynamics, to eliminate fluctuations that endanger the price competitiveness of Armenian products in foreign markets.

1.12. While macroeconomic factors are important conditions for competitiveness, they are insufficient. Business productivity, and thus international competitiveness, depend on three microeconomic factors as well:

- The business environment
- Cluster development
- The sophistication of company strategies and operations.

1.13. Recognizing these realities, the Export-led Industrial Strategy aims to complement macroeconomic policy and business environment reforms. Changes in the economic environment necessitate that the process be transparent and dynamic—a collaborative discovery by the Government and private sector. ***In its essence, the new industrial policy is to be a process for discovering new economic opportunities by engaging public and private stakeholders in a continuing policy dialogue.*** This is meant to lead to a shared vision and coordinated actions through PPP platforms. Having a systemic and comprehensive view of economy competitiveness, the Industrial Strategy framework should serve as platform for coordinating and synchronizing different public policies, strategies, and initiatives to make the economy more competitive particularly in the areas of education, quality infrastructure, competition, physical infrastructure, and the financial sector.

**Table 1.1: Targets of the Export-led Industrial Strategy**  
(\*Percent and US\$ Millions)

Sub-goal	Indicators	2010	2015	2020
Expand the exportable sector of the economy	Export of goods-to-GDP ratio (%)	11	16	19
Diversify the exportable sector of the economy	Total exports volume, US\$	1,011	1,800-2,100	2,800-3,300
	Volume of goods exports excluding metal mining products and diamond, US\$	385	700-900	1,300-1,500
Competitiveness increase	Real increase in productivity of the processing industry (value added per employee), (%) **		5	4

Source: RA Ministry of Economy, 2011.

Note: \* Estimates are based on constant prices and exchange rates. \*\*Average growth in a given period (2010-2015 and 2015-2020) estimated at compound interest rate. Under such growth, the productivity of the processing industry at constant prices will be around US\$ 16,100 in 2015 and around US\$ 20,000 in 2020. As of 2010, productivity in the sector is around US\$ 12,600.

## Industrial Strategy Principles and Approach

1.14. The Government of Armenia has declared the following principles for Export-led Industrial Policy:

- Emphasizing the importance of systemic economic development, the Industrial Strategy is viewed in the context of holistic economic development and thus considers priorities for development of other nonmanufacturing sectors of economy (e.g., IT, tourism, engineering services, and health care).
- The policy targets export development rather than limiting itself simply to export promotion.
- In the initial stage, the policy is based on sectoral priorities by developing “driver” sectors for the next (broader) phase.
- The state is involved to address market failures (information and coordination externalities) rather than creating preferential conditions for specific enterprises.
- The policy rules out the use of less favorable conditions in the business environment, ensuring that improvements will be predictable and consistent.
- Activities that are supported need to have clear potential for generating spillovers. They should crowd in complementary investments or generate informational or technological spillovers.
- Support and promotion initiatives need to have the potential to renew themselves, making the cycle of discovery continuous.
- Active involvement of the private sector and transparency throughout the entire process is critical.
- Policy tools should be aimed at long-term development but also ensure a predictable sequence of quick wins.
- Among initiatives preference is given to PPPs and those with positive inter- or intra-sectoral synergies.

## **Box 1.2: Rationale for Industrial Policy and the Global Experience**

### ***Previous Industrial Policy***

The conventional way of implementing industrial policy had the government intervening heavily in selected sectors by providing specialized support via dedicated policy instruments (tax credits, subsidies, directed credit, etc.) to enumerate technological and other externalities. It often ended with long-lasting protectionist endeavors that engaged significant public resources but failed to deliver tangible results.

The “old” type of industrial policies in East Asia and Latin America were designed and implemented differently. In Asian economies, these were more export-oriented than in Latin America. In addition, industrial policy was as well-developed or implemented as successfully in Latin America as in East Asia. The consequence was that in the former industrial policy entailed less roots, which meant a lower scale for economic transformation. In the 1980s and 1990s, most Latin American economies officially abandoned industrial policies as part of a reorientation of national economic development strategies. Nevertheless, individual components of industrial policy and public inputs were continued (e.g., free economic zones).

### ***New Industrial Policy***

The “new industrial policy,” in contrast, approaches industrial policy as a process. This entails devising an institutional framework to address binding constraints to growth and enhancing development opportunities through strategic cooperation and an interactive dialog with the private sector. The process is a collaborative discovery where the policy instruments emerge from the process itself.

The new industrial strategy proposes to address two types of market failures:

*Information externalities* have to do with the first-mover effect. Global experience demonstrates that often countries with similar resources and factor endowments specialize in different groups of products. For example, Bangladesh hats, Pakistan soccer balls, Taiwan bicycles. It is hard to label this pattern in terms of specific comparative advantage. Rather, it is a result of self-discovery and subsequent copycat entry. Garment industries in Bangladesh, cut flowers in Colombia, IT in India, and salmon in Chile are well-known cases of this phenomenon. Chile did not export salmon before Fundacion Chile invested in this area, but now it is one of the largest global exporters.

*Coordination externalities* are about the need for a vast quantity of simultaneous and large-scale investments for a sector to become competitive. The orchid industry in Taiwan demonstrates the complexity of addressing coordination externalities.

### ***Different Forms of Industrial Policy***

Global experience shows that most governments implement some form of industrial policy even if it has another name (e.g., “export promotion,” “facilitation of FDI,” “free economic zones,” etc.). Industrial restructuring globally was mostly involved in an industrial policy platform and government initiatives at some stage. This is extensively documented in the experience of East Asia and Latin America. While the former is well-known, in the latter case it is more multi-layer and ambiguous. Nevertheless, a look at the past performance of three leading economies in Latin America—Brazil, Chile, and Mexico—reveals that the top exported products (other than traditional commodities exports) have been in response to industrial policy interventions, for example, steel, aircraft, and shoes in Brazil; grapes, forestry and salmon in Chile. In Chile, Fundacion Chile, a quasi-public agency, had a critical role in the growth of the salmon industry growth. It undertook significant R&D that was disseminated to smaller businesses. Eventually, Fundacion Chile successfully sold its operations to Japanese investors. In the case of grape industry, public-supported R&D was important to transform a local market-oriented industry, winemaking, into a global player. In China and India, the cases of first-tier suppliers to auto industry can be highlighted.

The experience of Latin America also demonstrates the importance of good productivity (total factor productivity grew annually at an average of 1.6 percent in the 1960s and 1.1 percent in the 1970s, which was comparable with East Asia) during the application of industrial policy but deteriorated afterward.

### ***Poorly Designed and Applied Industrial Policy***

Global experience also shows how poorly designed components of industrial policy may undermine its efficiency.

*Uruguay:* A critical weakness of Uruguay’s industrial policy was the lack of a comprehensive policy vision and well-connected initiatives. While specific initiatives yielded results, investment attraction and self-discovery

practices generally have been disappointing.

*Thailand:* This was a distinct case of industrial policy marked by patronage and rent-seeking rather than by a clear strategy for industrial upgrading (Christensen et al., 1997), which has diminished the impact of Thailand's industrialization since the 1980s. While a competitive exchange rate and robust macroeconomic policy created a foundation for high export growth, various export incentives under the industrial policy, e.g., tax holidays, import-duty rebates, and the establishment of export processing zones were not implemented effectively.

*Indonesia:* This is another clear example where selective industrial policy interventions were mostly associated with cronyism and rent-seeking. Affordable credit was provided to politically affiliated groups. Resources and efforts invested in enhancing technological potential in particular by new activities in high tech and in the aircraft industry in particular were a high-cost failure (Hill 1995).

### **Concluding Remarks**

While industrial policies have been executed differently in different countries and reflect different time and economic contexts, a number of criteria are common to cases of relative success and failure.

Success Factors	Failure Factors
<ul style="list-style-type: none"><li>• Sunset clauses for government support</li><li>• Clear criteria for success and failure</li><li>• Potential for spillover effects from the areas supported</li><li>• Active engagement of the private sector</li><li>• Transparency</li></ul>	<ul style="list-style-type: none"><li>• Gaps in execution and analytical capacity</li><li>• Rent-seeking and corruption</li><li>• Ineffective public-private dialogue</li><li>• Targeting of sectors without careful, fact-based analysis and participatory discovery</li></ul>

The challenge for most developing economies seems to be not to rediscover industrial policy but to redeploy it more effectively.

*Source:* Rodrick, 2004, 2007

## **Prioritizing Focus Areas for a Jumpstart**

1.15. The initial stage of the strategy entailed identification of focus areas for executing the strategy. Resources and capability limits required prioritization and focus.

1.16. The intent of Industrial Policy was to complement other sectoral and crosscutting initiatives for which development strategies have already been approved: information and communication technologies, tourism, health, education, and agriculture. The government also acknowledged the role of SMEs in the labor market and in economic development by putting in place a dedicated SME support program with adequate infrastructure and tools (the SME Development National Center, SME Investments UCO). Synergies with sectors already announced as priorities by the government were expected to contribute to increasing the impact of the Industrial Strategy initiatives. Potential synergies were considered in choosing the areas for engagement at the jumpstart stage.

1.17. A three-step assessment system was used to set sectoral priorities for the jumpstart strategy (Figure 1.4). A minimum threshold volume of exports was applied as the first filter, to indicate some export capabilities. The number of exporters was considered, to disperse support through a larger number of companies.

**Figure 1.4: Identifying Sectoral Focus In The Jumpstart Phase**

	Criteria	Outcome
1. Initial screening of sectors	<ul style="list-style-type: none"> <li>• Number of exporters in the sector</li> <li>• Export volume over US\$1m</li> <li>• Contribution to the economy and export diversification</li> </ul>	<ul style="list-style-type: none"> <li>• 25 products/product categories identified</li> </ul>
2. Selection of sectors based on synergies with already defined priority sectors and the Industrial Policy framework	<ul style="list-style-type: none"> <li>• Maximum positive synergy and harmonization with existing priorities</li> <li>• Conformity with the Industrial Strategy scope</li> </ul>	<ul style="list-style-type: none"> <li>• 11 sectors identified</li> </ul>
3. Sector classification by development horizons	<ul style="list-style-type: none"> <li>• Timespan for achieving sector maturity and scaling</li> <li>• Focus of initiatives</li> </ul>	<ul style="list-style-type: none"> <li>• Horizon 1 (2011-13) - 6 sectors</li> <li>• Horizon 2 (2011-15) - 4 sectors</li> <li>• Horizon 3 (2011-20) - 1 sector</li> </ul>

Source: RA Ministry of Economy 2011.

1.18. Existing capabilities, synergies between and within clusters, and potential impact were key dimensions for prioritization. Table 1.2 lists the factors assessed.

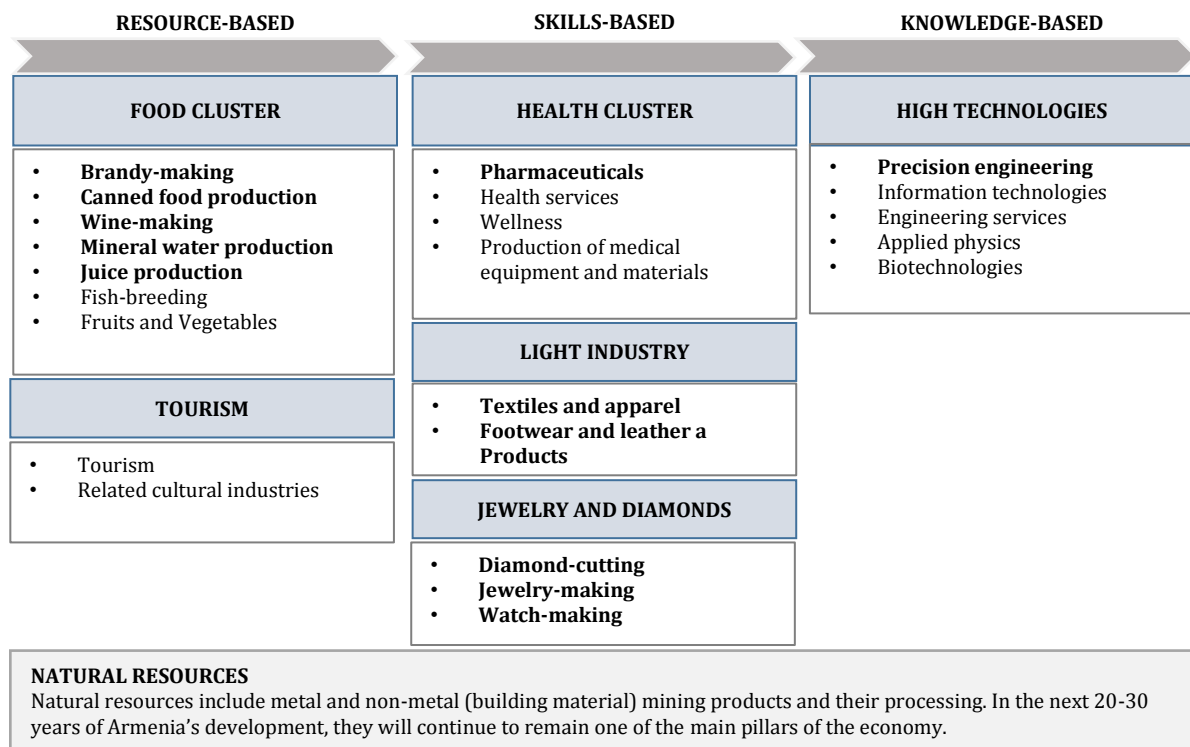
**Table 1.2: Assessment Factors for Sector Prioritization**

Primary Factors	Supporting Factors
<ul style="list-style-type: none"> <li>• Current exporting capacity</li> <li>• Contribution to the diversification of export structure—a priority for Armenia to encourage exporting sectors beyond metal mining and metallurgy</li> <li>• Cluster development opportunities: the competitiveness of any sector is conditioned on the existence of clusters and their degree of maturity</li> <li>• Focused interventions for efficiency: limited resources necessitate focused interventions and assurance of maximum possible synergies.</li> </ul>	<ul style="list-style-type: none"> <li>• Absence of bottlenecks in the supply of raw materials through at least the midterm</li> <li>• Diaspora involvement or potential for it</li> <li>• Opportunities to create higher value in the future</li> <li>• Number of producers in the sector</li> <li>• FDI attraction opportunities</li> <li>• Impact on employment and regional development</li> <li>• Possibilities for developing differentiated value proposition</li> </ul>

1.19. Based on primary screening of the sectors, they were grouped into clusters. Armenia's Export-led Industrial Strategy identified six clusters with growth perspective for the jumpstart phase: food, health, tourism, jewelry/diamonds, high-tech and light industry (Figure 1.5).



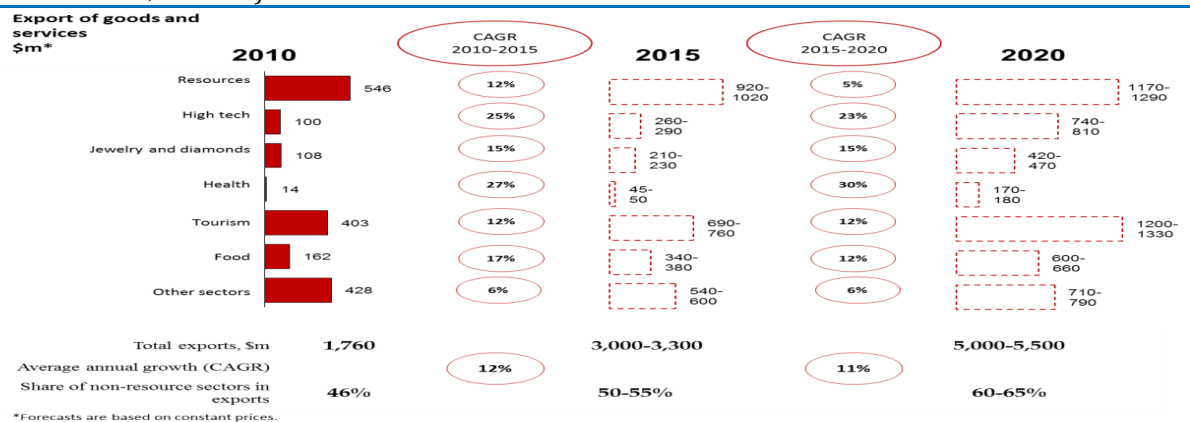
**Figure 1.5: Export-led Industrial Clusters in the Jumpstart Phase**



Source: RA Ministry of Economy 2011.

1.20. The rationale and significance of the clusters is expected to change in different phases of Armenia's development. When the strategy was being drafted, resource based products and services prevailed in the economy and export composition. In the next phase, most growth is expected to occur in skills-based sectors, and then in knowledge-based sectors. This transformation will be triggered by a productivity differential between sectors of economy. The major transmission mechanism will be increased competition in the labor market. However, this also necessitates building an asset base and capabilities in the economy.

**Figure 1.6: Jumpstart Strategy Targets for Nonresource Exports, 2010-20**  
 (Percent and US\$ Millions)



Source: RA Ministry of Economy, 2011.



## Strategy Focus by Development Horizons

1.21. Depending on capabilities and maturity level, the targeted sectors have different growth horizons (Table 1.3), binding constraints, and development agendas formulated by sector strategies. The objective of Armenia's Export-led Industrial Strategy is to scale up existing capacities in the short and medium -term (Horizon 1-2 sectors) and foster the development potential of emerging high value-added sectors in the long term (Horizon 3).

**Table 1.3: Growth Horizons of Targeted Sectors**

	Resource-Based	Skills-Based	Knowledge-Based
<i>Horizon 1: 2011-13</i> Scale up current capacity	<ul style="list-style-type: none"> <li>• Brandy-making</li> </ul>	<ul style="list-style-type: none"> <li>• Diamond cutting</li> <li>• Jewelry</li> <li>• Watch making</li> <li>• Textile and apparel</li> <li>• Footwear</li> </ul>	
<i>Horizon 2: 2011-15</i> Developing emerging capacities/sectors	<ul style="list-style-type: none"> <li>• Wine-making</li> <li>• Canned food production</li> <li>• Juice production</li> </ul>	<ul style="list-style-type: none"> <li>• Pharmaceuticals and biotechnologies</li> </ul>	
<i>Horizon 3: 2011-2020</i> New drivers for growth			<ul style="list-style-type: none"> <li>• Precision engineering</li> </ul>

Source: RA Ministry of Economy, 2011

1.22. The three-horizon approach represents a smooth synchronization of three groups of efforts: building up existing competencies; engaging competencies from abroad, and building new competencies and capacities.

1.23. **Building local clusters of export-oriented businesses:** The first type of effort is to build and nurture existing export-oriented clusters in order to make targeted local clusters more internationally competitive by tackling the bottlenecks throughout value chains.

1.24. Entry into new export markets and expansion of local companies in current markets are long-term, costly endeavors. The transformation could take longer and require more intensive government involvement and larger private investments, especially to develop new growth sectors. However, there are a number of areas where low-hanging fruits suggest potential for quick wins.

1.25. This includes sectors with growth potential that have had the biggest export volumes in recent years (excluding metal mining and metallurgy sectors): diamond, jewelry, watch production, textile, and brandy-making. They offer the possibility of increasing production volumes with moderate capital investment and their export markets are already established. The policy in these cases targets export promotion and swift removal of obstacles to development.

1.26. The primary objective of the Industrial Strategy for these sectors in the first time horizon is to recover previous industrial capacities, regain former market position, and penetrate into new markets. The low use of production capacity in these sectors would make it possible to achieve rapid growth in output relatively quickly. These sectors also have a significant impact on employment, especially in the regions.

1.27. Further development of these sectors depends on addressing fundamental problems via dedicated initiatives, for instance:

- Expanding the raw material base and synchronizing the expansion of upstream industries (specifically agricultural supplies)
- Introducing quality assurance management systems
- Bringing national standards and the quality control system into conformity with international standards
- Doing branding and promotion in the export markets

1.28. One of the main objectives of the Industrial Strategy is to enhance the diversification of Armenia's exports, in terms of both products and markets. To this end, a few horizons are envisaged.

1.29. In the short to medium term, the Commonwealth of Independent States (CIS) and Russia in particular, are expected to retain their dominating position in Armenia's export markets because the country has an established market presence there, with well-developed connections and positive demand characteristics (e.g., quality requirements that are easier than those of the European Union [EU]). Armenia's accession to the Eurasian Economic Union is expected to enhance this. Thus, in the short run, CIS represents markets where quick wins can be achieved with relative ease.

1.30. In the long term, diversifying export markets is considered a must. This will be facilitated by the developed capacities and augmented knowledge in the target sectors and production of higher-value-added and high-tech products. In the short and medium run, the accent is on resource- and skill-based sectors.

1.31. **Capacity building and attracting FDI:** The second type of effort targets international companies (MNCs in particular) that possess advanced technologies and have large markets. FDI could become a source for swift expansion of productive capacities and export through transfer of technologies, management expertise, and access to markets. Armenia possesses certain advantages, cost and non-cost, such as the availability of talent (including in the diaspora); a competitive regulatory environment; comparatively low costs for labor and utilities; preferential trade relationship with the CIS; etc.

1.32. FDI is being targeted to accelerate economic transformation by importing capabilities. Large-scale impact will depend on effective integration of foreign investors into national value chains and their contribution to Armenia's economic agenda.

1.33. **Developing innovative capacity and new drivers for growth:** The transformation to a knowledge-based economy requires an established ecosystem of innovation. In knowledge-intensive sectors like IT and engineering it could contribute to creation of higher-value-added activities. Here, the cultivation of start-ups and attraction of the R&D activities of MNCs are the focus. Innovation can also facilitate higher productivity in such skill-intensive sectors as food processing, jewelry, and pharmaceuticals. Tailored mechanisms need to be applied for each direction.

1.34. Compared to advanced benchmark economies of small size and limited resources, Armenia notably lags behind in R&D spending as a proportion of GDP (Table 1.4).

**Table 1.4: Research and Development Spending**  
(Percent of GDP)

	2004	2011
Israel	4.29	4.39
Estonia	0.85	2.38
Lithuania	0.75	0.92
Latvia	0.42	0.70
<b>Armenia</b>	<b>0.21</b>	<b>0.27</b>

Source: WDI.

1.35. Since the second half of the 20th century, the global experience of countries that have undergone major economic transformation illuminates the role of innovation in that process. In South Korea, Taiwan, and China the government's support for technological upgrading by developing a national system for innovation was central to the industrial policy (Weiss, 2005). In these economies, the ratio of R&D spending to GDP was consistently much higher than in other emerging economies.

### Execution Principles and Toolsets

1.36. The Industrial Policy envisages applying the following mechanisms:

- i Set priorities and gain agreement between the government and the private sector on general, cross-cutting interventions that will create a favorable environment and heighten productivity
- ii Apply a special toolset of specific interventions for each sector.

### Horizontal Measures

1.37. Central components of the horizontal (cross-cutting) measures for improving business regulation are modernizing infrastructure, attracting foreign investment, ensuring favorable external trade regimes, and eliminating trade barriers.

1.38. **Ensuring sustained improvements in business regulation:** The Government of Armenia is continuing with large-scale reforms of the business environment in the following ways:

- Reduce tax administration and reporting, improve taxpayer service quality, and apply risk-based audit criteria universally.
- Simplify, reduce, and automate export and import procedures; improve service quality for economic entities.
- Roll out the e-governance system in public administration
- Simplify and reduce procedures for getting construction permits
- Reduce time for court processes.
- Ensure access to credit and centralize credit information.

- Reduce the procedures and time for registering property.
- Simplify the procedures and reduce the time for bankruptcy and liquidation processes.
- Enforce efficient protection of intellectual property and support Armenian exporters in protecting their intellectual property in export markets.

1.39. **Infrastructure upgrade:** Ensuring that infrastructure is competitive was emphasized from the perspective of economic activity. When the Export-led Industrial Strategy was being drafted, Armenia's infrastructure was being modernized. The most important projects were the North-South Road, the Iran-Armenia Railway, an international logistic center close to Zvartnots International Airport, and logistics infrastructure for accessing the Free Economic Zone (FEZ). The government's Education Development Program in Armenia 2011–15 covers improving education infrastructure. In terms of Industrial Policy, national quality infrastructure reforms were given particular importance in the National Strategy for Quality Infrastructure Reforms 2010–20.

1.40. **Attraction of foreign investment:** Attracting foreign investment is universally recognized as critical to raising productivity. In the current phase of Armenia's development and export capacity build-up, foreign investments are viewed as an important source of financial resources, new technologies, management experience, and access to markets. A portfolio of initiatives for attracting leading transnational corporations was part of the Industry Policy Concept.

1.41. **Ensuring favorable foreign trade regimes and eliminating trade barriers:** Armenia as a full member of the World Trade Organization (WTO) since 2003 has been a beneficiary of its most favored nation regime. MFN is a fundamental principle regulating trade practices among WTO countries. Armenia has free trade agreements with Georgia and the CIS countries, except for Uzbekistan and Azerbaijan. Armenia also had joined the multilateral free trade agreement within the CIS. As the markets of CIS countries remain a priority for Armenian exports in the short and medium term (excluding exports of metal input materials and diamonds), the application of this preferential regime was seen as essential to the sectoral export-led strategies and for attracting foreign investments. Armenia has been eligible for the EU Generalized System of Preferences (GSP+) special arrangement, which has allowed Armenia to export locally produced goods (about 6,400 titles) to EU markets with reduced or no tariffs. However, Armenian exporters realized only a tiny part of the opportunities the GSP provided. Future efforts would be targeted to expanding the opportunities for wider use of these exemptions.

1.42. High importance was attached to Armenia signing the Deep and Comprehensive Free Trade Agreement with the EU, but since Armenia decided to join the Eurasian Customs Union (EACU) the process has been put on hold. The details of the new EACU trade regime are not yet set; moreover, Armenia will be forced to renegotiate its trade relationships with WTO members.

1.43. The Export-led Industrial Strategy prioritized certain initiatives from the government's current agenda in the context of industrial policy which could be implemented in short timeframe to demonstrate quick wins, build trust and encourage public-private partnership.

**Table 1.5: Priority Initiatives for Industrial Policy**

Initiative	Rationale and Status
Full operation of a risk-based tax and customs inspection system	<p>The initiative aimed to reduce the compliance costs and administrative burden for law-abiding taxpayers. Although in recent years, Armenia had recorded notable progress in the business environment and public governance, tax and customs administration remained problematic for the private sector including current foreign investors (Paying Taxes and Trading Across Borders are Armenia's lowest-ranked factors in Doing Business 2014).</p> <p>Risk-based inspection has been introduced in tax administration but its start-up has not been smooth. The new government's program envisages reforms of the inspection system in other areas as well, including customs.</p>
Gradual elimination of the requirement to charge VAT on the border for industrial machinery and equipment	<p>The objective is to reduce upfront investment costs and ease cash flow for investors to make investing in Armenia more attractive. This refers in particular to potential foreign investors considering alternative destinations before making an investment. The requirement to pay the VAT at the border was introduced in Armenia in late 1990s at the suggestion of the IMF to address the tax control challenge. Eliminating the requirement will lower the revenue collected for the state budget in the short term, which is important to address before the change is introduced. The initiative has not yet begun but the new government considered it a key initiative.</p>
Development of regulations for quality management systems, capacity building for supervisory bodies, and support for introducing them in companies; set-up of laboratories and certification bodies that meet international standards	<p>The objective is to enhance the quality of economic infrastructure through driver sectors that would lead dissemination of the transformation into other sectors. For this purpose, the Government had already drafted the National Strategy for Quality Infrastructure Reforms 2010–20. Initiatives under the Industrial Policy were aimed at developing quality national infrastructure and enhancing its compliance with international, particularly European, standards:</p> <ul style="list-style-type: none"> <li>• Introducing quality management systems and good practices in the pharmaceutical industry (GMP—good manufacturing practices, etc.), hazard analysis and critical control points (HACCP) systems in the food processing industry, which would enable expansion of export markets beyond traditional CIS economies.</li> <li>• Bringing national standards and the quality control system into conformity with international standards and recognizing certificates issued by national bodies in export destinations. Adoption of international successful experience and conformation of goods safety and consumer protection in local legislation corresponding to EU legislation would make it possible to achieve these objectives.</li> </ul> <p>Overall, the improvements would increase the level of consumer protection and reduce the administrative burden for entrepreneurs. Reforms were directed at the following areas: metrology, standardization, evaluation of conformity certification, technical regulation, and market control.</p>

### Special Toolset – Sector Interventions

1.44. The special toolset to be used as part of the Industrial Strategy targeted five main directions (Table 1.6).

**Table 1.6: Special Toolset Target Areas**

Tax and Customs Regimes to Promote Exports and Investments	Easing Access to Finance	Access to Markets	Capacity Development and Increasing Competitiveness	Promoting Research and Development
Simplified tax and customs regimes for exporting firms: VAT deferral for investment goods and goods imported under investment projects Free economic zones	Affordable financing for export-oriented investment projects Export financing and insurance	Representing and protecting exporter interests via commercial representations Support for participation in expositions Organizing incoming and outgoing business missions and forums Country branding and marketing	Supporting workforce development programs Supporting companies in introducing internationally recognized quality management systems Supporting technology and knowledge transfer Utilizing diaspora networks	Establishing techno-parks and industrial parks R&D grants to facilitate company-university joint research projects Establishing venture funds

Source: RA Ministry of Economy 2011

Note: In what follows, only the tools are elaborated that have not been discussed earlier.

### ***Special tax and customs regimes to promote export and investments***

1.45. The FEZ concept and legislation was approved before the Industrial Policy and later integrated into the strategy. The FEZs have been targeted to facilitate attraction of export-oriented FDI. One of the triggers for elaboration of FEZs was to put into operation the large and underutilized industrial property inherited from Soviet times by offering special tax and customs treatment. It was envisaged that a FEZ would be created as a PPP: private operators would construct and operate it and the government will provide tax incentives (exemption from property and corporate taxes, VAT and customs duties). However, the two FEZs currently in operation in Armenia are private investments and the Government has just granted them the status.

1.46. Global experience encompasses both successes and failures of FEZs in different parts of the globe (Box 1.3). It is critical to understand the factors behind FEZ experiences that had opposite outcomes and effectively apply the lessons learned in the local setting.

#### **Box 1.3: Global Experience with Special Economic Zones**

Globally, while exportable sectors have been promoted in different ways, special economic zones (SPZs) and of these FEZs in particular, have been the most visible channel. There are over 2,300 SPZs globally; only a handful of economies are without one.

Attracting exporting producers to FEZs is encouraged in different ways; the most common benefits are

- Customs-free access for imported inputs
- Tax holidays on corporate, property, and income taxes
- Exemption from certain common labor laws
- Provision of quality infrastructure and services
- Exemption from red tape (e.g., fast-track customs procedure)

While most Latin American economies officially abandoned industrial policies in 1980s, approaches to FDI and SPZs continued to engage specific public inputs to these areas (Rodrick 2004). Firms in export processing zones obtained fast-track customs procedures, good infrastructure, cheap inputs, and flexible labor practices.

Most SPZ in Europe and Central Asia have recorded at least moderate success. Poland, Bulgaria, and Romania have been the leaders.

Success Factors	Challenges
<ul style="list-style-type: none"> <li>• Right outset and policy frameworks</li> <li>• Effective incentive packages</li> <li>• Efficient bureaucratic procedures</li> <li>• Successful industrial linkages</li> <li>• Competitive cost and the quality of the local labor force combined</li> <li>• Positioning the zone program to leverage the country's comparative advantage</li> </ul>	<ul style="list-style-type: none"> <li>• Poor siting requiring heavy capital expenditures</li> <li>• Uncompetitive policies: rigid performance requirements, poor labor policies and practices;</li> <li>• Poor zone development practices: poorly- or over-designed facilities, insufficient maintenance and promotion</li> <li>• Ineffective procedures and controls: poor administrative structures, weak coordination between private developers and governments in providing infrastructure</li> </ul>

### **Successes**

*Uruguay:* ZonaAmerica SEZ is oriented to IT, software regional headquarters; and biotechnology and electronics operations. It hosts over 350 businesses, including such global giants as Tata Consulting Services (India), which is developing software for the Spanish-speaking Latin American market.

*Honduras:* The established FEZs recorded fast growth starting in the early 1990s and into the 2000s. Value-added export earnings reached US\$3.3 billion in 2007—a 10-fold increase over a decade. Factors determining the continuing success include the following:

- Government readiness to revise the legal framework for the FEZs
- Efficient use of preferential trade agreements with main trading partners
- Government engagement in enhancing the necessary infrastructure and auxiliary services
- Successful backward linkages
- Effective institutional support, especially for regional and international promotion of the Honduran FEZs

### **Challenges**

*Bangladesh:* In the last 3 decades, SPZs have helped to establish a more efficient investment environment and put Bangladesh on the global map as a low-cost location for FDI in the garment industry. However, their impact on exports and employment has been relatively modest. They have been less successful in triggering upgrades and diversification of the national economy and have augmented reliance on the garment industry.

*Dominican Republic:* In the 1990s, a key issue was the few backward linkages between the industries in the FEZs and domestic firms in the rest of the economy. There was a lack of government interest and incentives directed to this area. To sell inputs to firms operating in the FEZs, domestic producers needed an export license, which meant much red tape to obtain. Furthermore, while the law stated that the domestic firms could recover import duties for the materials used in the products sold to FEZ producers; in practice they were almost never able to benefit so. These challenges were deepened by issues in the domestic industrial sector related to the quality, timing of delivery, and price that further deterred linkages.

### **Concluding Remarks**

In the contemporary world, successful SEZs require a shift in mindset from the traditional dependence on fiscal incentives to enabling a more effective business environment that fosters firm-level competitiveness, local economic integration, innovation, and social and environmental sustainability. This approach necessitates proactive, flexible, and innovative policy approaches and sound integration of the SEZ into the host economy and its trade and investment agenda.

*Source:* FIAS (2008); Farole (2011); Farole and Akinci (2011).

## **Easing Access to Finance**

**1.47. Affordable financing for export-oriented investment projects (Box1.4):** Due to the short-term nature of savings in Armenia, commercial banks cannot provide long-term financing; and donor funds are not enough. Commercial banks do not provide tailored financing for export.

**Box 1.4: Global Experience with Financing for Export-Oriented Investment**

Affordable financing targeting mainly export-oriented companies has been widely different in different developing regions—South America, East Asia, Africa—in different time periods. Table B1.1 presents the types of industrial policy finance-related tools employed in South America by the 2000s.

**Table B1.1 Industrial Policy Finance-related Tools Used in South American Economies\***

Loans for working capital	Loans for fixed assets and/or investment projects	Equity investment	Loans to specific sectors	Horizontal tax incentives	Tax incentives to specific sectors
15 countries	14 countries	4 countries	6 countries	11 countries	18 countries

Source: Melo 2001.

\*26 countries observed.

Just over the half of the economies observed—14 of 26—provide affordable credit to exporters. In five countries, the financing comes from export credit agencies, and in six, special credit lines for exporters in national development banks provide the financing. Two types of loan financing have been most popular: loans to finance working capital and for fixed investment costs. Mexico, Argentina, Brazil, and Chile have exercised the largest number of different tools, and Guatemala, Jamaica, and Haiti the least.

**1.48. Establishment of export financing state institutions (Box 1.5):** Here the rationale is to address the specific financing needs of exporters and export-related risks. As to the former, the need for working capital is often a challenge for Armenian exporters and may hold them back from taking on potential orders because they lack of upfront financing.

**Box 1.5: Global Experience with Export Financing Institutions**

Export financing institutions are a common practice in developing and recently developed countries. Examples can be found in Estonia (KredEx), Israel (ASHRA), Turkey (Export Credit Bank of Turkey), Czech Republic (EGAP, Czech Export Bank), Austria (OeKB), Poland (KUKE), Bulgaria (BAEZ), Romania (Eximbank), Slovakia (Eximbank SL), Slovenia (SID Bank), Latvia (LGA), Bosnia and Herzegovina (IGA), Croatia (Croatian Bank for Reconstruction and Development), and Belarus (Eximgarant of Belarus).

**Access to Markets**

**1.49. Representing and protecting exporters' interests via commercial representations abroad:** The objective is to promote Armenian products in target destinations via special local sales representatives to effectively match Armenian exporters with market traders in the destinations. Often Armenian exporters or firms with export potential do not have the necessary expertise, resources, and connections to enter new export markets or expand their activities into new market segments. This may particularly be true for specific markets that take a significant share of Armenian exports, such as, the Russian market: local representation and the availability of warehouse facilities is critical to establish and build relations with the wholesalers and distributors who play a focal role in Russian trade value chains.

**1.50. Support for participation in expos:** International expos are a critical platform in global trade. Participation in these international fairs opens up extensive and immediate opportunities to build relations with foreign representatives of the sector value chain, expose products, and generate new networks and channels for export. This support is largely directed to SMEs who find participation in expos too costly. They also lack the knowledge and skills to organize their participation properly. Group participation through country pavilions significantly reduces the fixed costs and provides opportunities for country branding.



**Box 1.6: Global Experience with Export Promotion**

Different countries have used different tools for promoting the exports of local producers at different stages of export development. Facilitating participation in international events has been one of the common support platforms. Countries like Ireland (Enterprise Ireland), Turkey (Export Promotion Center), Czech Republic (CzechInvest), Singapore (International Enterprise Singapore), and India (Export Promotion Councils) have used this tool through effective institutional coordination. Some countries have gone further by instituting successful international sectoral fairs organized locally (such as Turkey's international jewel expos).

**1.51. Organizing incoming and outgoing business missions and forums in foreign markets (Box 1.7):** Like international expos, inward and outward business missions are important promotional platforms for matchmaking and facilitation of cooperation.

**Box 1.7: Global Experience with Business Missions**

Dedicated business missions and forums organized in target export markets are commonly used by global export promotion agencies. Targeted sectoral roadshows abroad have long been a regular practice by IDA Ireland, for instance, generating significant volume of leads with a notable number turning into viable export and investment projects.

**1.52. Country branding and marketing:** For some industries, such as winemaking, they must compete on the level of other countries in international markets. For such sectors, Armenia does not have an adequate international reputation and local producers have problems promoting their products in export markets because the country image is poor. It is necessary to create and advance Armenia's image as a quality producer in international markets, which requires coordinated efforts by the industry and the government: Poor quality delivered by one or a handful of Armenian producers in target export markets would significantly compromise the reputation of the entire sector. A precondition for successful country branding is effective control of the exported products to ensure acceptable standards and uphold a positive image of the country in global markets. This would also necessitate institutional capacities to oversee the process, promote the country image and coordinate activities in export markets.

**Box 1.8: Global Experience with National Branding**

*Chile and Argentina:* Well-known cases of umbrella branding are the wine sectors of Chile and Argentina. Both brands have been extensively promoted worldwide, raising awareness of each country's wine products and building positive image (Wines of Chile 2014; Wines of Argentina 2014).

In both cases, strong associations had been set up—Wines of Chile and Wines of Argentina—which have a mandate to control the quality of exports and promote the sector overseas. Both bodies are independent and engaging the absolute majority of producers in the sector, which provide most of the necessary funding through subscription fees. Nevertheless, there is also effective cooperation with the state, which provides some financial support to their operations.

*Brazil:* The Brazil IT brand was initiated by Apex Brazil, the Brazilian Trade and Investment Promotion Agency, as Brazil IT+ in 2004. Originally, it was aimed at promoting the image of Brazilian IT products and services in the U.S. market, especially at events organized by the Gartner Group, a U.S. research institution that promotes main events in the U.S. IT sector. In the following five years, promotion of the Brazil IT brand enlarged awareness of Brazilian IT products and services in the U.S. market, but the brand had limited scope and was not promoted in a unified way to present a comprehensive positive image of the Brazilian IT sector. The Brazil IT+ brand was established in 2009 to continue the previous branding but to address the challenges identified and extend promotion of the sector worldwide. The new initiative succeeded in creating a common visual language identifying Brazilian IT products and services. The new Brazil IT+ brand was a larger success than the previous one, contributing to exports, and putting Brazil on the global IT map.

**1.53.** The National Competitiveness Foundation of Armenia (NCFA) has launched a national brand development initiative to establish a clearly defined national brand image and a far-reaching

identity program for Armenia. A strong national brand (see Box 1.8) can help position Armenia in the global marketplace, attract investors, and heighten demand for its goods, services, and exports. It also is essential to expand Armenia's tourism sector. Global companies GK Brand and Cundari are managing the project.

### ***Capacity Development and Increasing Competitiveness***

**1.54. Supporting workforce development programs:** Improving the productivity of the labor force is a significant boost for competitiveness enhancement (Box 1.9). The role of quality human resources will become more important as the Armenian economy transforms from resource-based to skills-based and eventually to knowledge-based. A competitive labor force is also important for attracting foreign investments, particularly efficiency-seeking FDI.

**1.55.** In recent years, the perception among businesses that there is a lack of quality labor has become widespread. A survey of employers (EV Consulting 2011)<sup>5</sup>, 90 percent stated that the skills of the professional workforce could jeopardize growth in their sectors. A later survey of growth constraints on companies (EV Consulting 2013b) showed that the lack of a highly competent workforce came second among critical limitations on business expansion.

#### **Box 1.9: Global Experience with Labor Force Development**

State support to labor force development, both first-time preparations and skill upgrades through retraining is a common practice in many countries. Countries like Ireland and Czech Republic now have well-structured mechanisms in their enterprise development agencies to effectively promote human capital development.

**1.56. Supporting companies introducing internationally recognized quality management systems:** A distinction the products made and sold locally and those exported often relates to the different quality standards. Even though advancing globalization and closer trade relations tend to harmonize product quality standards across countries, there are still notable differences between larger regions and continents. Thus, for Armenian products the challenge is to meet the quality standards of Armenia's main export markets, the CIS and particularly, Russia, the EU, and the USA. A challenge for the government is to prioritize issues that notably constrain the development of proven export sectors. Once again, a sector-wide approach to addressing obstacles and enhancing quality infrastructure for all players is a must, rather than helping specific firms to gain a comparative advantage in quality standards over local peers.

### ***Innovation Support***

**1.57. Establishing techno-parks and industrial parks:** These are important for a well-connected innovation ecosystem, which is a component of Armenia's long-term vision of becoming a knowledge economy. Well-performing techno-parks and industrial parks accelerate this path and contribute to higher-value production. Capacity expansion in the innovation area helps to raise productivity and the growth of novel innovative economic agents.

**1.58.** Armenia has certain endowments that were expected to support the emergence of techno- and industrial parks:

- A rich Soviet scientific-technical heritage and availability of underutilized industrial complexes with developed infrastructure (e.g., RAO Mars)

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<sup>5</sup> The survey conducted with 25 leading Armenian firms from different sectors.

- An Engineering University and a track record of successful educational projects implemented with MNCs
- An Armenian National Engineering Laboratories (ANEL) project that is on track, which along with the Microsoft Innovation Centre and other educational and technological platforms could be an important support base
- Successful operations of global technological companies in Armenia, such as National Instruments, ST Engineering, Synopsys, and Cambric
- Networks of the diaspora, with executive positions in technological MNCs and other companies.

#### **Box 1.10: Global Experience with Techno-Parks**

*Slovenia:* Technopark Ljubljana was established in 1995 as a collaborative venture between a few national research institutes, the private sector, and the municipality of Ljubljana. As of 2012, the park hosted 295 firms, of which 131 were incubated companies and the rest associated companies. The companies were in a variety of economy sectors: IT, biotechnology, hybrid and vacuum technology, venture capital, and service provision. The main success factors are the effective system of knowledge flow between the stakeholders and the PPP. The technopark has professional management that actively seeks out for potential international partners as tenants to access global markets.

*Ireland:* The National Technology Park Limerick (NTP, managed by Shannon Development) is Ireland's first science and technology park, established in 1980. The NTP has become an important hub for high-tech companies. It has 140,000 sq. m of total floor area and hosts about 80 companies employing over 3,000 skilled people. Residents include both local technological companies and MNCs.

*India:* A number of technoparks are operating in India. Trivandrum Technology Park in the state of Kerala is the largest in terms of built area (4m square feet). Established in 1990, Trivandrum fosters the development of high-tech sectors in the state. As of 2012, 285 companies there, employing over 40,000 professionals.

*Turkey:* Metutech Science Park was established in 1991 as a collaboration between Middle East Technical University (METU), the Ankara Chamber of Industry, and private sector entities. The park has 1.2m sq.m area, hosts 276 residents –most of them SMEs—and has a labor force of about 3,800. The main sectors represented in the Metutech park are ICT, electronics, defense technologies, biotechnology, telecommunications, energy and environment and automotive. Residents enjoy a number of tax privileges, such as exemptions from corporate tax and from income tax for R&D personnel, government payment of half of the social security, and exemption from income tax for academic staff from METU who set up an enterprise in or work in the park. However, the park has demonstrated certain shortcomings, in particular:

- Lack of specific incentives
- Low occupancy rates
- High energy costs
- Lack of a qualified labor force
- Lack of knowledge-based networks.

*Belarus:* As of 2012, there were 9 techno-parks and industrial parks in Belarus. Most were marked by such issues as

- An imperfect legislative basis for the parks and a lack of efficient funding (at least in the start-up phase) by the government
- Decisions on possible exemptions from local taxes and duties are made by local authorities (corruption risks have been demonstrated along with bureaucratic ineffectiveness)
- Shortages of skilled labor
- Little cooperation between the private sector and knowledge institutions (e.g., universities);
- Minimal innovative activities by both the private and the scientific sectors.

**1.59. R&D grants to facilitate company-university joint research projects:** While Armenia pursued a long-term goal of transforming itself to a knowledge industry, economic measures to accelerate this were inadequate. R&D spending by both the government and the private sectors was low. There was a general lack of a quality laboratory base at institutions of higher education (HEIs)

and an increasing need to bring educational programs into compliance with international requirements.

1.60. The objective of the R&D grants was to encourage the establishment and development of innovative production. In terms of developing an innovative ecosystem, the emphasis on commercialization of knowledge gained critical significance. Success of this process had the potential to contribute to the emergence of innovation centers and to attract MNCs.

1.61. The challenge in the initial stage would be bring the private sector and academia onto the same agenda and convince the private sector to trust that the current educational and research infrastructures would look for solutions to business issues. On the other hand, the lengthy period of alienation of HEIs and research institutes from the business environment could make it difficult for the former to fully reflect the requirements of the latter and deliver quality solutions. Here developments in the engineering sector on business-educational sector collaboration were promising and demonstrated enhancement potential on the base of such emerging platforms as ANEL project and the Microsoft Innovation Centre.

1.62. **Establishing venture funds:** The general lack of private equity and venture funds in the Armenian economy distorts financing opportunities (see Box 1.11). The scale of equity investments is distinctively low. The lack of exit channels is partly conditioned by underdeveloped markets for mergers and acquisitions (M&A) and initial public offerings (IPO).

1.63. The general absence of high-risk financing is a major obstacle for fast-track expansion of technological entrepreneurship in the economy. A poorly developed equity investment culture, little knowledge of global trends, other information gaps, and unstable markets have been major impediments to the progress of high-risk financing in Armenia.

1.64. Establishment of the first venture fund in Armenia with the support of the World Bank considered the possibility of using a PPP to reduce the first-move disadvantage. The most obvious risk of introducing venture funds in Armenia are the high-risk profile of this kind of financing, where an absolute majority of enterprises financed fail in the first year of operations. The failure risk would increase with early seed financing. Lack of market intelligence and assessment instruments for technological start-ups would increase the scope of challenges of the first generation of venture funds established in Armenia.

#### **Box 1.11: Global Experience with National Venture Funds**

A number of governments have participated in or initiated venture funds to support entrepreneurship in the economy industry (OECD 1997). For instance:

*Israel:* The government provided US\$100 million in 1993 to set up Yozma, a venture capital fund targeting high-tech start-ups. Eventually, Yozma was transformed into nine hybrid funds. Yozma is widely recognized as the catalyst for Israel's current advanced venture capital sector. In 1996 venture capital attracted from the private sector allowed the government to sell its stake in Yozma: investments in 14 companies and interest in the nine Yozma funds were sold off. To achieve success Yozma cooperated with and supported a number of small funds. In addition, it did not attempt to pick winner firms. Finally and importantly, Yozma formed close relationships with international venture capital funds.

*Hungary:* Since 2002, the government has established a number of venture capital firms. However, public funds were used mostly to finance traditional sectors rather than innovative high-tech segment (Karsai and Baranyai 2005). In 2010, the Jeremie funds were set up. The government along with direct capital investments began to participate indirectly in hybrid venture capital funds, which have been successful in the global market. In the early 2000s, Hungary thus became the hub for the venture capital industry in Eastern and Central Europe. The number of players, the deal mechanisms and the efficiency of the industry

were comparable to those of Western Europe. Nevertheless, the main beneficiaries of the venture capital industry in Hungary were relatively larger companies. Smaller companies and those that did not intend to enter global markets remained unattractive. Government funds usually avoided investments in high-risk ventures. Thus, the industry did little to encourage innovative practices in the economy. The recent global financial crisis had a significant adverse impact: By 2010 Poland seemed to take over the leading venture capital role in the region.

*Belgium:* The Investment Company for Flanders (GIMV) was set up in 1980 to invest directly in venture capital and small firms. The government-financed fund was run by independent private management. Initially entirely owned by the Government, private ownership eventually expanded. The success of GIMV triggered the set-up of venture funds in other regions of Belgium.

*Netherlands:* In the 1990s, the government established a few hybrid venture capital companies: PMTSs (Participation Companies for New Technology-based Firms). The government provided 25 percent of the funding as half-loan half-grant. The rest came from banks and other third parties. The government loan to the PMTS had a maturity of up to seven years. However, in case the PMTS invested most of its capital in new technology based firms or reinvested its income received, the government loan could be converted into grant.

*Sweden:* In 1992 the Swedish government allocated about 600 million to establish two venture funds. Atle and Bure. They were mandated to invest in both small venture capital firms and young companies with high growth potential. However, in a few years' time the funds proved to be notably ineffective: they tended to make conservative investments in mainly low-risk companies that were not start-ups.

*Finland:* In 1994 the government established a state-owned venture capital fund Teollisuussijoitus Oy (TESI) with original funding of US\$67 million to invest in small venture capital funds with majority private ownership. Finland also established a network of regional venture capital funds some of which grew to establish new hybrid funds.

*Ireland:* In the mid-1990s Ireland's Forbairt Agency started several programs to trigger venture capital development and the growth of small high-tech firms. Forbairt looked to make parallel investments with the private sector.

*Scotland:* In the 1990s, the Scottish Equity Partnership (SEP) was established; it was a €25m hybrid venture capital fund managed by Scottish Enterprise and targeting deals smaller than € 0.5m in early-stage and high-tech firms. The private sector funded 50 percent.

*Denmark:* In 1992, the government allocated US\$130 million to establish the Business Development Finance Loan Programme (VækstFonden) to make low-interest, long-term, and nonrefundable loans to venture capital funds or small enterprises. The maximum loan was 50 percent of the financing need of the project and less than US\$0.6 million.

### ***Principles for Applying Support Tools***

1.65. As part of the Export-led Industrial Strategy, specific principles were developed for applying the support tools. First, they would be used to address the information and coordination externalities targeted by the Industrial Policy. Uruguay's case demonstrates the ineffectiveness of the Industrial Policy and toolset it employed because the policy was not well positioned to address the evident market externalities; it was composed of inflexible support tools that had a poor rationale. The RA government adopted the following principles for applying each type of tool:

- The target must be to improve the business environment and infrastructure rather than benefiting individual economic agents.
- The support toolset had to be market-tested before being scaled up.
- The support had to respond to specific market failures.
- Clear dates and terms for suspending the government intervention (sunset rules) were to be defined.



- Actions were synchronized with the private sector.
- PPPs and risk-sharing was required: co-financing rather than full financing.

***The government tried to make policy development and implementation inclusive and iterative.***

1.66. Throughout 2012–13, sectoral strategies for nine sectors were drafted, along with six action plans (implementation roadmaps) and monitoring systems (performance track).

**Table 1.7: Industrial Strategy Implementation Timeline**

2011	2012	2013	2014
Adoption of the Industrial Strategy by the Armenian Government Strategies for the pharmaceutical, brandy, and precision engineering sectors	Wine sector strategy Action plans for the pharmaceutical, brandy, precision engineering and wine sectors Allocation of financing in Government's Medium-term Expenditure Framework 2013–15	Establishment of IDF Strategies and action plans for the jewelry, diamond, watch-making, and textile and apparel sectors Financing from the state budget for implementation of the Industrial Strategy	Review of Industrial Strategy implementation. Canned food and juice production sector strategy Financing from the state budget for implementation of the Industrial Strategy

Source: RA Ministry of Economy 2014.

1.67. The government has tried to make the strategy development process for the targeted sectors iterative and transparent process involving key stakeholders. The national budget, the private sector, and donors have been the funding sources for Industrial Policy interventions. It has targeted coordination and concordance in public and private activities. Sectoral strategies have been devised to serve as a basis for coordination of initiatives and guiding and complementing government and donor efforts to support the private sector.

### ***Organizational Structure for Strategy Implementation***

1.68. The main structures for the PPP approach are the Industrial Board adjunct to the Prime Minister and sectoral boards. The main implementing agencies are the Ministry of Economy, the Industrial Development Fund, ADA, other agencies—the small and medium enterprise development national center (SME DNC), SME Investments UCO, and Enterprise Incubator Foundation—and trade representative offices.

1.69. **Industrial Board:** This is the supreme body coordinating all Industrial Policy activities. The Industrial Board was created to provide effective solutions to issues related to implementation. Its main functions are to approve the sector strategies and action plans and make any necessary adjustments within the framework of the Industrial Policy.

1.70. **Sectoral Boards:** Synchronization of actions and close public-private cooperation have been recognized as guarantees for the success and effectiveness of the sectoral strategies. Sectoral Boards were set up to coordinate activities and for professional dialogue between the public and private sectors. On the boards are stakeholders from state authorities, business representatives, and members from academic and educational institutions.

1.71. **The Industrial Development Fund (IDF) and the Armenian Development Agency** have been responsible for executing the Industrial Strategy. The IDF was set up as an instrumental structure to facilitate a significant part of the planned interventions. State financing to support the Industrial Policy is mainly channeled through the IDF which has a dedicated budget for the different

strategic directions and toolsets (US\$1.14m for 2013 and US\$1.32m for 2014). Secretariats have been set up at ADA to coordinate work on sectoral action plans. Because the intended restructuring and enhancement did not take place, a new organization, the DFA, was set up to integrate all private sector development functions currently delegated to different organizations, such as the ADA, the IDF, and the National Competitiveness Council.

### **Monitoring and Evaluation**

1.72. Strategy implementation is a dynamic and participatory process, involving constant monitoring and matching necessary changes to the situation. For this purpose, the action plans are rolling three-year plans that need to be adjusted every year. This allows for recognition of emerging opportunities and better resource allocation. To evaluate strategy implementation and results, a three-level system of target indicators was adopted: strategic target indicators and two levels of operational indicators (outcome and output) based on the initiatives implemented for each sector. The three main strategic target indicators for Export-led Industrial Strategy are the goods exports-to-GDP ratio; export volumes (excluding metal mining goods and diamonds); and the real increase in the productivity of the processing industry.

### **Risks of the Industrial Policy**

1.73. Industrial policy may be one of the most controversial and misinterpreted aspects of government policy. While some critics accept the positive impact it has yielded in certain East Asian countries (Wolf 2007), there are still significant doubts about its true benefits and full positive impact. The negative perceptions mainly are rooted in failures to bring in the intended results and the risks of corruption and favoritism. Table 1.8 shows the main risks associated with the Industrial Policy and possible mitigation measures.

**Table 1.8: Risks Associated with Industrial Policy and Possible Means of Mitigation**

Risk	Armenian Context and Mitigation Potential
<b>Governments cannot pick winners:</b> Governments do not have the necessary market intelligence to effectively position their interventions and select the right sectors, markets, or enterprises (Pack and Saggi 2006). The negative consequences associated with “picking losers” will soon become evident.	It is true that the government cannot pick winners; an effective industrial policy entails quickly eliminating losers. The sectors targeted by Industrial Policy in Armenia were selected against rigid criteria such as sector performance and potential. Mistakes are inevitable, and a good industrial policy will prevent such failures from absorbing scarce resources for unnecessarily long periods. That is why regular monitoring and evaluation are critical to review sector performance and take adjustment measures as needed.
Developing countries <b>lack the administrative capacity</b> to implement industrial policy effectively.	While efficient bureaucracies are rare in most developing countries, the countries possess or have the potential to develop individual pockets of administrative competence. This is currently the major risk to the policy. The policy document envisioned a total functional and administrative restructuring of ADA as the implementing agency however, execution lagged behind. Instead, the new fund (IDF) was created outside of ADA. Recognizing the problem of fragmentation the government has recently merged IDF, ADA and NCFA into the Development Foundation of Armenia with enhanced functions and funding and supported by the World Bank’s new project.
<b>Industrial interventions are vulnerable to political patronage and corruption:</b> Industrial Policy opens the door for rent-seeking and corruption. It creates ripe	Industrial Policy is not much different from other forms of economic policy that are subject to political connections and corruption. For example, in many developing economies, privatization has generated a significant number of inefficient

Risk	Armenian Context and Mitigation Potential
opportunities for preferential practices to transfer rent to selected enterprises and distort competition. Businesses look for continued subsidies and other forms of support instead of working in genuine ways to reduce costs, expand their market share, and enhance competitiveness.	deals due to favoring politically connected businesses. To ensure effective implementation of Industrial Policy, a number of measures were taken: The primary policy making unit for sectoral strategies are sector councils rather than the government per se. This creates some transparency and a balance of vested interests with control and monitoring mechanisms. Engagement of private sector and donor representatives is widespread. For all the initiatives and support mechanisms devised under the Industrial Policy, specific guidelines grant the support under the control of the new IDF. For each sector engaged, sectoral councils engage representatives on the PPP principle, which facilitated multilayer monitoring and control of sectoral strategy. The Industrial Board, the supreme Industrial Policy body, was established with high-level political engagement as an adjunct to the Prime Minister. Overall, however, mitigation of this risk also depends on how effectively the government executes its anticorruption policy.
<b>The initiatives may be ineffective and produce the intended results.</b> This can be due to misidentification of constraints, ineffective execution, changing external environment, or other factors.	Constant monitoring and evaluation and early signals embedded in the system will help mitigate this risk.

1.74. Overall, the institutional framework for the Industrial Policy needs to be developed carefully to institute continuing constructive dialog between the public and private sectors. It should enable information flows in both directions, identification of the needs of economic agents, adequately positioned policy tools, and effective mechanisms for rectifying ineffective policies.

## B. INDUSTRIES TARGETED BY INDUSTRIAL STRATEGY IN 2010–13

1.75. The recent dynamics of targeted sectors cannot be directly and fully attributed to execution of the strategy, but they do indicate the development capacity of the targeted sectors. In 2010–13, Armenia’s total exports went up by 13 percent (CAGR), reaching nearly US\$1.5 billion—75 percent of the 2015 target average. Goods export (excluding metal and mining products and diamonds) more than doubled to US\$786 million, just below the 2015 target average.

**Figure 1.7. Export of Metals and Mining Products, Diamonds, and Other Goods, 2010–20**  
(US\$ thousands)

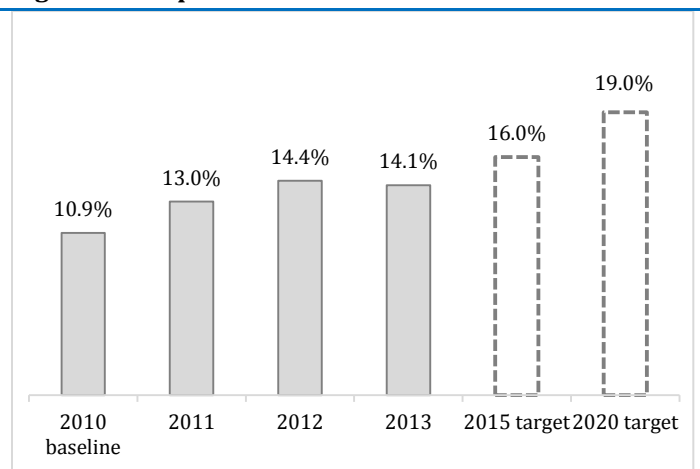


Source: UN ComTrade.



1.76. Exportable sectors of the economy have expanded: the export of goods-to-GDP ratio rose from 10.9 to 14.1 percent in 2013, 88 percent of the 2015 target. However, this is still notably below the average for lower-middle-income economies (21.5 percent in 2012).

**Figure 1.8: Export of Goods-to-GDP Ratio**



Source: RA NSS, UN ComTrade.

1.77. The Armenia Development Strategy for 2014–25 (ADS), which reflects the government’s general long-term economic strategy, highlights the increasing significance of the tradable sectors for sustainable economic growth and the growth it expects from the developed Industrial Policy. In the industry sectors, it is expected that the jobs created will be predominantly high quality, with high productivity and high wages. According to the ADS forecasts, exports of goods and services will reach about US\$6,300m by 2021, (US\$5,000–US\$5,500 in 2020 is estimated for the jumpstart Industrial Strategy).

### ***GDP structure has changed and exports are less concentrated***

1.78. In 2010–13, the share of tradable sectors<sup>6</sup> in GDP went up from 29 to 32 percent. In 2013, the contribution of tradable sectors to GDP growth hit 69 percent, whereas before the crisis the nontradable sectors were the major contributors. In 2010–13, the share of the processing industry in GDP increased from 9.5 to 10.1 percent. The export share of the three largest sectors has dropped from 76.8 to 64.9 percent. Improvements in export diversification are also demonstrated by a decrease in the Herfindal index.

1.79. Throughout 2010–13, FDI was sustained in the processing industry although in the rest of the economy it went down annually by 19 percent on average. While total FDI fell by 18 percent from US\$483 million to US\$271 million, the share of the processing industry rose from 6 to 11 percent. For comparison, in the same period the share of the processing industry in GDP increased from 9.5 to 10.1 percent. The drop in FDI in other sectors is explained by global FDI-negative patterns after the 2008–09 crisis as well as by the competition of large infrastructure investment projects in energy and telecommunication sectors in Armenia. The latter two account for about half of FDI net stock. These two nontradable sectors represent mostly market-seeking FDI with very limited potential for attracting further large-scale FDI.

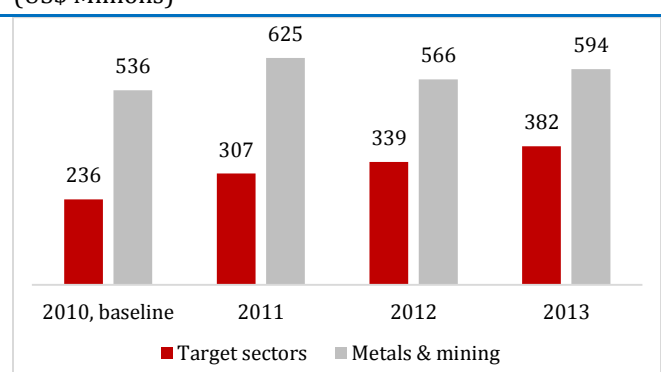
<sup>6</sup> Tradable sectors are industry and agriculture, according to the World Bank classification. However, certain service sectors have been increasingly exportable in recent years, in particular, IT, tourism, and health care. Armenia also exports electricity.

***The target sectors recorded strong export performance.***

1.80. In 2013 total exports of Industrial Strategy target sectors hit US\$382 million, recording a 17 percent CAGR for 2010–13. For comparison, the CAGR for metals and mining export has been only 4 percent.

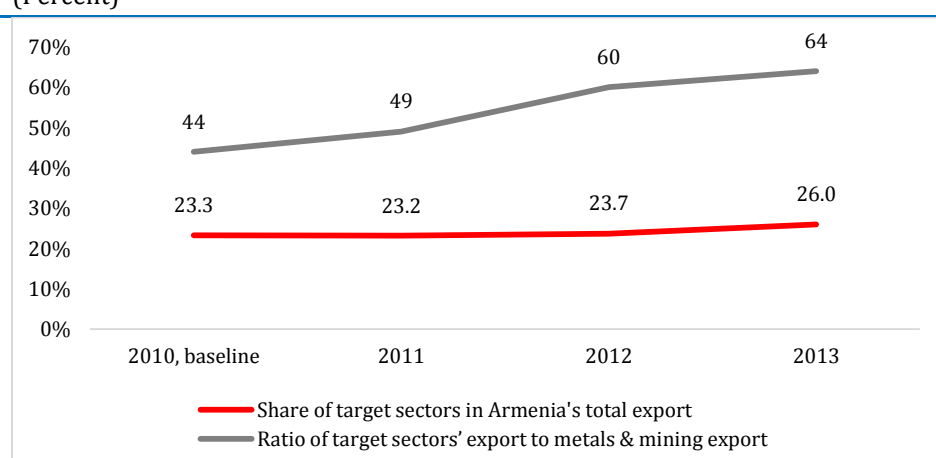
1.81. The growth rate of target sectors has surpassed that of the entire economy: in 2010–13, the share of target sector exports in Armenia’s total exports increased from 23.3 to 26 percent. The ratio of target sector exports to metals and mining exports improved notably, from 0.44 to 0.64. This is accounted for both the drop in global metal prices in 2012–13) and the improved performance nonmetal sectors of the Armenian economy. In 2010–13, exports of all target sectors grew except for diamond-cutting, which fell in 2012). Textiles and apparel, watch making, and brandy recorded the highest growth.

**Figure 1.9: Export of Target Sectors and Metals and Mining, 2010–13**  
(US\$ Millions)



Source: UN ComTrade.

**Figure 1.10: Composition of Armenia’s Exports, 2010–13**  
(Percent)



Source: UN ComTrade.

1.82. By 2013, the cumulative export volume of target sectors reached about 83 percent of the 2015 target.<sup>7</sup> Brandy and watch-making sectors have leaped beyond the sector targets (Table 1.9).

<sup>7</sup> Does not include textiles, apparel, and footwear, for which export targets were set for 2018.

**Table 1.9: Export Indicators, Target Sectors**

Sector	2013 (US\$)	2010–13 CAGR (Percent)	Share of Sector Export in Total Exports (Percent)	2015 Target* (US\$)	2013 as Proportion of 2015 Target (Percent)	2020 Target* (US\$)
Pharmaceuticals	6.9m	13	0.5	22.5m	31	95m
Wine	4.2m	14	0.3	10.7m	40	29m
Brandy	181.3m	24	12.4	180m	101	300m
Textile & apparel	38.5m	81	2.6	66m	58	133.5m
Footwear	2.1m	17	0.1	16.2m	13	47.7m
Jewelry	21.3m	17	1.4	30m	71	76m
Diamond-cutting	88.1m	-1	6.0	111m	79	151.7m
Watch-making	14m	53	1.0	12m	116	28m
Precision engineering	25.3m	14	1.7	47.5m	53	150m
Total	384m	17	26.2	496m	82**	1,101m

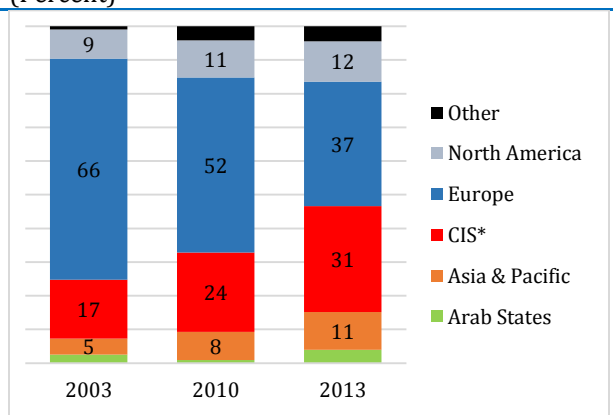
Source: UN ComTrade, sectoral strategies.

Note: 2015 targets for pharmaceuticals, textiles and apparel, jewelry and precision engineering sectors include outsourcing orders by MNCs.

\*For textiles and apparel, target is for 2018 and for footwear 2023.

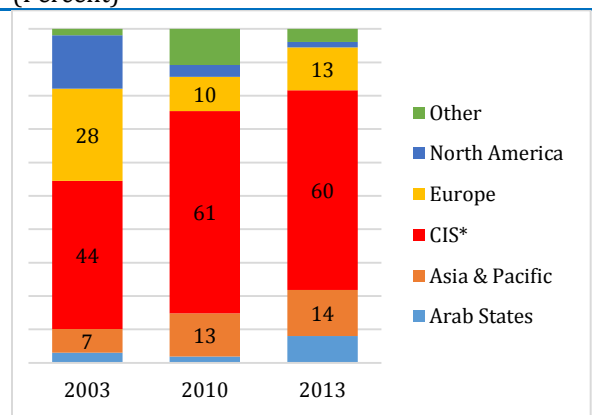
\*\*Does not include textiles, apparel, and footwear.

1.83. Notably increasing their share in total Armenian exports in 2010–13 were textiles and apparel from 0.6 to 2.6 percent; watch making from 0.4 to 1 percent, and brandy from 9.4 to 12.4 percent. Among the target sectors, brandy's larger share is most impressive. The export growth has been mostly in current markets. Due to current small volumes of exports and membership in the Eurasian Customs Union, it is anticipated that the share of traditional markets will increase at least in short run.

**Figure 1.11: Geographic Distribution of Exports, 2003–13**  
(Percent)

Source: UN ComTrade.

Note: \* Georgia is included in the CIS region.

**Figure 1.12: Geographic Distribution of Exports Other than Metals and Diamonds, 2003–13.**  
(Percent)

Source: UN ComTrade.

Note: \* Georgia is included in the CIS region.

1.84. Production went up (Table 1.10) in all the target sectors except footwear in 2010–13, (though footwear improved by 6 percent in Armenian dram terms). In aggregate sector performance, textiles and apparel had the largest increase - 370 percent.

**Table 1.10: Change in indicators of target sectors, 2010-13**

Sector	Output		Productivity per Employee		Number of Companies		Number of Employees	
	2013 (Mln.US\$)	Change (Percent)	2013 (US\$)	Change (Percent)	2013	Change (Percent)	2013	Change (Percent)
Pharmaceuticals	12.9	46	24,400	40	19	46	528	4
Wine	19	70	23,100	-7	21	0	824	82
Brandy	198	85	114,800	94	24	9	1,725	-5
Textiles & apparel*	47.5	370	5,300	4	196	14	5,942	32
Footwear	1.2	-3	6,700	-11	31	11	184	9
Jewelry*	12	5	26,600	27	29	-9	452	-17
Diamond-cutting*	35.5	146	106,900	188	6	-33	332	-14
Watch-making	3.5	121	30,900	102	4	0	115	10
Precision-engineering	34.5	47	9,900	55	136	6	3,495	-5
Total for all sectors	364	92			466		13,597	38

Source: RA NSS.

Note: In diamond cutting, jewelry, watch-making, textiles and apparel, and footwear, contract manufacturing is common practice. In such cases, for statistical purposes, output is calculated on the value added. Export value is calculated on the entire value chain, including the cost of inputs. Thus export value may exceed output value.

1.85. Strong performance has been accompanied by enhanced productivity, which has risen in all target sectors apart from wine and footwear sector. Sizable improvements were recorded for diamond-cutting, watch-making, and brandy sectors. Productivity in the target sectors, 12 percent CAGR, surpassed that of both the combined processing industry (9 percent) and the entire economy (8 percent).

1.86. The productivity increase in different sectors had a variety of underlying reasons, such as capital investments and introduction of high-productivity equipment and technologies (brandy-making and pharmaceuticals), use of previously underutilized capacities (diamond-cutting), and a move to higher-value-added production (precision engineering).

1.87. New producers were attracted to textiles and apparel, footwear, pharmaceuticals, brandy, and precision engineering. Augmented production led to more people employed in the wine, textiles and apparel, footwear, watch-making, and pharmaceuticals sectors. Wine recorded the largest increase, 80 percent, and textiles and apparel followed with 30 percent. Overall, in 2010–13, the aggregate number of workers in the target sectors went up by 38 percent.

### C. THE IMPLEMENTATION PROCESS AND PROGRESS

1.88. The Industrial Strategy was launched in 2012 but its first budget allocation was a year later. Such a short period does not allow for assessing the strategy's results and impact, but review of progress in implementing activities and direct outputs could reveal certain issues in its design and execution.

#### ***Industrial Policy strategic directions have recorded mixed performance.***

1.89. Sectors targeted by the Industrial Policy share common strategic directions in three time horizons. For Horizon 1 sectors, the focus is on eliminating critical constraints; interventions in Horizons 2 and 3 are more multidimensional. Based on sector-specific significance, the strategic directions have had different degrees of success.

1.90. Building systematic quality assurance infrastructure is aimed at ensuring that the quality of Armenian exports is competitive in terms of complying with the requirements of target markets. Here, the most sizable success has been in pharmaceuticals with the official introduction of good manufacturing practices (GMP) regulations. In two other sectors where quality assurance has high significance, wine and brandy, the process of upgrading sector regulation and technical standards has been launched.

1.91. Enhancing the raw materials base is intended to ensure a sustainable flow of critical production inputs to certain sectors. In the wine and footwear sectors, strengthening the raw material base needs to be done locally whereas in diamond-cutting the accent is on imported inputs. In the wine sector, overall the efforts have been inadequate. While new nurseries and wineries are being established on private initiatives, the state has failed to launch the planned initiatives for viticulture development. In diamond-cutting, removal of the import tariff on Russian rough diamonds will notably ease the availability of the raw materials required for sector growth.

**Table 1.11: Growth Strategies of Targeted Sectors and Their Comparative Significance**

Strategic Directions	Brandy	Jewelry	Diamond-cutting	Watch-making	Textile & apparel	Footwear	Pharmaceuticals and biotechnologies	Wine	Precision engineering
Quality assurance	High	Medium	Low	Low	Low	Low	High	High	Low
Enhanced access to raw materials	Medium	Low	High	Low	Low	High	Low	High	Low
Human capital development	Low	Medium	Low	Medium	Medium	Medium	High	High	High
Affordable financing for exports and investments	Low	Medium	Low	Low	Medium	Medium	Medium	Medium	Medium
FDI attraction	Low	High	High	High	Low	Low	High	Low	High
Sector promotion	High	High	Medium	High	High	Medium	High	High	Medium
Other*	Medium								High

■ High importance  
■ Medium importance  
■ Low importance

Source: Sector strategy documents approved by Industrial board.

\*Promoting innovation and legislative reforms, Precision engineering sector; improving transport infrastructure - Brandy sector.

1.92. **Developing human capital is prerequisite to developing growth driver segments.** It has a critical role in attracting FDI to precision engineering and pharmaceuticals; both sectors have had some success in terms of workforce development. The main pharmaceuticals training center has been offering training continuously, and a production technology laboratory has been set up at the sector's main HEI as a result of enhanced university-industry collaboration. The establishment of ANEL at SEUA and the launch of Gyumri Techno-park (constructed with support from the World Bank E-society and Innovation for Competitiveness Project) have provided a quality physical environment and educational content for workforce preparation.

1.93. Compared to other strategic directions, affordable financing for investments and exports has not been a critical area. With medium significance, it has had the most success in wine-making where half a dozen producers have benefited. In other sectors, there has been little demand for preferential loans with subsidized interest, possibly because the eligibility criteria and terms, e.g. on loan collateral, are relatively strict. Armenia created an export insurance agency to address the specific financing needs of exporters and hedge the risks related to exports in November, 2013 with AMD 1.95 billion capital; however, it is not yet fully operational.

**Table 1.12: Status of Activities by Strategic Directions**

Strategic directions		Performance	
		Number of activities	Percentage
1	Quality assurance	In process - 13	54%
		Implemented - 10	42%
		Not implemented - 1	4%
2	Enhancement of raw materials base	In process - 6	50%
		Implemented - 4	33%
		Not implemented - 2	17%
3	Human capital development	In process - 10	40%
		Implemented - 12	48%
		Not implemented - 3	12%
4	Affordable financing for investment and export	In process - 4	29%
		Implemented - 7	50%
		Not implemented - 3	21%
5	FDI attraction	In process - 4	50%
		Implemented - 2	25%
		Not implemented - 2	25%
6	Sector promotion	In process - 13	36%
		Implemented - 18	50%
		Not implemented - 5	14%
7	Promoting innovation	In process - 2	40%
		Implemented - 3	60%
		Not implemented - 0	0%
8	Legislative reforms	In process - 3	75%
		Implemented - 1	25%
		Not implemented - 0	0%

Source: Sector strategy implementation progress reports prepared by the secretariats at ADA.

1.94. **Sector promotion activities are vital in the short to medium term to expose the potential of scaled-up and emerging sectors internationally.** Considering that most of the sectors targeted by the Industrial Policy are in growth horizons 1 and 2, sector promotion direction has had the widest range of activities implemented. This is also the area clearly in demand by the private sector. To a certain extent, this is explained by visible short-run direct gains. For wine, brandy, pharmaceuticals, and jewelry sector promotion is a vital component of the growth strategy. Co-financing of participation in sector-specific expos abroad has proved to be effective for the wine and brandy sectors. In jewelry and pharmaceuticals, inbound international fairs and mission of export market distributors and doctors have been successful. This strategic direction should lead to flagship interventions in the wine and Jewelry sectors to enhance growing international awareness of Armenian exports. In winemaking, the country brand is being developed and should become the

**Table 1.13: Status of all Activities on Action Plans for Target Sectors**

Status	Number Activities	Percentage
In process	55	43
Implemented*	58	45
Not implemented	15	12
Total	128	

Source: Sector strategy implementation progress reports prepared by ADA sector secretariats.

\*Some actions are continuous.

central platform for promotional campaigns.

1.95. **Among the strategic directions targeted by the Industrial Policy, attracting FDI has clearly underperformed area.** A FEZ was established at two locations in Yerevan in 2013 based on vast Soviet-inherited production infrastructure and a scientific research institute. So far the FEZ has not been effectively promoted and has attracted only a handful of residents.

1.96. **While here is a new FEZ targeting knowledge- and technology-intensive sectors and legislation is being drafted to support it, promotional activities have been ineffective.** No global MNCs have yet been attracted. Memoranda on potential educational, technological, and production cooperation have been signed with IBM, Oracle, and GFI Software, and the program of the new government restates the need for facilitating FDI attraction. Failure to attract MNCs has particular reference for precision engineering and pharmaceuticals. On the other hand, a new FEZ

in the jewelry sector is expected to be a critical platform in attracting foreign companies for outsourcing or setting up their own production. The FEZ also covers diamond-cutting and watch-making; it has already signed memoranda with a group of future residents and officially launched its operations before the end of 2014. A private sector player predominantly drove this effort.

1.97. At the time this report was prepared, of 128 actions due to be started start in the action plans for target sectors, the majority have been completed or are in progress.

***Current institutional capacity for implementing the Industrial Policy is subpar***

1.98. Effective implementation of the Industrial Policy depends on structural transformations and operational adjustments of the state institutions involved and introduction of the PPP approach, which was not entirely achieved. A few ministries and other state agencies (Table 14) have been assigned specific responsibilities for Industrial Policy, particularly activities related to sectoral action plans.

**Table 1.14: Institutions Responsible for Strategy Execution**

Institution	Target sectors
State institutions	
RA Ministry of Economy (RA MoE)	
Department of Industrial Policy	All
Department of Investment Policy	Precision engineering; pharmaceuticals; jewelry, diamond-cutting, and watch-making; Textiles, apparel, and footwear
Industrial Development Fund (IDF)	All
Armenian Development Agency (ADA)	All
RA Ministry of Education and Science	Precision engineering; pharmaceuticals
RA Ministry of Health: The Scientific Center of Drug and Medical Technologies Expertise	Pharmaceutical
RA Ministry of Agriculture	
Agro-processing Development Department	Wine; brandy
PPP structures	
Industrial Board adjunct to the Prime Minister	All
Sectoral boards	Sector-specific

*Source:* Sectors strategy documents approved by Industrial Board

*Note:* Other state institutions and PPP structures engaged by the Industrial Policy are SME DNC, SME Investments UCO, Enterprise Incubator Foundation.

1.99. The capacities of state institutions that existed before the Industrial Policy did not change much after its launch. Dedicated units in each institution have been assigned specific tasks for a target sector or the entire Industrial Policy. The policy and related sector action plans have been integrated into the work plans of state institutions as required. However, there are gaps in comprehensive understanding and a clear vision of implementation of the Industrial Policy at all levels.

1.100. The MoE, the IDF and the ADA (the latter two now integrated into the DFA) have been the lead state institutions tasked with implementing the Industrial Strategy. The Department of Industrial Policy of the MoE is responsible for policy development and coordination of sector councils. The MoE Department of Investment Policy has been engaged in establishing FEZs and



activities to attract FDI to the targeted sectors. While state support for establishing FEZs has been provided as required, it fell short of active promotion to attract residents.

1.101. The Industrial Development Fund has 23 staff mandated to fund activities for the strategy, but it was also actively engaged in initiating and executing initiatives. This has raised concerns about functional overlaps and duplications with the APA, now part of the DFA.

1.102. The ADA's general mandate was export promotion and FDI attraction, and it had a central operational role related to Industrial Policy. ADA was instrumental in organizing a range of initiatives, particularly for sector promotion, e.g., participation of local producers in expos abroad. Under the Industrial Policy strategy, ADA was intended to undergo restructuring, get enhanced resources, and implement expanded functions, thus becoming a central structure for implementing the Industrial Policy. This transformation was not executed. At ADA, sectoral secretariats were set up on the basis of existing human resources to coordinate progress on the actions plans for sector growth. Establishment of the IDF created a certain confusion about roles in Industrial Policy. As a result, ADA mainly carried on with its previous activities and engagement with certain industrial sectors. The integration of, ADA, IDF, and NCFA into the new DFA was intended to effect the restructuring, upgrade capacity, and enhance resources.

1.103. The Scientific Center of Drug and Medical Technologies Expertise of the Ministry of Health has been instrumental in implementing the pharmaceutical sector action plan, mainly quality assurance activities, such as official introduction of the GMP regulation. It has supported the capacity-building of local producers. Activities implemented under the action plan have also enhanced the capacities of the center.

1.104. The Ministry of Agriculture has an important role in implementing the wine and brandy sector action plans, but it has failed to secure the planned financing from the state budget for viticulture development.

**Table 1.15: Meetings of the Industrial Board and Sector Boards, 2012–13**

	2012	2013
Industrial Board	4	4
Sectoral Boards		
Pharmaceutical	3	3
Brandy	3	3
Precision engineering	2	3
Wine	3	3
Jewelry, Diamond-cutting and Watch-making		1
Textile, Apparel and Footwear		1
Total	15	18

*Source:* RA Ministry of Economy.

1.105. The Industrial Board held four quarterly sessions annually in 2012 and 2013, normally chaired by the Prime Minister, and has contributed to effectively resolving policy issues and making necessary adjustments to the policy (Table 1.15).

1.106. The effectiveness of the Sectoral Boards has varied largely due to how active PPPs are in a given sector. Operations of the pharmaceutical board is an example of relatively effective dialogue between public and private sectors for coordinating activities; the brandy sector board is an example of an ineffective platform

#### *Resources for Industrial Policy Implementation*

1.107. Industrial Policy initiatives have been based on PPP mechanisms and co-financing principles. The RA state budget, the private sector, and donors have provided funding. Financing



from the state budget for the strategic directions and support toolset devised for the Industrial Policy has mainly been channeled through the IDF.

1.108. In 2013, US\$0.81 million from the state budget was allocated to Industrial Policy implementation (Table 1.16), and another US\$0.33 million was allocated to Gyumri Technopark development. Sector promotion forms the largest area, with 61 percent of the total financing (excluding Gyumri Technopark funding). Co-financing of the participation of Armenian producers to international expos has been the single largest financing item at 32 percent.

**Table 1.16: State Budget Allocations to IDF to Implement Industrial Policy, 2013–14**

Strategic Direction	Activity Area	2013 (US\$ Thou.)	Percent	2014 (US\$ Thou.)	Percent
FDI attraction	FDI attraction activities	157	13.8	171	13.0
Affordable financing for investments and exports	Subsidized loan interest rates	76	6.7	169	12.9
Sector promotion	Market knowledge, promotion of Armenian products in target markets	136	11.9	240	18.2
	Cofinancing of certification of Armenian products in export markets	42	3.7	86	6.5
	Cofinancing of participation of Armenian producers to international expos	262	23.1	338	25.7
	Cofinancing of inbound visits of export market distributors and other representatives to Armenia and outbound visits to establish business relations	50	4.4	110	8.4
Human capital development	Cofinancing of educational courses	42	3.7	66	5.0
Other	Study on potential of exportable products	13	1.1	25	1.9
	Acquisition of non-financial assets	30	2.7	-	-
	Activities for developing Gyumri Technopark*	328	28.9	-	-
	Miscellaneous (including activities for developing Gyumri Technopark)	-	-	111	8.4
Total		1,135		1,315	

Source: Industrial Development Foundation.

1.109. The 2014 budget for Industrial Policy represents a 16 percent year-on-year increase (including Gyumri Techno-park financing). Sector promotion will continue to be the top financing direction at 60 percent. Participation of Armenian producers in international expos will continue to have the leading role in financing.

1.110. **A number of donor organizations have supported certain aspects of the Industrial Policy.** The USAID Enterprise Development and Market Competitiveness (EDMC) project has had critical input in pharmaceutical sector strategy implementation for activities related to GMP introduction. GIZ may support initiatives in the wine sector action—getting digital photos of vineyards via satellite and institutional set-up and capacity building for the new Wines of Armenia

Association. The wine sector is also supported also by the Dutch CBI;<sup>8</sup> five local producers have been selected for support for the next few years.

1.111. Resources allocated to SMEs via the SME Invest UCO were US\$2 million in 2009, US\$2.2 million in 2010, US\$8 million in 2011, US\$11.7million in 2012, and US\$14 million.in 2013.

***The effectiveness of PPPs has been a differential point for Industrial Policy implementation across sectors.***

1.112. Within sectors as well, implementation has been successful for those initiatives where the PPP is engaged. In pharmaceuticals, effective PPP has brought about official introduction of the GMP regulation and establishment of a university laboratory base. On the other hand, the brandy sector has struggle with forming an effective producers union or a low-cost dynamic portal. Lack of collaboration jeopardizes implementation of a central initiative in the sector, setting up an isotope lab to address critical quality assurance issues.

1.113. Gaps in the PPP approach include failure of the state to finance certain initiatives for which it is responsible, particularly, in the wine sector. Sustained attempts to attract donor financing may lead to failure in implementing it at all although an enhanced raw material base is a growth driver for the sector. The main concern for private sector participation is the preference for initiatives with that have marked direct benefits in the short term.

**1.114. In the pharmaceutical sector, implementing strategy has been a collective process involving the main private and public stakeholders.** Human capital development activities are expanding sector capacity. Achievements in quality assurance have been a focal point, although it now needs systematic wrap up. On the other hand, lack of finances and gaps in institutional processes may slow the building of full-scale quality assurance infrastructure that complies with international standards. The upgraded quality assurance system and increased capacities in the sector need to be used to attract MNCs, which will be critical for large-scale sector expansion.

**1.115. The continuous growth of the wine sector in recent years is mainly accounted for by more private interest.** While this has been supported by a range of Industrial Strategy initiatives, the state needs to act on its responsibilities, particularly those related to viticulture development. With notable progress in the areas of quality assurance, enhanced access to raw materials, human capital development, and sector promotion, implementation of Industrial Policy in the wine sector has consolidated the grounds for further expansion. Success of the current initiatives in establishing the Wines of Armenia Association and country branding for the sector will be instrumental in setting the pace of growth.

1.116. While the Brandy sector growth strategy has recorded important results under the Industrial Policy, such as securing effective export logistics routes and upgrading sector quality regulations, there is concern about adequate demand from the private sector for a development strategy. One issue is that the producers rarely collaborate among themselves, let alone contributing to an effective PPP.

**1.117. In precision engineering, certain initiatives in strategic areas—specialized FEZs and new educational and technological infrastructure for developing human capital—have created a solid base for future expansion.** However, developments so far seem to be insufficient

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<sup>8</sup> CBI (the Centre for the Promotion of Imports from developing countries) is an agency of the Ministry of Foreign Affairs of the Netherlands.

and ineffective in making a significant contribution to sector growth. A critical target for the sector, attracting FDI, has not been achieved. The current approach and measures undertaken to this end lack scale and efficiency and need to be reviewed to attract a critical mass of FDI. More important, the sector clearly needs redefinition: the next phase of strategy implementation needs to focus on specific clusters with distinct potential and effective engagement of the target segments.

**1.118. Implementation of growth strategies and action plans for jewelry, diamond-cutting, and watch-making has not been going on for long but recent important developments are expected to trigger expansion of the sectors.** Establishment of a specialized FEZ will be a vital platform for attracting foreign companies. Sector promotion through annual international fairs held locally has begun started to attract a critical mass of interest. Securing a favorable raw materials base will be a significant push factor in diamond-cutting. Current private initiatives to develop human capital will be instrumental in accelerate expansion in watch-making.

1.119. In general,, building human capital and attracting FDI are focal components in the growth agenda of all the sectors.

### Concluding Remarks

***The Industrial Strategy has initiated a promising dialogue between main stakeholders, but its execution has been slow.***

1.120. The Industrial Policy has facilitated formulation of a vision for long-term growth and begun to move on actionable sector strategies. The collaboration platforms created have enabled public-private discourse to form a critical agenda for change for sustainable development. The dialogue has contributed to consolidation of the efforts and resources of stakeholders toward long-term goals. However, the dynamism of sectors targeted by the Industrial Policy has been quite uneven.

1.121. While the Industrial Strategy has begun to demonstrate early results, the pace is picking up slowly. Such issues as gaps in execution capacity, inadequate resources, and bureaucratic inertia slow implementation and thus delay achievement of the desired outcome. Attracting FDI attraction is the main underperforming area.

1.122. Nested distrust within industries and of the relationship between government and the private sector impedes collaboration. Progress on the Strategy clearly demonstrates better performance in sectors with an advanced collaborative culture, active private sector leaders, and established forums for cooperation. While recognizing the importance of long-term sector-wide strategic initiatives, private players are inclined to participate only in activities that offer direct gains for them in the short run.

1.123. Initial successes need to be sustained and binding constraints addressed to enable sustainable performance for the Industrial Policy. Effective and continuous public-private dialogue is instrumental in facilitating prioritized and focused use of limited resources and capabilities.

## 2. Growth Agenda and Policy Recommendations

### A. GROWTH IMPERATIVE

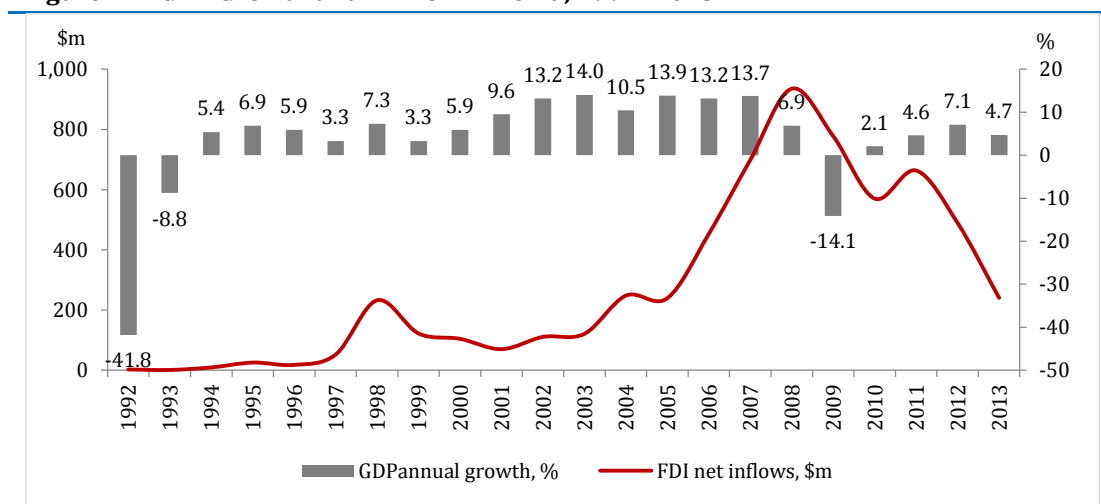
#### *Ensuring Resilient Economic Growth in Armenia is Critical*

2.1. Slack economic growth jeopardizes demographic strength and national security. Poverty and immigration catalyzed by high unemployment and the prevalence of low-paid jobs is the critical social challenge for Armenia. The local market, which has with less than 3 million consumers and an average monthly wage of around US\$350, limits domestic potential for nurturing future growth.

2.2. The significant decline in GDP during the economic crisis made it clear that development based on nontradable sectors was not sustainable. While has been recovering since the crisis, it is far from recording the double-digit growth rates of the early 2000s.

2.3. The sustained growth of FDI inflows after 2001 reversed to a sizable decrease after 2009. Real growth in gross fixed capital formation (GFCF) was negative in 2009–12. GFCF as a proportion of GDP fell from 39.8 percent in 2008 to 23.7 percent in 2012 (in part because of a steep drop in construction volumes) whereas in the second half of the 2000s, Armenia had consistently outperformed its peers. Investments in infrastructure were the main driver of high FDI in the economy (a 58 percent cumulative share for 2000–12) but this model of growth now seems to be exhausted.

**Figure 2.1: GDP Growth and FDI for Armenia, 1992–2013**



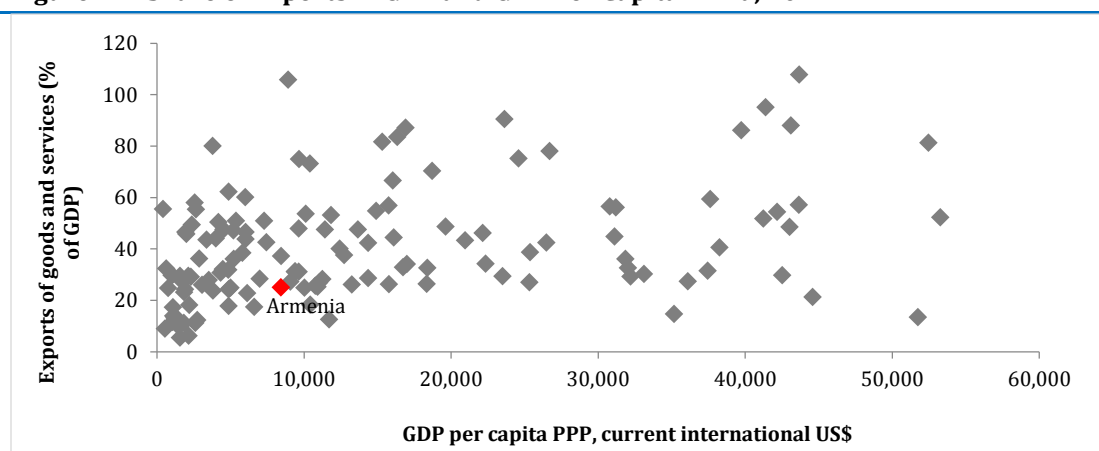
Source: WB WDI, UNCTAD.

2.4. Export volumes have more than recovered post-crisis but the share of goods exports in GDP is disappointing: 14 percent in 2012, compared to 24 percent a decade ago.

2.5. Armenia's exports are far below imports, creating a sizable current account deficit—one of the largest among the benchmark countries. Armenian exports are among the least sophisticated in the peer countries. They are also marked with poor product and geographical diversification. The “standardness” of Armenia's export portfolio exceeds the world average by 9 percent. This indicates

that Armenia's goods are not unique,, which means they do not any competitive advantage. The low option value of its export basket makes the discovery of new economic activities for Armenia a true challenge, and that adversely affects opportunities for structural transformation of exports

**Figure 2.2: Share of Exports in GDP and GDP Per Capita PPP a, 2012**



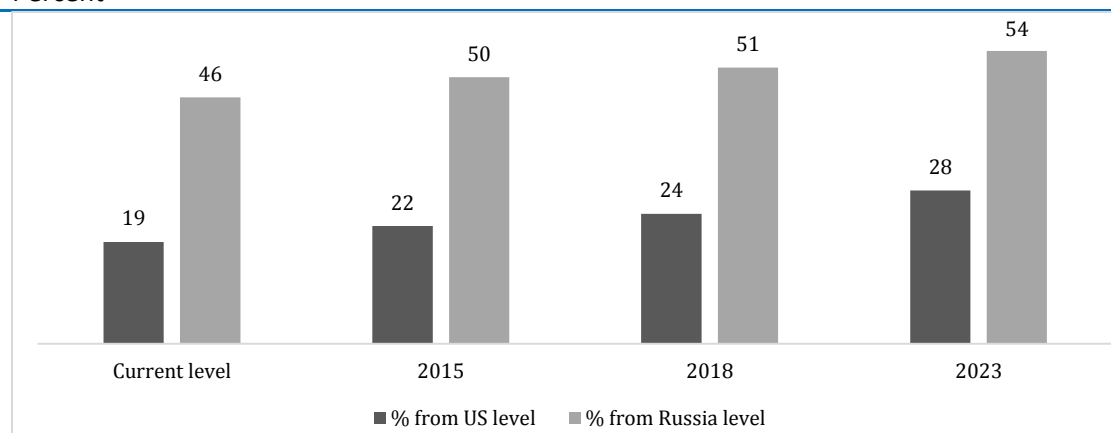
Source: WB WDI.

Note: <sup>a</sup> In a World Bank review of PPP conversion rates, Armenia's GDP per capita PPP was upgraded from US\$6,600 to US\$8,400 for 2012. This changes Armenia's position in the income map of the world. However, the benchmark analysis of export and GDP indicators is based on 2011 data.

***Productivity enhancement must be central to Armenia's economic policy agenda.***

2.6. Armenia's ability to compete in international markets is endangered by its significant productivity gap. The gap between Armenia's productivity and that of the U.S. and Russia is considered next. The U.S. is the global benchmark, and convergence with Russia is important because it is main export market where Armenian producers compete.

**Figure 2.3: Armenia's Productivity Gap with the U.S. and Russia**  
Percent



Source: EV Analysis, WB WDI, ILO, OECD Data Lab.

Note: The productivity calculations are based on the current level of productivity in US\$, PPP adjusted. Annual growth in productivity for Russia and the USA are forecast based on their performance in the previous three years

2.7. If Armenia achieves 5 percent annual productivity<sup>9</sup> growth in the coming decade, its gap with Russia and US will decrease by about 10 percentage points. The imperative is to ensure balanced improvement of productivity and decrease of unemployment through high and prolonged growth

## **B. ARMENIA'S GROWTH AGENDA**

2.8. There are two approaches to growth policies: those that stress horizontal policies and those that highlight vertical, sectoral policies. Horizontal policies work to create the right environment (macro/micro) and roles of institutions (rules of game). Among the varieties of this approach is the one on asset diversification recently advocated by Gill et al. (2014), which emphasizes the role of endowments and assets in assuring growth. Vertical policies consider these approaches to be not enough for developing economies and highlight the importance of sector-level efforts.

2.9. Armenia has followed the first approach since its independence, but given the harsh outcomes of the crisis has chosen to launch vertical policies, in addition to earlier prioritizing IT, tourism, and agriculture. However, Armenia's approach differs from the classical heavy interventionist approach. The government has rather stressed triggering policy dialogue to identify sector constraints and, with very limited public resources, trying to remove those.

2.10. The vision of high-paced and prolonged economic development shapes Armenia's growth agenda with two major policy elements:

- Sustained improvement of the general business environment and building up the national assets portfolio to nurture growth drivers and structural transformation across the economy (see Appendix 1).
- Fostering economic activity in areas where endowments and competitive forces provide a competitive advantage through vertical interventions and addressing market failures.

2.11. The core of Armenia's long-term growth agenda should be balanced development through removal of constraints to growth. In such critical areas as education, financial system, innovation ecosystem, man-made infrastructure, this necessitates large-scale investments on the expectation of sizable outcomes in the long run.

2.12. Meanwhile, Armenia, like other resource-poor countries, is constrained by limited economic resources (Box 2.1). This makes prioritization and sequencing of actions critical to facilitate balanced and sustainable development. To ensure maximum efficiency and a high impact of efforts, the agendas for horizontal policies and private sector development priorities need to be synchronized. This process can be enhanced by public-private dialogue to identify critical bottlenecks, devise mutually inclusive agendas and coordinate efforts invested in valuable limited resources. Through effectively designed and transparent cooperation, the government can leverage its resources by working more closely with the private sector in such strategic areas as education and infrastructure.

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<sup>9</sup> Based on the 5-7 percent annual productivity growth of benchmark economies with income levels comparable to Armenia

**Box 2.1: Global Practice: Approaches to Economic Growth**

Prolonged economic growth is at the top of the agenda for most governments. There have been two basic approaches to economic growth- environmental and pro-active. The former advocates establishing a good business environment, sound economic institutions, and sustained macro stability—factors that will naturally lead to economic growth. The proactive approach complements the environmental factors with “intrusiveness” in identifying growth areas, making catalytic investments, and coordinating actions. The traditional Industrial Policy approach has been the most intrusive one.

Recent global research has found that growth constraints are economy-specific (there are no universal solutions) and that asset diversification is a critical enabler for sustained economic growth (Gill et al. 2014). Diversified development implies development of the national assets portfolio: human, physical and financial capital, economic institutions, and natural resources. The main objective is to create sustainable and diversified development opportunities via nurturing growth drivers.

Sustained enhancement of national asset endowments will remove binding constraints to growth and trigger self-discovery. Diversified development is not the same as economic diversification, which refers to government efforts to diversify economic composition or production profiles. Long ago, the economic history of the United States and the United Kingdom recognized the need for economic diversification for development. Other recent global experience demonstrates that diversification of production is neither necessary nor sufficient for development; Argentina and Brazil are the classic cases. On the other hand, the records of Canada and Australia show that for resource-rich countries development is possible with minimal diversification.

Diversified development does not rely on traditional short-term diversification strategies using state interventions to create temporary favorable conditions in exportable industries and increase economic returns. Vertical interventions work only when they are supported by horizontal policies to diversify the endowments to provide competitive advantage. Industrial Policy will be ineffective without asset diversification, which provides fertile ground for facilitating more efficient and diversified production. Once the horizontal approach addresses critical constraints in the economy, effective vertical industrial policy can trigger prolonged growth. The vertical approach does not work where there is an asymmetry of exported products and root factor endowments. This means that the exports require a different alignment of factor endowments.

In the second half or the 20<sup>th</sup> century, China, Taiwan, and the Republic of Korea invested heavily in physical and human capital, which facilitated their economic leap, which was not largely determined by government interventions for export diversification. In Europe, Finland has been a recent success; its attempts to balance the diversification of natural, physical and human assets were matched with a successful Industrial Policy and cluster-based innovations. This approach proved less successful in Chile and Saudi Arabia; the former has gaps in workforce development and implementation of innovation policies for economic development and the second failed to match infrastructure efforts with human capital enhancement.

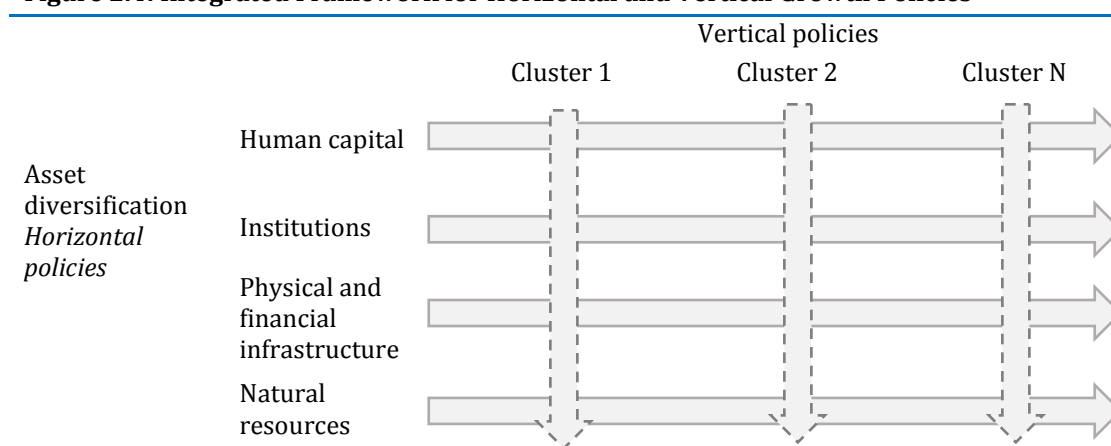
2.13. The report on “Diversified Development: Making the Most of Natural Resources in Eurasia,” (Gill et al. 2014) argue that the experience of the last two decades in Eurasia and the last two centuries in Europe, North America, and East Asia draws a clear message. It demonstrates that governments should create conditions for building a balanced set of national assets to enable long-term growth and transformation to an advanced economy. For the Eurasian countries, including Armenia, this entails the sustained enhancement of human capital and investments in infrastructure, as well as upgrading the institutions that keep regulation effective. Diversified asset portfolios will facilitate structural transformations across the economy. The results are productivity gains, sustained employment, and macroeconomic stability.

2.14. By pursuing a strategy to diversify assets rather than production, the concentration of exports may intensify in the short term. However, if the strategy is implemented effectively, in the long term the Armenian economy will become more diversified and efficient, generating greater prosperity.

***Industrial Policy is a platform for dialogue on priorities for synchronizing horizontal and vertical policy measures.***

2.15. The Industrial Strategy needs to shape an effective multilayered dialogue where the public and private sectors jointly formulate a common vision for economic development, agree on the policy agenda, and coordinate actions (Figure 2.4). For this purpose, vertical interventions (cluster and sector development initiatives) need to be prioritized and the agenda focused to foster demand for the horizontal policies. That platform is needed to operationalize the multi-dimensional benefits of horizontal policies.

**Figure 2.4: Integrated Framework for Horizontal and Vertical Growth Policies**



2.16. The vertical interventions facilitate enhancement of the capabilities essential for growth by directing PPP efforts to development of human capital, infrastructure, institutions, and natural resource assets. A few illustrative examples from current Industrial Policy activities illustrate this.

- ***Institutional upgrade:*** The government initiated reformation of infrastructure quality to gradually bring it into compliance with European requirements, with full integration targeted for 2020. At the same time, GMP certification requirements for pharmaceutical products threatened Armenia's future exports to major markets. The development strategy for the pharmaceuticals sector shaped the agenda priorities through an effective public-private dialogue that found solution to the problems.
- ***Physical infrastructure upgrade:*** The brandy sector council raised a question about re-opening the Upper Lars customs point on Russia-Georgia border for brandy exports. The Prime Minister moved this to the agenda of the Industrial Council and the problem was effectively solved through negotiations between Armenia and Russia.
- ***Human capital upgrade:*** In the wine industry, in the cause of long-term sustainable development, PPP discussions were initiated on upgrading professional education. This led to the establishment of the Wine Academy at the Agribusiness Teaching Center within the Armenian National Agrarian University (ANAU).



### ***Addressing economy-wide constraints is critical.***

2.17. Armenia's national assets currently represent an endowments base for further economic growth. However, the portfolio has serious gaps in sophistication. Rectifying these significant flaws for balanced diversification will shape Armenia's path to long-term sustained prosperity.

2.18. Despite significant shortcomings, general infrastructure is not a binding constraint. Armenia's average rankings on infrastructure on international level are slightly higher than the ranking of the country as a whole. Although export logistics do adversely affect international trade, it is hard to estimate what they imply for it being a binding limitation to growth.

2.19. Flaws in three dimensions of national assets—human and financial capital, and economic institutions—are considered first-tier constraints on growth (EV Consulting 2014). The insufficient quality of human capital explains the gap between the labor quality the economy requires and what actually is supplied by Armenia's educational system as currently structured.

2.20. The one-dimensionality of the Armenian financial system does not provide the necessary range and scale of instruments needed to address the financing needs of different segments of the economy. With a financial depth that is six times lower than the global average, the development path for Armenia's financial system is uneven and indirect.

2.21. Regulation failures in tackling micro risks are a grave concern. While in recent years Armenia's institutional capacities and regulatory practices have been improved, there still are significant problems in the business environment and public governance. Unfair competition and the magnitude of the shadow economy create negative externalities for the economy.

Another major impediment to Armenia's long-term economic development potential is that its exports lack sophistication and uniqueness, which limits the country's growth options. Inadequate discovery and seizure of new opportunities in foreign markets is a core issue that must be resolved if economic growth is to accelerate.

## **C. THE AGENDA FOR GROWTH-STIMULATING HORIZONTAL POLICIES<sup>10</sup>**

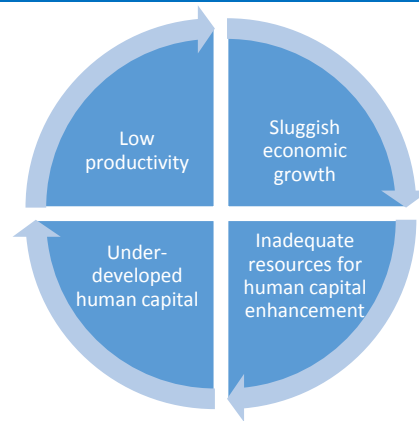
### **Human Capital: Education for National Competitiveness**

2.22. The need to enhance the quality of Armenia's human capital is indisputable. Low quality results in low productivity (Figure 2.5), which inhibits growth because it makes Armenian products and services less competitive. Lower growth in turn means that fewer resources are available for the development of human capital. Such a vicious cycle jeopardizes accelerated economic development of Armenia; demolition of the cycle starts by addressing human capital development (Table 2.1).

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<sup>10</sup> This subsection is based on the analysis provided in Appendix 2, which discusses root causes for shortcomings in national assets and rationales for addressing them.

**Figure 2.5: The Cycle of Problematic Human Capital Development**



Source:

**Table 2.1: Causes of the Low Quality of Human Capital**

Issues	Root Causes
Poor quality of education	Lack of a well-defined national strategy on education aligned with Armenia's economic development strategy; lack of leaders with long-term vision and modern management skills; increased perceptions in society of a devalued role of education; minimal internationalization of educational institutions; obsolete approaches to learning that generate disequilibrium between the knowledge and skills of the graduates and what the private sector demands.
Little professional training and development	Insufficient infrastructure for high-quality training and development opportunities; lack of general managerial skills and gaps in professional capabilities, both function- and sector-specific
Sizable, sustained emigration of highly qualified workers	Inadequate remuneration and unemployment; limited opportunities for professional progress because the economy is small

2.23. Armenia needs to view education as a key driver for its national competitiveness. Achieving this vision necessitates fundamental policy shifts.

2.24. **Large-scale investments in education are a prerequisite for effective development:** Significant investments are required to improve the quality of human capital. Educational spending should be viewed not just as a public investment but as a vehicle to address limitations on economic development.

2.25. **Armenia should consider turning into an innovative technological hub:** While technology leaps have captured many sectors of the global economy, the education sector is still in a nascent phase of the expected technological revolution. As active experimentation is taking place throughout the world, Armenia can capture this global agenda via integrating it into the design, use and enhancement of new educational models. For Armenia, this ambitious process can be accelerated via a few small hubs, drawing on a few but high-quality resources. The recent emergence of educational centers with global ambitions (TUMO, Ayb, UWC Dilijan International School, Armenian National Engineering Laboratories at Polytechnic Institute) are important precedents.

2.26. **The teaching profession needs to become more prestigious, with competitive compensation:** Global best practice makes it clear that teachers, in a general sense, are central to learning societies that aspire for a sustainable and high pace of economic development. Teachers

should be among Armenia's main assets. By making the profession of teacher much more attractive, society will foster a new, creative, and motivated model for educational breakthroughs that nurture economic growth. The state needs to make a radical decision to compensate the best teachers more highly.

2.27. ***Professional training and development need to be fostered:*** The professional development agenda needs to be aligned with Armenia's economic growth priorities and sectoral development strategies. The initiatives need to respond to the strategic initiatives of priority sectors in order to meet their needs.

2.28. ***Professional repatriation can transform "brain drain" into "brain circulation":*** For Armenia, repatriation can be an effective channel to augment the stock of high-quality professional resources, particularly in the short run. Although this is a small-scale initiative, it can be quite important in shaping the country's development agenda and growth path. Global practice demonstrates the value of expatriate workers to the domestic economy beyond merely as a source of remittance income (Kuznetsov 2006). Their entrepreneurial spirit, skills, networks, and exposure to business in the developed world may be a valuable platform for self-discovery for the domestic economy. Incentives to bring back those in the diaspora could have sizable benefits.

2.29. While educational spending is a vehicle for economic development, large-scale investments in education can have costly fiscal consequences, particularly considering the current and planned medium-term budget. Here, again, a PPP format can be useful. A vivid example is the Armenian National Engineering Laboratories at the Armenian State Engineering University. The partnership and cofinancing engaged the government, USAID, National Instruments, and the University. A total of US\$6 million was invested in state-of-the-art equipment and technologies and contemporary physical infrastructure.

### **The Need for a Multidimensional Financial System**

2.30. Diversification and expansion of available sources of funding for businesses in Armenia is critical for nurturing economic growth. The current one-dimensional nature of the financial system, with the banking sector dominant and capital markets marginal, impedes growth due to the general lack of financing instruments adapted to the needs of different business segments. A healthy multi-layer financial system offering a range of short- to long-term, debt, equity- and quasi-equity instruments is vital.

#### ***Deleveraging the bankable sector***

2.31. ***Short-term approach:*** Introducing and scaling up quasi-equity funding mechanisms. Debt instruments that have the characteristics of equity instruments in terms of cash flow but without ownership transfer implications would ease the burden on the cash flow of over-leveraged corporate segments. This would lay the groundwork for long-term investments.

2.32. ***Long-term intervention approach*** - Developing the capital market: This would necessitate efforts to expand both demand for and supply of funding instruments in the public market. The emergence of such financing tools as equities and bonds with long maturities will nurture the sustainability and security of the market. Current pension reforms in Armenia, if enacted, will soon drive the demand for capital market instruments.

## **Economic Institutions: Leveling the Playing Field**

2.33. The current flawed architecture of Armenia's microeconomic business environment and public governance reflect the noninclusive nature of economic and political institutions rooted in the post-independence period. The close connections between political and business elites subject some political choices to business interests. Government failures to effectively handle micro risks are problems that lead to a distorted competitive environment.

2.34. Establishing a transparent, even foundation for all economic agents is a central agenda issue that will require the following :

- Substantially decrease the scale of the shadow economy.
- Eliminate discriminatory tax and customs treatment of businesses.
- Enhance identification and prevention of market power abuse and other anticompetitive activities.
- Ensure judicial system independence.
- Protect private property rights.
- Adopt transparent and competitive public procurement practices.

2.35. The elements of this agenda are closely inter-linked. However, reducing the shadow economy must become an absolute priority and starting point. Initiatives to address anti-monopoly practices and trigger fair government procurement must then follow.

2.36. Establishing a competitive and transparent playing field necessitates sound strategy and also determined execution. Strategic approaches will depend on how power relationships can be configured to lead this change. Among the motivations driving change are the pressing need to engage investments (this is becoming critical for the political survival of the authorities), pressure by international institutions and civil society, and certain economic-political implications of the Eurasian Economic Union.

## **D. RECOMMENDATIONS FOR INDUSTRIAL POLICY AND THE NEW SUPPORT TOOLSET**

2.37. Although sectors engaged in the export-led Industrial Strategy have recorded certain positive results, it is yet clear to what extent the Industrial Policy has had an impact. A clear agenda and participatory processes have facilitated consolidation within some sectors, but mistrust is still widespread between business and government. While the sectors engaged have demonstrated impressive performance, the direct results and impact of the Industrial Policy are not clear.

2.38. How effective the industrial policy can be will depend on the quality of the public-private dialogue and the emergence of leaders to pursue effective growth initiatives balanced with strict early signals when flaws and inefficiencies are detected. The following approaches will help.

***Effective PPPs and synchronization with other economic initiatives are critical to success.***

2.39. The long-term growth vision incorporated into the Industrial Strategy will be instrumental in moving forward with actionable sector strategies. The government should continue to build on the established platform for dialogue with the private sector. Keeping the process transparent and

inclusive will be central to achieving mutual trust and consensus on critical change. An effective PPP will be the differential factor for success.

2.40. The umbrella approach adopted for the Industrial Policy in the next phase needs to be based on the maximum possible synchronization with Armenia's economic growth strategy. However, unless critical cross-cutting constraints such as the uneven playing field are addressed, sector initiatives will not have much effect.

***The scope of industry scope needs to be expanded***

2.41. In the jumpstart phase, the strategy engaged only selected sectors of the economy due to resource limitation. In the next stage, the policy dialogue shall be open for all sectors that are prepared for collaborative effort.

2.42. In the next stage, when the support toolset is tested and execution capabilities enhanced, state support needs to target activities rather than sectors. This will further attract positioning support as a way to rectify specific market failures rather than a targeted contribution to a selected sector. Public support needs to be positioned as providing opportunities for infrastructure investment, importing foreign technology and localizing it, and co-financing workforce training. The sectors that will engage these activities will themselves come up with the intervention needs for market failures. Cross-cutting programs need to be favored when they cover several sectors of the economy simultaneously and directly tackle market failures.

***The accent needs to be on sector-wide issues and on sunset rules for state financing.***

2.43. The PPP principle as leading in Industrial Policy resource investment is a concept that needs to be sustained. Limited resources should be directed to tackling sector-wide critical bottlenecks with clarity about expected outcomes rather than serving the interests of specific business circles. Specifically, what is needed are more straightforward criteria for enterprise support mechanisms to benefit mostly SMEs. For direct financial aid to companies, an aggregate cap per recipient needs to be set up with a fixed deadline.

2.44. The next phases of the Industrial Policy need sunset rules for state co-financing. The share of state participation will gradually decrease to the point where the government steps away from financing and acts merely as a coordinator if required.

***Institutions need restructuring and their capacities enhanced.***

2.45. Engagement of implementing institutions needs to be integrated in a tight agenda for collaboration in effective knowledge-sharing and synergy enhancement. The institutions need targeted functional and structural restructuring so that they can effectively fill the roles the Industrial Policy assigns to them. This was planned when the policy was designed but has not been fully carried out. Upgraded institutions and capacity need to be matched with larger resource allocation translated into more effective execution practices.

2.46. An important aspect of organizational setup is the recent merger of ADA, IDF, and NCFA into the new DFA.. The intent was to upgrade capacity, expand functions, concentrate resources and enhancement, and restructure efficiently. The new structure is supposed to become the central agency for managing the Export-led Industrial Policy and enhancing its effectiveness. However, the critical dimension is engagement professionals who are motivated to implement ambitious programs. This will require a new approach to recruiting and to the funding of support institutions like the DFA.

### ***The operational efficiency of the Industrial Policy notably needs improvement***

2.47. The execution of the Industrial Policy needs improvements in relation to and responsiveness of both the private and public sectors. It took over a year to commence the project on developing a country brand for wine. Often, operational efficiency is constrained by bureaucratic inertia, inflexible procurement rules, and skill gaps in the implementing agencies. Along with upgraded institutions and enhanced resources, an online communication and collaboration platform could be established for process participants to exchange information. The engagement of proficient managers with private sector expertise in implementing agencies will boost process efficiency.

2.48. Effective coordination is needed in terms of the resources allocated to state institutions. Industrial Policy budgeting for different state agencies needs to be synchronized in the Medium-term Expenditure Framework (Box 2.2). Also needed is a targeted PR campaign to increase awareness of the support tools and demonstrate successes and achievements.

### ***Results monitoring needs to become more efficient, targeted evaluation and actionable policy adjustments***

2.49. While activities under the Industrial Policy are continuously monitored, it is not matched by equivalent evaluation and rectifications of course direction. The efficiency and impact of the interventions and sectoral performance need to be assessed periodically. Standard operational procedures need to be designed and implemented for each support toolset including related monitoring and evaluation (M&E). For example, trade fair participation needs to be followed by and evaluation of the results and within six months or a year there should be an impact assessment. The M&E of effectiveness and reporting should not serve only formal requirements. Annual reporting could be done in the first quarter of the following year rather than at the end of the current year to allow time for gathering data, particularly statistical, and for effective evaluation.

2.50. Overall, moving toward the desired objectives necessitates continuous larger-scale reviews, revisions of operational target indicators (and to a certain extent sometimes of strategic targets) and a culture of justified adjustments.

#### **Box 2.2: Fiscal Considerations**

Fiscal considerations of Armenia's Industrial Policy can be categorized into two broad types:

1. Revenues not received (due to tax relief introduced)
2. Direct fiscal burden on the government (state financing of Industrial Policy initiatives).

The main fiscal argument against providing tax exemptions and direct financial contributions to move the Industrial Policy forward is that Armenia's state budget is already overstretched, with a growing fiscal deficit and limited revenue sources. On the other hand, in the post-independence period, Armenia has already introduced a large number of economic, social, sectoral tax relief measures, and also relief targeted to specific activities or companies. There is a perception on the government level that such relief does not have budgetary or economic consequences, so most of these measures have not been costed and presented in the state budget. Armenia's government spending as a share of GDP is smaller than that of most countries in Eastern Europe and Central Asia, Africa, Latin America and the Caribbean, East Asia and the Pacific, and the OECD countries. Its tax-to-GDP ratio is one of the lowest in Eastern Europe and Central Asia (World Bank 2014). Numerous areas in the economy, particularly, social, educational, and health, which are currently underfinanced and Armenia cannot afford the loss of tax revenue. Thus, to a certain extent the state spending burden of the Industrial Policy may not be justified and may worsen the poor stance of government finances.

The fiscal rationale for industrial policy is that it will help generate enough economic value that it will eventually translate into increased tax revenues. A supporting argument is that most of the revenues would not be generated even if those incentives were not in place. This refers particularly to tax exemptions for R&D

incentives aimed at attracting FDI. The experience of both recently developed and developing economies demonstrates the common use of such incentives, but the results are mixed. In the current age of intense rivalry between countries to attract FDI, the role of incentives has **has been transformed** from being a critical factor to being part of the minimum incentive package for investors.<sup>11</sup> A comparison with Georgia shows that Armenia's fiscal and financial incentives for FDI are limited in both scope and diversity. The main risk for Armenia is to ensure that current local investments and businesses do not benefit from tax incentives by recycling cash through offshore schemes and classifying it as new foreign investments. Armenia has already experienced this early in the 2000s. For that reason, dedicated monitoring and control mechanisms are attached to proposed tax incentives; and in some cases, the incentive is not granted without case by case government examination.

The direct fiscal burden on the government is limited in scope and scale. In 2013, the state budget allocation to support the Industrial Policy through IDF totaled US\$1.14 million (including US\$0.33 for Gyumri Technopark development). For 2014, the budget allocates US\$1.32 million (including activities for developing Gyumri Technopark). The majority of state spending is co-financing: private sector participation and direct contribution is central to the government's Industrial Policy engagement. Financing allocated via Panarmenian Bank was US\$6.8 and via SME Invest UCO US\$14.2 million, in 2013. State spending in this area is insignificant as a proportion of state budget and Armenia's GDP (Table B2.2.1).

**Table B2.2.1. Allocation to Industrial Policy as a Proportion of the State Budget and GDP, 2013–14, Percent**

As proportion of	2013	2014*
State budget	0.040	0.044
GDP	0.011	0.012

\*Estimated.

Source: Industrial Development Foundation, RA NSS.

Armenia's conduct of Industrial Policy since 2011 shows that the government has not been tempted to invest significant financial resources in the Industrial Strategy. The government stance has rather been to rectify information and coordination failures via policy improvements, shaping more efficient processes, initiating constructive dialog with the private sector and international donors, and investing the below-discussed insignificant funds in the policy initiatives. This stance seems to be continuing in the coming phase. Furthermore, clear sunset rules are expected to be introduced in the mechanisms to support the Industrial Policy, which will gradually decrease the state contribution.

Recognizing both the direct and the hidden fiscal consequences of implementing Armenia's Export-led Industrial Strategy is important. How much of its economic impact is offset by potential tax revenue loss will depend on how effectively it is conducted. An early warning system is being incorporated into the monitoring system to allow for quick adaptation.

## Strategic Directions and Support Toolset

2.51. Armenia's Export-led Industrial Strategy needs to focus on three policy domains: expansion of export-oriented local clusters, reinforcement of FDI promotion, and building innovation capacity (Box 2.3).

2.52. The specific policy focus necessitates a new support toolset to better achieve strategic goals.<sup>12</sup> The new support mechanisms should rely on the general principles applied to the current support tools, especially the need for cofinancing by businesses. The matching requirement will vary. For the new toolset, along with the sunset rule of government financing and the per-company cap, eligibility conditions should be devised, such as past business performance, matching volume required, investment type, and the strategic direction of the spending.

<sup>11</sup> A more thorough discussion on the rationale and global experience of the tax incentives is provided in the "Reinforcement of FDI promotion" sub-section under "Recommendations for Industrial Policy and new support toolset".

<sup>12</sup> Some of the suggested tools are reflected in the new World Bank project or the new Government's program.



### Box 2.3: Global Practice with Export Policies

The experience of a few countries highlights the successful policy performance in the three cited directions. Most of the successful cases have integrated state policies on the directions discussed to maximize synergy and have achieved better results than many other economies that have attempted to implement stand-alone policies in specific areas. Enterprise development and expansion of exporting clusters, attracting FDI, and building innovative capacity are closely inter-linked, which requires a comprehensive approach. Ireland, the Czech Republic, Hungary, Estonia, Israel, Turkey, and Taiwan are among the economies most representative of this perspective. Careful development and dedicated implementation of multi-layer policies have yielded notable results for these countries and contributed considerably to their economic development.

A number of factors are common to the policy successes recorded, with differing weights for each factor dependent on country specifics, the time period, and the policy environment:

- Clear vision and successful promotion of policies pursued, both locally and internationally.
- Specially designed supporting legislation a dedicated state or related institution (e.g. IDA in Ireland, Czech Invest in the Czech Republic).
- Investment of a vast amount of resources. financial, human, and institutional
- Networks of support for enterprise development.
- Efforts to secure early-stage venture capital.
- Multi-layer mobilization of stakeholders, including migrants and research communities, and a successful public-private partnership.

The governments have had an important role in the growth of successful innovation economies (Breznitz 2007; Block and Keller 2009; Rodrick 2007) in countries as different as Finland, Israel, and Taiwan. For example, Israel built on an existing scientific community to grow and diffuse the research system. On the other hand, Taiwan built on its infrastructure of public science and networks of MNCs (Breznitz 2007; Saxenian 2006).

*Ireland:* the government operates twin strategies simultaneously. In the first, it works closely with global firms to attract them to Ireland via close connections and enhancing Ireland's attractiveness as an FDI location. In the second policy, the government promotes targeted R&D activities, enterprise financing and other activities directed at new generation of firms emerging from this high-end research & funding inputs. This approach is built on targeting resources in key segments of the economy and novel technological markets and has certain elements of 'picking winners' but does not target the selection of specific 'champion' firms (O Riain 2014). The 1990s in particular were a time of strong government support of domestic enterprise.

*Czech Republic:* In the Czech Republic, FDI became the locomotive of economic growth, contributing to development of local industries and innovative activities. CzechInvest, the lead agency for attracting investments, had a focal role in the transformation process. It was set up in 1990, but its performance and responsibility for conducting national policies rose in 1997 when the Czech government mandated it to bring in FDI. The Czech Republic emphasized greenfield investments rather than foreign acquisitions of privatized assets. Micro policies were devised to maximize possible spillovers to indigenous sectors of the economy, improving production and management, which would drive growth in the remaining economy segments (Benacek 2010).

Early on, notable challenges arose for the Czech government. In the late 1990s, the negative impact from mass privatization, poor protection of property rights, a failing banking sector, and a problematic legal system marked the Czech economy as risky for investments and left it unable to compete with alternative locations for FDI. In response, the Czech government committed itself to lowering the risk premiums for potential foreign investors by giving clear signals and offering favorable conditions for FDI entry that would support foreign ventures and mitigate the risks. The government developed a program for forming clear and mutually beneficial alliances with foreign investors in a highly investment-friendly environment.

The Czech Republic soon initiated a highly ambitious FDI promotional program among all the post-Soviet economies in Eastern and Central Europe. Its principles matched the previous successful approach of Ireland and Scotland. The Czech experience influenced FDI policy in the entire region, leading to conceptual changes in how foreign investment was promoted and attracted in neighboring countries. That successful experience was based on the role of the government in initiating and coordinating policy activities.

*Estonia:* Estonia has implemented several successive and well-integrated national policies, among them: .

- "Knowledge-based Estonia" (2001–06), a national research and development strategy
- "Enterprising Estonia" (2002–06), a national policy for building up SMEs. The main goal was to make Estonian businesses more competitive. No sector was given preference.
- "Success Estonia 2014," – the Estonian competitiveness strategy.



## Developing Export-oriented Local Clusters

2.53. Clusters have potential to record quick wins in entering new export markets and expanding in current markets. Effectively tackling binding bottlenecks will enhance the competitiveness of cluster segments.

*Policy focus:*

- Fostering a high standard for quality assurance infrastructure
- Ensuring critical intangible inputs, such as education and training
- Easing access to affordable capital investment and financing
- Implementing country and product branding in target markets
- Seeding a cooperation culture by reinforcing collaboration platforms and dialog within clusters.

## Guidance on Current Strategic Directions

2.54. *Quality assurance:* Quality assurance infrastructure needs to be enhanced. In the pharmaceutical sector, GMP certification of local producers needs to be accelerated and an effort made to engage \*support from the state or donor organizations. The new RA Law on Drugs needs to be accepted, and GMP and other good practices fixed in the law as drafted. In the wine and brandy sectors, the launch of sector regulation and technical standards needs to be finalized to comply with the standards of the Eurasian Economic Union. Pharmaceutical and wine quality assurance labs need to be on the agenda.

2.55. *Enhanced access to raw materials:* A more solid base of inputs base is critical for wine-making and diamond-cutting. In the wine sector, private initiatives to establish new nurseries and wineries serve as a locomotive and deserve state support. The wine sector needs to implement planned viticulture initiatives. In diamond-cutting, because production inputs are entirely imported, continuing monitoring is needed to manage procurement bottlenecks.

2.56. *Affordable financing for exports and investments:* The Export insurance agency needs to be made ready for operations.

2.57. *Promotion in target markets:* In the short to medium term, sector promotion initiatives needs to continue to have a large role in the Industrial Policy platform, and indeed it needs to be accentuated for wine, brandy, pharmaceuticals, and jewelry, sectors where promotion is central to the sector expansion strategy. Participation to international expos abroad is vital but it needs to be scaled up, with more targeted locations and fairs. Inbound international promotion events—expos, business forums—need to be sustained for the pharmaceutical and jewelry sectors. The success of the planned country brand for wine will provide a firm base for export growth and set a precedent for sectors.

## Suggestions for the New Support Toolset

### ***Workforce Development***

2.58. Skills vouchers: Ireland uses skills vouchers successfully state co-financing covering up to 80 percent of the financing need. State co-financing contributes to the costs of the company but does not compensate the time and efforts of the trainee workforce. Companies are eligible for skills vouchers for a specific training program once a year (Enterprise Ireland 2014).

2.59. *Objective:* Help companies to improve workforce skills.

2.60. *Implementation:* Support will go to companies that come up with specific workforce training projects. The voucher will co-finance trainings in-house or at alternative locations.

2.61. *Rationale:* Currently, Armenia has an obvious gap in the supply of workers who have the knowledge and skills the private sector requires (see Annex 1, Human Capital).

2.62. Generally, in developing countries public training has a poor reputation because it fails to target the real needs of the private sector. Therefore, professional development should be fostered by PPP initiatives with the co-financing the training and development efforts of private economic agents. Activities to be supported might include establishment of joint labs at universities; engagement of the industry in shaping university curricula; enhanced internships; and training and professional development programs addressing the needs of the private sector.

### ***Graduates for Growth***

2.63. *Objective:* Encourage companies to engage quality university graduates and enhance the skillset of the business.

2.64. *Implementation:* The state co-finances the hiring of university graduates who have just completed at least a master's degree for specific projects launched by the companies for a fixed period of time.

2.65. *Rationale:* Mismatch between supply and demand in higher education and lack of infrastructure for training and development opportunities in the economy reveal the need for effective support to this area.

2.66. On the one hand, new graduates may encounter difficulties finding a job due to shortcomings in the knowledge and skillset gained at a university, , which often do not meet private sector requirements (see Annex 1). On the other hand, fresh graduates can be considered cost-effective human capital given their relatively low remuneration. State co-financing the hiring of fresh graduates will also make the practice more attractive for the companies.

2.67. Again, Ireland offers an example: Enterprise Ireland matches graduates with assistant positions in companies for up to 18 months. Projects for which graduates are recruited need to be for a new product in a new market, a new product in an existing market, or an existing product in a new market. Up to 50 percent of the costs to the business are co-financed. SMEs are allowed to hire two graduates at a time (Enterprise Ireland 2014).

2.68. The main risk with this support tool is that companies and the graduates may come together for short-term benefits for both sides. However, in any case it is a nearly a win-win situation for all sides. Companies get low-cost human capital for a specific period and can prolong employment of the graduates based on the value they demonstrate in the co-financing period. Graduates find it easier to get employment, which for a significant portion of them may be their first full-time job or even the first internship at a real business. Even if the hiring company does not prolong their employment, they will accumulate knowledge, skills, and expertise, which will help them in the next phase of their career. The economy will benefit from the enhanced activities of the companies, particularly in terms of exports and will be accumulating a trained labor force with improved knowledge and skills.

## Advisor/Mentor Network

### ***Targeted building of advisory and managerial capacity***

2.69. *Objective:* Contribute to strategic growth of companies via external specialized advisory input and enhancing management potential. This will be directed to areas where a company currently does not have the necessary capacity.

2.70. *Implementation:* Experienced foreign senior executives and specialized consultants will be engaged to provide advice, specialist expertise, and connections to help develop and implement a company's growth plan. Areas targeted may be strategy, exports expansion, business process improvement, technology, marketing, and financial management.

2.71. The new World Bank project envisages an Enterprise Development Grant component to give support to individual companies. In the initial phase, the support tool can be run by platforms administered by international organizations that proved to be successful, such as the EBRD Enterprise Growth Program (EGP), which provides financing of €6,000 for a business to connect with consultants, domestic or international. In the meantime, the DFA can build capacity, enhance expertise, and establish its own network of advisors, drawing also on diaspora connections. In time, the FDA can take over administration of the project.

2.72. Another means of support is providing partial funding for recruiting and remunerating a senior manager (e.g., business development manager, R&D manager, chief financial officer, chief technical officer). It must be a new role in the organization and recruitment must be on a competitive basis.

2.73. *Rationale:* Global practice demonstrates that good management brings a higher return on investment by increasing productivity, sales, and capital (see Annex 1). It also makes it possible to attract lower-cost capital. A comprehensive assessment of management practices in Armenian firms demonstrates clear underperformance in international comparison. There are gaps in general managerial capabilities and professional skills related to both functional and sector-specific areas. This is further exposed by the regular underperformance in the Global Competitiveness Index. Given the lack of competitive management schools in Armenia and the general shortage of training and development opportunities, the support for advisory and managerial capacity-building can help trigger a management upgrade in Armenian companies.

2.74. The main risk here would be poor administration, which can waste valuable resources and efforts and generate inefficient results for the enterprises supported. This further underscores the need to institute a firm framework for this type of support with adequate monitoring and control mechanisms. The need for an experienced operator, who has accumulated knowledge and expertise, at least in the initial period, is clear (similar to the logic of engagement of the EBRD EGP platform in Armenia).

#### **Box 2.4: Global Practice Related to Mentoring and Advisors**

Mentoring and targeted advisory services are used in a number of countries to enhance managerial capacity, particularly, for start-ups and SMEs. Among developed countries, Ireland, Scotland, Taiwan, and Singapore have had success with this.

In *Ireland*, the scheme is overseen by Enterprise Ireland and connects experienced senior executives to developing business. The mentors pay 5–10 visits to the mentee company within 6–12 months. There is a preapproved list of mentors and a cap on co-financing for each visit paid (Enterprise Ireland 2014). For Scotland (GlobalScot), Taiwan, and Singapore, the mentoring scheme is based on engaging the diaspora (Kuznetsov 2006).

Besides mentoring, Ireland also has a Key Manager Grant scheme, which partially finances the hiring of a top manager for a new senior position. The funding provides up to 50 percent of the manager's salary for up to one year and is capped at €80,000. The interview process must be competitive (Enterprise Ireland 2014).

*Czech Republic*: The Competitiveness Development Program (CDP) is an initiative by CzechInvest's largest department, the Company Competitiveness Division, which is responsible for improving human resources and enhancing the skills of company executives and entrepreneurs (Benacek 2010):

1. CDP has been directed to support companies in their self-analysis and further growth via a 50 percent co-sharing of commercial consultancy fees.
2. The National Registry of Consultants Program was designed to make it easier to find consultancy partners. The certified consultant registry is organized by industry domain, location, and specialization.
3. The CDP also created the Czech Benchmarking Index to measure business performance and ascertain the competitive position of a firm in the market. This scheme provides institutionalized support to learning by doing and adopting the best standards for the industry.

*EBRD Enterprise Growth Programme*: EGP helps small, medium, and large enterprises transform themselves. Its advisors enable enterprises to make structural changes and their senior managers to build new business skills. EGP advisors are experienced former CEOs and directors from economically developed countries. Since its inception in 1993, the EGP has carried out over 1,500 enterprise-restructuring projects using more than €97 million of donor funding; 85 percent of the projects have been evaluated as successful or highly successful based on such results benchmarks as improved management skills, increased productivity, lower turnover, security of employment, business planning, and marketing.

## **Sales Promotion**

### ***Sales Representation in Export Markets***

2.75. *Objective*: Promote Armenian products in export markets via dedicated sales representatives and facilitate matchmaking of local producers with potential wholesalers and distributors. The business-oriented model and the expertise of the sales representative are critical for effective sales promotion and expansion of exports.

2.76. *Implementation*: In the initial stage, the government covers the fixed costs of the established sales representatives. Once they get on track, the state contribution will gradually diminish as fees are earned from the sourced deals. The case of the Armenian IT office in Silicon Valley in California can serve as a role model. The development strategy for textiles, apparel, and footwear plans a similar planned for Moscow.

2.77. The new government program and the upcoming World Bank project in Armenia have on their agendas the concept of sales representatives in export markets. With the current government initiative, Armenian diplomatic representatives (embassies, consuls) would become more functional and be more involved with attracting investment. Thus the trade reps are expected to collaborate closely with the country's diplomats.

**Box 2.5: Global Practice on Selling on Site**

*Ireland:* Enterprise Ireland covers up to 70 percent of the cost for 1-2-day workshops to rapidly embed the most effective tools of global exporting practices and sales performance across different sectors of economy (Enterprise Ireland 2014).

**Reinforcement of FDI Promotion**

2.78. FDI can be a broad channel for rapid expansion of an economy's production potential. It can notably intensify exports through technology transfer, sector expertise, managerial capacities, and access to fast-growing target markets. Competencies engaged from abroad will be particularly be decisive in the case of MNCs that possess advanced technologies and wide-reaching markets. Reinforcement of the FDI attraction agenda and actionable measures to this end will accelerate the economic transformation of the economy via the imported capabilities. Effective integration of foreign companies attracted to local economy value chains will determine how much they contribute to Armenia's growth agenda and their economy-wide impact.

*Policy Focus:*

- Promote the country with a specific value proposition.
- Use resources from the diaspora efficiently.
- Establish FDI target incentives.
- Work proactively and directly with targeted foreign companies.

**Guidance on Current Strategic Directions***Attracting FDI*

2.79. While attracting FDI attraction has been remarkable for its underperformance so far, it is still crucially important and at the top of the agenda for a number of economic sectors. The negotiations currently in progress with some MNCs need to be moved up to the next level drawing on the tax, infrastructure, and other attractions, some already devised and some in the design stage. Attracting FDI attraction is particularly valuable for the sectors where there is already a necessary base and some attraction points, such as jewelry, pharmaceuticals, and precision engineering. The strategy for each conveys the rationale, the attraction basis, and specific actions to attract FDI.

2.80. Currently, Armenia has no clear FDI attraction policy, which means there is a definite firm to formulate national policy on FDI with a long-term vision and phased goals. The new policy should be integrated into the national economic development program.

2.81. Armenia should draw up and effectively promote a new country image and brand campaign to sell its competitive advantages to international investors. Armenia's unique selling proposition should highlight the key attraction points, particularly, talented human capital and access to markets (CIS, membership to Eurasian Economic Union).

2.82. Effective implementation of the Industrial Policy necessitates efficient institutions that comply with the requirements for meeting Industrial Policy targets. While Armenia did have a central agency responsible for attracting FDI and triggering exports, the ADA often lacked the capabilities and scale that were critically needed for it to yield notable results.

2.83. Its successor, the DFA, now needs an efficient organizational structure so that it can better attract FDI. The structure needs to be transformed by introducing an effective corporate board

scheme, aligning roles to revised strategic directions and objectives, and establishing a network of representatives promoting FDI in target countries. The agency's capacities will depend on whether it can draw on staff who have the necessary knowledge and skills to perform the assigned functions. DFA needs adequate funding based on clearly set performance targets. Suboptimal efforts to promote FDI can waste resources.

#### **Box 2.6: Global Experience with Institutions to Promote FDI**

Global experience shows the need to have in place enough institutional capacity to oversee how industrial policy is conducted and provide guidance and support as needed to maximize the benefits from existing opportunities. Fundacion Chile is a successful example of a multi-layered organization with proven results (e.g., the case of the salmon industry). Ireland's Industrial Development Agency (Ireland IDA) and CzechInvest of the Czech Republic are examples of good investment promotion agencies globally that have made a documented contribution to FDI attraction and export growth in their countries. In the two decades since its establishment, CzechInvest has facilitated about 1,800 FDI projects worth US\$28 million and helped to create over 250,000 jobs.

However, Uruguay's Investors' Attention office did not deliver the expected results. It was reactive rather than proactive, its approach to attracting investment was ad hoc, and promotion and coordination of the incentives offered to foreign investors were poor.

2.84. The incentives (fiscal and financial benefits) that Armenia currently offers to potential investors are rather limited in comparison with peer economies in CIS and Eastern Europe. Armenia needs new incentives to better compete for FDI. Strategic investments and greenfield FDI should be the focus.

#### **Box 2.7: FDI Incentives: Global Practice**

FDI incentives are offered by numerous countries. Economies that aspire to make significant progress in attracting FDI recognize this reality and respond to it.

Credit and tax incentives have been quite common in Latin America, as they are in Asia (Melo 2001). In Latin America the incentives have tended to focus on mining, forestry, agribusiness, and tourism. In Asia, selected manufacturing and service industries have been promoted more.

The rationale for FDI incentives differs considerably for different economies in different contexts at different times. Generally, investors in foreign countries encounter higher costs, uncertainty, and risk than investing in their domestic economies or using their normal decision criteria. It might also take longer to get investments to full production. Such imbalances with alternate investment locations generate the classic "market failure" rationale for introducing incentives.

Other arguments in favor of the incentives are the desire by a country for economic transformation via FDI. In addition, the incentives can have a "signaling effect" that demonstrates a government's commitment to stimulating FDI (Morisset and Pirnia 2000). FDI incentives have been successfully used to promote "clusters" and attract a "first mover investor who is followed by competitors or suppliers" (UNCTAD 2014). Finally, a major current reason for introducing incentives globally is the increasing competition for FDI.

Nevertheless, FDI incentives should not be viewed in isolation. They are elements of a wider framework of investment promotion. While the incentives may not be the most important factor for the majority of investors, they can influence the overall investment promotion package a country presents. The actual effect of FDI incentives will depend on the context and the motivation of the investors.

On the other hand, governments using FDI incentive-based strategies need to assess their relevance, appropriateness, and economic benefits. They also must ensure that they comply with commitments under international agreements.

The impact and relevance of FDI incentive strategies need to be re-assessed regularly.

## FDI Incentives: Rationale for Armenia

2.85. Armenia needs to compete better for FDI and at least match its peers. The fiscal and financial incentives Armenia offers are not a significant factor in the country's competitive toolbox for attracting global FDI, unlike a large number of competing countries. The absence of a dedicated FDI policy and its role in national development reflects a poor understanding of global FDI trends and practices (EV Consulting and Strategy Partners Ireland 2012).

2.86. Before Armenia passed the Law on Free Economic Zones, FDI incentives were limited to the few privileges provided by the Law on Foreign Investment. Currently Armenia's tax incentives are the following:

- Relief from profit and property tax for entities operating in Free Economic Zones.
- Postponed payment of VAT on investment goods for three years (projects exceeding AMD200m are approved case by case by the government).
- Customs duty exemption for foreign investors importing goods that supplement charter capital (limited list of goods).

2.87. While not underestimating the importance of these concessions, today these and similar incentives are common practice in most peer countries. In the contemporary era of larger freedom in global trade and investment, most foreign investors would expect.

## Suggestions for a New Support Toolset<sup>13</sup>

### Corporate Tax Exemption for Strategic Investments (Box 2.7)

2.88. *Objective:* Remove Armenia's disadvantage in competing with other destination countries for large FDI, particularly mobile investments.

2.89. *Implementation:* Selected investments over US\$10 million or potentially 250+ new jobs in export-oriented segments will be exempted from corporate tax for 10 years.

2.90. *Rationale:* Some of the strategic initiatives in Armenia are expected to be outside the FEZ because of the sector and type of investment involved. Also, many such potential investments would probably not be made without the support mechanism. The tool is aimed at attracting new investors and does not directly provide financial support on behalf of the government.

#### Box 2.8: Global Practice Related to Tax Exemptions

Profit tax is exempted for large or strategic investments in both developed and developing countries. Ireland was using this tool intensively at the end of the last century to successfully attract MNCs.

*Czech Republic:* Corporate income-tax relief is provided for 10 years or 10 consecutive tax periods. The maximum cap on tax relief is the amount of the ceiling of state aid after deduction of job creation grants or the difference between the market and purchase prices of land and a cash grant on capital investment. The threshold for qualifying FDI as a strategic investment is about €20m (the same as in Hungary). Supported areas are mainly new or expanded manufacturing production. The Investment Incentives Act stipulates the conditions that must be fulfilled in order for the investor to apply for the investment incentives (CzechInvest 2014).

*Georgia:* The government takes an individual approach to large or strategic foreign investors. The most significant privilege provided is exemption from corporate tax for strategic investments of over US\$4.5 million and investments of over US\$1 million made in selected regions (Invest in Georgia 2014).

<sup>13</sup> R&D incentives for MNCs are presented in the next sub-section.



## Reduced Cost for Land and Property Transfer

2.91. *Objective:* Attract investors by beneficial offers from the very beginning of the investment.

2.92. *Implementation:* The Government will lease state-owned land and property to foreign investors at less-than-market prices (or free in selected cases). For this purpose, it is necessary to inventory currently available land and properties owned by state or local municipalities. The agency responsible for export and investments promotion needs access to this database to present opportunities to potential foreign investors. Grant of the incentive to the foreign investor will be negotiated by the government case by case. This support mechanism is also part of the new government's program.

2.93. *Rationale:* Some potential FDI might be targeted by investors for outside the FEZ at locations more beneficial for the investor (e.g., close to airport to a country border for ease of logistics, or close to a supply of raw material or to a technology provider). Land and property for purpose would often imply assets owned by a government that have long been idle and do not attract commercial interest. Use of this support tool will be customized to the foreign investors to give Armenia an advantage rather than an alternate location.

### Box 2.9: Global Concession Practices Related to Land

*Czech Republic:* For foreign investors, the Czech Republic provides favorable transfer of land or land equipped with infrastructure owned by the state or an organizational unit thereof or by a municipality. The difference between the purchase price and the market price is considered as an investment incentive (CzechInvest 2014).

*Ireland:* Provides land and property suitable for investment purposes to the foreign direct investors at less-than-market prices or free of charge. Capital grants on buildings, machinery, and equipment are provided for investments in selected regions or key sectors. The larger the amount of FDI size, the more beneficial the conditions and the more sizable the incentive (Enterprise Ireland 2014).

## Building Innovation Capacity

2.94. Enhancing the capacity of the economy for innovation will scale up the productivity of local businesses and a new generation of innovative enterprises will emerge.

2.95. A well-established innovation ecosystem is the prerequisite for Armenia's long-term goal of transformation to a knowledge-based economy. In knowledge-intensive sectors like IT and engineering, it could help accelerate higher value-added activities. In skill-intensive sectors like pharmaceuticals, jewelry, and food processing, the enhanced innovation system can facilitate and increase in productivity.

### Policy Focus

- Build a local ecosystem for innovation.
- Build collaboration between key actors: the private sector, universities, research institutes, and other hubs of innovation.
- Facilitate the attraction of MNC R&D to Armenia and build linkages with the local research community.
- Foster technology entrepreneurship by easing access to capital, knowledge, and networks.

2.96. The general guidance for building innovation capacity takes into account the endowments inherited from the Soviet era (e.g., the Armenian National Academy of Sciences and its vast network



of over 30 science and research institutions); current developed capabilities (e.g., skilled engineers and proficient IT specialists); and global trends.

2.97. Establishing a robust innovation ecosystem necessitates a holistic approach and substantial long-term investments. Parallel efforts are required to foster demand and supply-side support for innovation. The emergence of effective supply-side factors is closely related to reforms in higher education and science. The reforms should have a radical approach, unlike the current modest and divided efforts. A few scalable innovation projects—Armenian National Engineering Laboratories, Microsoft Innovation Center, Armenian-Indian Excellence Center, mLab ECA Regional Mobile Applications Laboratory and Enterprise Incubator, Gyumri Technopark, STEP14—are in place, and mainly concentrated in IT & precision engineering. There is promising dialogue with IBM and Oracle about establishing an R&D presence in Armenia

2.98. Armenia has attracted a few examples of international R&D, e.g., Synopsys, National Instruments, and ST Kinetics. These rely mainly on Armenia's scientific assets and an internationally competitive skilled and knowledgeable workforce in high-tech IT and precision engineering. However, the country still lacks a comprehensive strategy for promoting innovation, which should be closely connected to human capital development and FDI attraction.

2.99. In knowledge-intensive sectors, cultivation of start-ups and attracting the R&D activities of MNCs will be critical. The establishment of ANEL at SEUA and the launch of Gyumri Technopark have delivered quality physical environment and technological content for innovative activities. One of the FEZ locations targeting knowledge- and technology-intensive sectors, Mergelyan Institute of Mathematical Machines, is specifically directed to R&D and innovation. Comprehensive FDI and innovation policies are necessary to effectively take advantage of the potential.

2.100. In skill-intensive sectors, customized mechanisms and a differentiated focus need to be applied for each direction. The government needs to commit to enhancing the quality of the sector and promote that commitment to attract MNCs and trigger innovative activities by local producers.

### **Suggestions for the New Support Toolset**

2.101. Global experience demonstrates strong public input in innovation and R&D (expenditure-wise, too) in certain cases. The examples range from the industry of table grapes in Chile to technology in Taiwan.

2.102. The experience of two East Asian economies, South Korea and Singapore, that demonstrated an impressive record for capacity building in the second half of the 20<sup>th</sup> century shows their differing industrial policy approaches.

2.103. In South Korea, the build-up of technological capability was concentrated in the chaebols, South Korean business conglomerates. Government support was provided to support the firms' own R&D via the flow of knowledge and human capital between public research laboratories and the private sector. It is estimated, from 1960s to the mid-1980s about two-thirds of private R&D was financed by state-subsidized credit.

2.104. In Singapore, however, MNCS were the main actors with the role of government being simply to attract them to conduct R&D in Singapore. This required a significant contribution from the government – about 30 cents for every private U.S. dollar spent on R&D (Amsden 2001).

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<sup>14</sup> Science & Technology Entrepreneurship Program.

2.105. Public participation in enhancing innovation practices has had varying results in different countries. Czarnitzki and Fier (2001) showed a notable positive impact of the R&D program run by the German Federal Ministry for Research and Education to support innovative spending by private firms. The German authorities funded up to 50 percent of total R&D project costs. The result was a sustainable effect to encourage private spending on innovative activities. In Israel, a study by Lach (2000) of the impact of the R&D contribution to firms **shows found** that in the short run the Israeli government matching grant program crowded out private R&D investment. However, over the long term the crowding-out effect is compensated by an expansion in private R&D investment. On the other hand, an empirical study in Norway (Klette and Moen 1998) found that **there** government support to R&D does not crowd out private spending but neither does it trigger additional company investment in R&D. Another study of French firms by Duguet (2012) again demonstrated the neutral effect of R&D subsidies on private R&D spending.

2.106. It is important point to realize that state efforts have worked best where they have been well- integrated with the private sector initiatives and responsive to their needs.

## R&D Incentives for MNCs

### *R&D Cost-Sharing*

2.107. *Objective:* Encourage FDI investors, current and potential, to capitalize on Armenia’s assets, particularly human capital.

2.108. *Implementation:* The Government can share the R&D costs of MNCs attracted to Armenia by up to 50 percent of the cost of the first contract. Co-financing requirements will include engagement of local R&D institutions. R&D cost-sharing for orders to local companies by innovative MNC projects is also part of the new government’s program.

2.109. *Rationale:* In its aim to turn to the knowledge-intensive economy, Armenia needs multilayer incentives to attract R&D. In the current reality, where MNCs have alternate options for locations to direct their R&D expenditure, cost-sharing incentives can be an attraction point supplementing others (e.g.. scientific potential: Soviet scientific heritage, existence of science institutions, skilled engineers). Extra incentives would be needed to attract greenfield R&D investment to Armenia, which has higher risks.

#### **Box 2.10: Global Experience with Supporting Innovation**

*Israel:* MATIMOP is the national agency for industrial R&D cooperation. It has a mandate to implement supportive policies to build Israel's industrial infrastructure and nurture industrial innovation and entrepreneurship. Among its initiatives is the Global Enterprise Collaboration Program, which co-shares investments made by MNCs in R&D projects.

*Turkey:* The Scientific and Technological Research Council of Turkey (TUBITAK) and the Turkish Technology Development Foundation (TTGV) compensate for or grant R&D-related expenses and capital loans for R&D projects (Invest in Turkey 2014). Projects eligible for TUBITAK incentives relate to:

- Concept development
- Technological research and technical feasibility research
- Laboratory studies on translation of a concept into a design
- Design and sketching studies
- Prototype production
- Construction of pilot facilities
- Test production
- Patent and license studies
- Activities to resolve post-sale problems arising from product design.

## Free Property for MNC R&D Centers

2.110. *Objective:* Capture FDI by offering attractive conditions from the start by easing the start-up costs for the investor

2.111. *Implementation:* For strategic R&D projects, the government can provide free property to MNCs on which to establish R&D centers. Clear eligibility conditions and application procedures have to be worked out. The government approves granting of the incentive to the investor case by case.

2.112. *Rationale:* For some R&D the location may make a difference in terms of physical, scientific, and technological facilities. For instance, some investors may prefer to be located in R&D-supportive locations near universities and National Academy research institutes.

## Innovation Incentives for Local Companies

### Collaborative Research Grants

2.113. *Objective:* Encourage companies to undertake innovative projects by easing the costs and providing specialist input.

2.114. *Implementation:* The business will be given help to explore a business problem or opportunity or to develop new or improved products by one of the registered knowledge providers, which are universities and research institutions. The government will provide up to 50 percent of the cost of research.

### Box 2.11: R&D Performance and Impact: Global Cases

*Czech Republic:* Having successfully attracted R&D financing, FDI in the Czech Republic has started to evolve toward more knowledge-intensive activities. Several MNCs have R&D centers in the country, initially in the automotive sector and subsequently in high-technology industries like ICT and biotechnology. Some were established as second-tier R&D centers for global MNCs; others evolved from marketing or manufacturing operations to become local and global R&D hubs. MNCs that have R&D centers in Czech Republic include Siemens, Honeywell, Visteon, MB Tech. Ricardo, Eaton, and GE Aviation.

As a result of the aggressive state policy on R&D, annual spending on R&D went up from 0.92 percent of GDP in 1996 to 1.56 percent in 2010. The R&D expenditure of foreign subsidiaries in the Czech Republic as a percentage of industrial R&D went up from 21 percent in 1995 to 37 percent in 2000 and 55 percent in 2007. This development reflects the transition of the Czech Republic to a market economy with privatization and substantial inflows of FDI (Guimon 2013).

*Turkey:* Since the 2000s, Turkey has rapidly become an R&D center for MNCs. Targeted R&D incentives, coupled with an intensively trained work force have helped the country to become a “technology development center” for international companies. While only two Technology Development Zones (TDZ) were operating in 2000, without substantial R&D capacity, currently there are over 1,300 companies actively involved in product development in 37 TDZs with a large number of new TDZs approaching completion. The incentives granted for R&D studies have attracted such global and diverse giants as Siemens, Pfizer, Huawei, General Mobile, Alcatel-Lucent, Microsoft, and Mercedes-Benz. The R&D centers employ over 11,000 workers engaged in about 3,500 projects and the number of patents approved or pending is over 300 (Invest in Turkey 2014).

## Appendixes

### Appendix 1: Diagnostics of Armenia's Asset Portfolio<sup>15</sup>

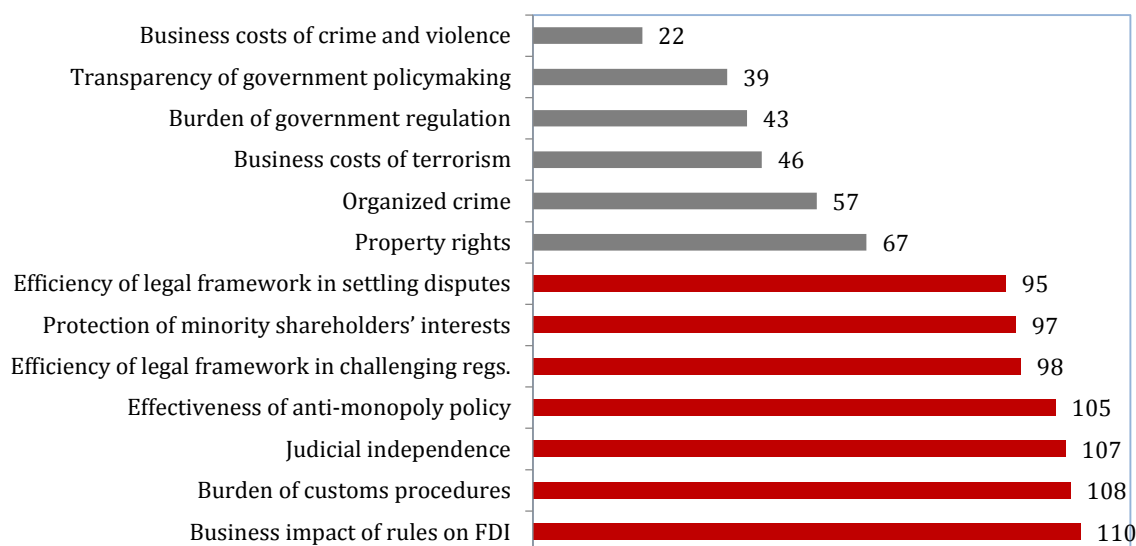
#### Economic Institutions

***Despite notable recent improvements in Armenia's institutional capacities, government failure to manage micro risks is a critical constraint.***

In recent years, the Government of Armenia has taken action to improve the business environment and institutional capacities. However, even though regulatory practice has been somewhat upgraded, there still are notable gaps in the microeconomic business environment and public governance.

Government failure to manage micro risks is a core issue. The most worrisome factors are burdensome customs administration, inadequate regulation of market competition, the inefficiency of legal institutions in settling disputes and challenging regulations, minimal judicial independence, and little protection for the interests of minority shareholders. These problems are often reflected in international rankings, such as the World Economic Forum's Global Competitiveness Report (Figure A1.1) and the World Bank Doing Business rankings (Figure A1.2, Table A1.1).

**Figure A1. 1: Micro-level Constraints, Global Competitiveness Ranking**



Source: WEF GCR 2014-2015.

Note: The red-highlighted factors recorded weaker performance compared with Armenia's general competitiveness ranking (85th).

<sup>15</sup> Appendixes 1 and 2 are based on the analyses in "National Competitiveness Report of Armenia 2013-2014: Growth Imperative and Constraints" and "National Competitiveness Report of Armenia 2011-2012: Agenda for upgrading management practices," EV Research Center and EV Consulting, 2014.

**Table A1. 1: Rankings in Doing Business**

	2015 Rank	2014 Rank	Change
Starting a business	4	5	-1
Dealing with construction permits	81	82	-1
Getting electricity	131	132	-1
Registering property	7	7	-
Getting credit	36	30	+6
Protecting investors	49	48	+1
Paying taxes	41	73	-32
Trading across borders	110	124	-14
Enforcing contracts	119	119	-
Resolving insolvency	69	67	+2

Source: Doing Business 2015.

***Unfair competition gives powerful negative signals that jeopardize business development and undermine the entrepreneurial spirit.***

Having a leading market position in imports generates a steady source of cash flows for business groups that often are used for diversifying into other businesses. From this there emerge power business groups: The core profitable business provides for cross-subsidization, exertion of buyer and supplier power, and political clout. The effects on transparency, tax, and other state administration advantages are, however, adverse. The business groups also benefit from pure economic mechanisms, such as economies of scope and lower portfolio risk.

The consequence of the domination of power business groups is a concentration of wealth. The resources accumulated mostly serve local markets with limited growth potential. A critical market failure is that this creates and consolidates uneven ground for other businesses, which are often marginalized.

Regarding another potential major source of unfair competition, the state procurement system, in recent years Armenia has slightly improved its position on favoritism in decisions of government officials from 75<sup>th</sup> to 71<sup>st</sup> rank (GCR 2014–15). However, many local businesses allege high levels of corruption, kickbacks, and favoritism in public tenders (EV Consulting 2013a). Also, discrimination in excessive tax and customs administration is viewed as the primary source of a distorted competitive environment for business. According to BEEPS V (2013–14), only 38 percent of the enterprises surveyed did not consider tax administration problematic.

***The scale of the shadow economy generates numerous negative externalities on both company and country levels,***

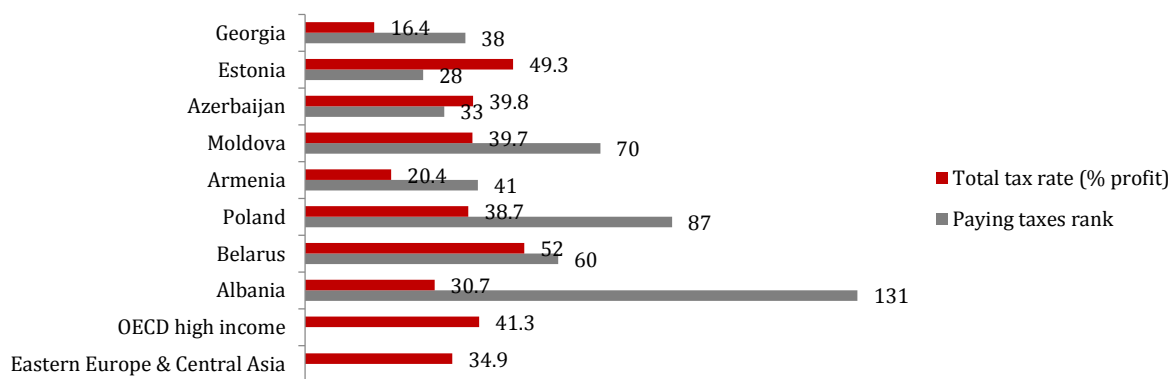
For the country, the shadow economy reduces state budget revenues. For companies, the most critical consequences are

- Low motivation for quality management
- Large gaps in corporate governance
- High company risk perceived by financial institutions, leading to higher risk premium charges for financing.

While decreasing the scale of the shadow economy is on the government's agenda, there is actually no reliable estimate of its current size.

It appears that high tax rates are not the fundamental reason for the magnitude of the shadow economy (Figure A1.2): Armenia's 20.4 percent total tax rate on business profits is lower than the 41.3 percent average in the OECD and the 34.9 percent average in the Eastern European and Central Asia (ECA) region. On the other hand, Georgia's indicator is 16.4 percent, making it the leader in the region.

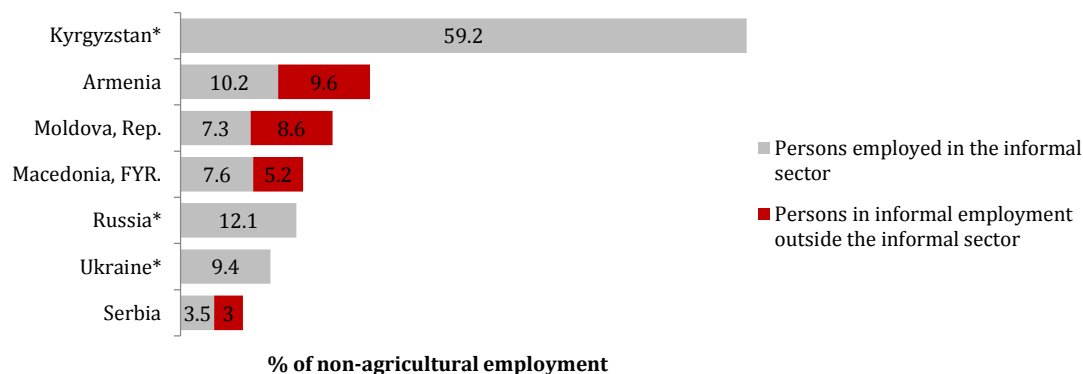
**Figure A1. 2: Doing Business Rankings of Armenia and Benchmark Countries on Paying Taxes**



Source: Doing Business 2015.

Shadow practices include informal employment and partial reporting of employee wages. The latter is a milder form of informal employment but it is estimated to be more widespread. Among the pool of benchmark economies, Armenia is in the top ranks for informal employment (Figure A1.3).

**Figure A1. 3: Informal Employment, Armenia and Benchmark Countries**  
(Percent)



Source: ILO 2012.

Notes: \* For Russia, Ukraine, and Kyrgyzstan, the number of persons in informal employment outside the informal sector is not assessed. Thus, the aggregate indicator of informal employment may be higher there than the figure shows.

While there has been a gradual increase in the transparency of the economy, tax evasion is widespread. Several factors penalize higher transparency for companies:

- *The risk of price adjustments:* While it appears from recent business trends that many firms favor reducing the shadow portion of their activities, this will cause price adjustments that put the first mover at a disadvantage in that the market share of that business will shrink before the entire market adjusts.
- *Pressures from competition regulation:* Higher transparency leads to an increase in “recorded” market share. This brings into play stricter state controls for these companies – a need for tighter reporting and price control limitations.

While it is difficult to quantify the exact extent to which these risks hinder entrepreneurial activity, several factors prove they are a bottleneck:

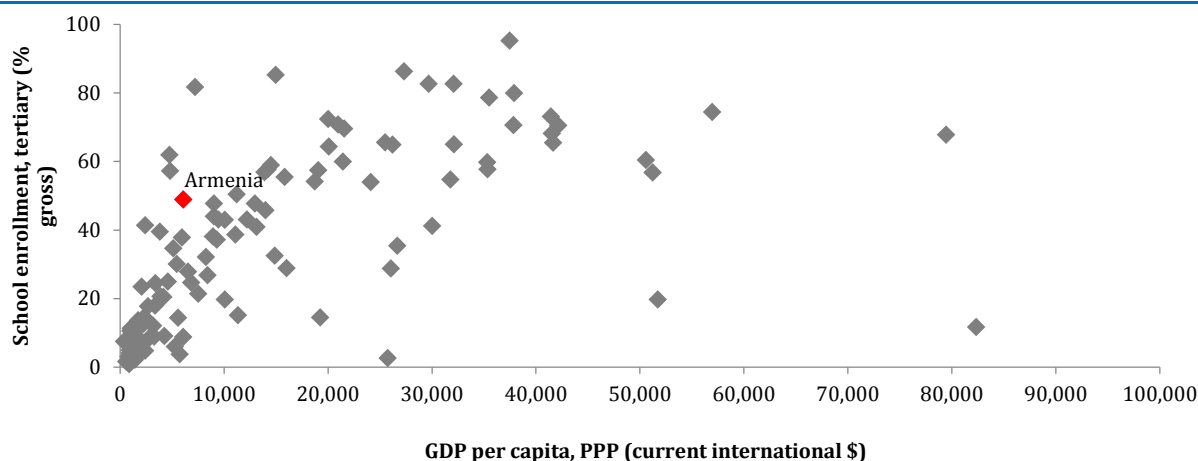
- Consistent exposure on international rankings
- Relative better performance of businesses less affected by their influence (power business groups, tax evader agents, etc.)
- More active investments and entrepreneurship in segments of the economy where the presence of these factors is limited, e.g., IT.

## Human Capital

***While Armenia does not have a shortage of educated people, there is a shortage of appropriately skilled people.***

In Armenia, over half the population (of corresponding age groups) has completed tertiary education (Figure A1.4), pushing Armenia above economies even in higher-income groups: Armenia is 51<sup>st</sup> among 142 countries for enrollment in the tertiary system.

**Figure A1. 4: Tertiary Enrollment and Income Levels, World, 2011**



Source: WDI.

Note: Due to missing data, for several countries the figure uses 2010 data.



Armenia is also competitive in secondary enrollment (Table A.1.2).

**Table A1.2: Enrolment in the Educational System, GCR 2014–15 Rankings, Armenia and Benchmark Countries**

	Secondary Education Enrollment	Tertiary Education Enrollment
Armenia	51	59
Azerbaijan	35	91
Estonia	17	18
Georgia	80	84
Israel	26	30
Romania	57	53
Russia	56	19
Slovak Republic	58	51
Ukraine	41	13
United States	59	3

Source: GCR 2014-2015 (WEF).

Note: GCR rates 144 countries.

In Armenia, the structure of unemployment by education level is similar to that of the workforce: about 25 percent of the labor force is highly educated and unemployed with tertiary education are 27 percent. The proportion of unemployed with higher education is close to the world average of 19 percent. However, Armenia has a large share of highly educated people who are not in the labor force due to “formal nature” of education. The consequence is “voluntary” as a reason why graduates with tertiary education are out of work. According to a Student Tracer (EV Consulting 2011), about half the graduates who have never worked cite personal choice. This attitude is particularly dominant among graduates in social sciences (psychology, sociology and philosophy). Thus, the economy is investing in unproductive capital.

“Real unemployment” dominates for among graduates of pedagogical studies, culture, and sports.

***The root human capital problem issues lies in education quality along with a notable mismatch between supply and demand in higher education.***

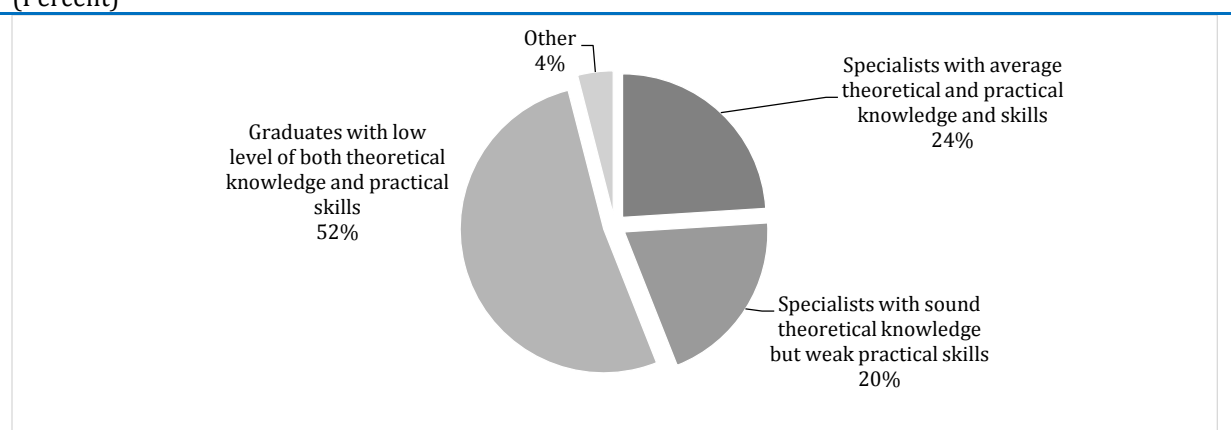
About 70 percent of graduates in agrarian sciences and half of medical graduates work outside their fields of specialization. The average rate of divergence between study specialization and actual work is about 30 percent for the main specializations.

The relatively low return on education in Armenia indicates that the level of education attained by the workforce is not a constraint on for economic growth. In Hungary, the U.S., and Israel, professionals with tertiary education earn over 60 percent more on average than those with secondary education whereas in Armenia they only earn about 30 percent more. Situation is the same for the transition from primary and secondary education to upper secondary and vocational education: 40 percent higher earnings in benchmarked countries compared to just 23 percent in Armenia.

The main problem is a significant gap between the sophistication of the educational system and the actual needs of the economy. Concerns about the inadequate educational quality of graduates and the workforce are widespread among business executives. In one survey (EV Consulting 2011) 90

percent of company executives thought that the current state of the professional workforce—their theoretical knowledge and practical skills—jeopardizes expansion of their sectors (Figure A1.5).

**Figure A1. 5: Employer Opinions about the Quality of Graduates in Armenia**  
(Percent)



Source: EV Consulting 2011.

Note: The survey was conducted among executives and HR managers of 25 leading Armenian companies, representing different sectors of the economy.

A recent survey of 48 local companies on growth constraints found absence of a highly qualified labor force to be the second most significant constraint at 15 percent, after limited market size (EV Consulting 2013)

GCR rankings show that Armenia's performance in the primary and overall educational system is particularly favorable (Table A1.3). A few less competitive indicators of higher education and training—quality of management schools, availability of research and training services, extent of staff training—highlight vulnerable areas in the Armenian educational system (Table A1.4).

**Table A1.3: GCR 2014–15 rankings, Armenia and Benchmark Countries GCR rankings on quality of education in Armenia and benchmark countries**

	Quality of Primary Education	Quality of Educational System
Estonia	15	35
United States	36	27
Israel	86	69
Ukraine	40	72
Russia	57	84
Slovak Republic	51	125
Romania	65	61
<b>Armenia</b>	<b>83</b>	<b>86</b>
Georgia	92	98
Azerbaijan	106	104

Source: GCR 2014-2015, WEF. Note: GCR ranks 144 countries

Note:

**Table A1.4: Higher Education and Training in Armenia, GCR Rankings**

	Rank
Quality of math and science education	69
Quality of management schools	116
Internet access in schools	68
Availability of research and training services	120
Extent of staff training	119

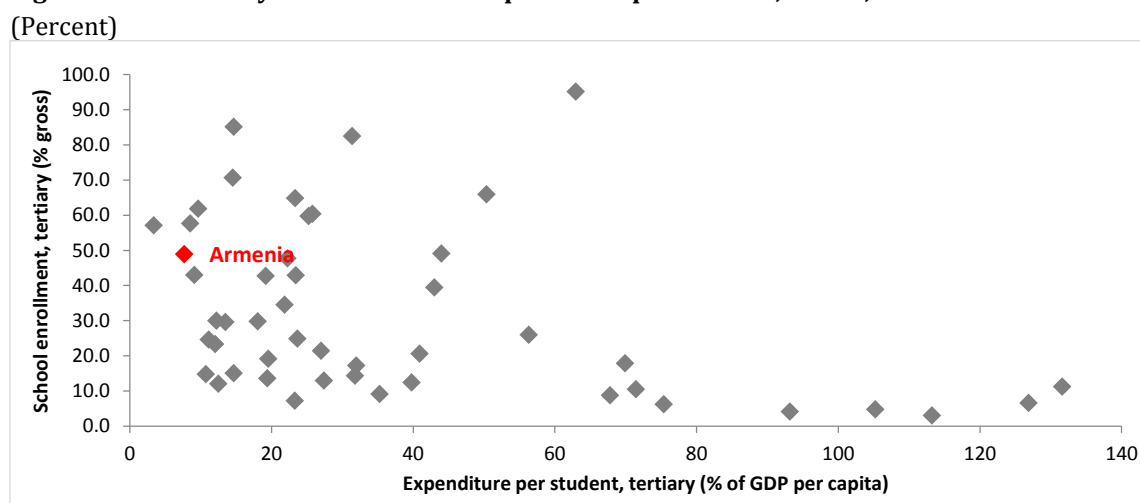
Source: GCR 2014-2015, WEF.

Values Research Centre, 2010) maps underlying factors for the current low quality of higher education: the pattern of social values, underdeveloped learning components, poor leadership capacities, insufficient competition in the education sector, and the premature level of internationalization of the education system. The relationship between quality of education and low economic growth goes both ways: A low quality workforce does not contribute to growth, which consequently does not enable investments in education. Low investments and low sophistication of demand for education do not facilitate improvements in Armenia's educational system. This generates low equilibrium in the sector.

The paradox in Armenia of a high enrollment rate and low educational quality can be explained by notably low investment in education. Globally, Armenia has one of the lowest levels of spending per student in tertiary education (Figure A1.6).

Educational quality that generates low human capital is a binding constraint on growth. The National Competitiveness Report of Armenia 2010 (Economy and

**Figure A1. 6: Tertiary Enrollment and Expenditure per Student, World, 2011**



Source: WB WDI.

Note: The data for several countries are for 2011.

### ***Weak management capacities and company practices hinder their growth.***

Good management earns a high return on investment. Studies in 21 countries show that an improvement of 1 point in the management score leads to a 6 percent increase in productivity, a 2.3 percent increase in sales growth, and a 2.8 percent in return on capital employed (London School of Economics, Centre for Economic Performance 2011). Other benefits of more sophisticated management are lower assessed risk of the firms, which facilitates lower interest rates for financing.

A comprehensive study of management practices at 50 Armenian manufacturing companies identified significant deviations from global best practices (Economy and values Research Centre

2012). Armenia lags behind the benchmarked 21 countries with an average score of 2.46 compared with the global average of 2.99. Deviation from best practices is more frequent in operations and target management and less in talent management.

In Armenia, such structural factors as small company size, family owned and managed firms, gaps in managerial skills, imperfect competition, and limited presence of MNCs contribute to the global underperformance of Armenian companies. Nevertheless, other significant factors are internal: there are sizable needs for improvements in operations, performance management, management reporting, corporate governance, and long-term strategy and execution.

The uncompetitive ranking on reliance on professional management demonstrates the widespread lack of quality managers in Armenia (Table A1.5). But a larger cause is the huge gap between ownership and management of companies. Most major domestic businesses are still family-owned. Lack of trust and failure to apply corporate governance principles generate deficiencies in management sophistication and transparency, which causes deterioration in the entrepreneurial culture and capacities in the economy.

**Table A1.5: GCR Management Capacity Rankings, Armenia and Benchmark Countries**

	Estonia	Poland	Albania	Armenia	Georgia	Moldova
Ethical behavior of firms	32	57	131	90	54	117
Strength of auditing and reporting standards	24	58	126	83	85	100
Efficacy of corporate boards	25	87	84	104	101	95
Protection of minority shareholders' interests	49	81	93	97	110	117
Production process sophistication	53	57	71	91	114	122
Willingness to delegate authority	25	62	69	106	118	100
Quality of management schools	48	84	86	116	98	125
Reliance on professional management	22	71	93	95	78	111

Source: GCR 2014-2015, WEF.

***The diaspora is a unique network asset that is not used at its full potential.***

The diaspora is a critical asset for Armenia as a source of human and financial capital and export market diversification. The diaspora has clearly had a role in bringing in FDI, given the number of businesses established by or connected with diaspora investors post-independence. Throughout 1999–2004, nearly 70 percent of all foreign direct investors in Armenia have been diaspora-connected (EV Research Center, 2004). Their investments are estimated as totaling US\$275 million in 1998–2004—about 25 percent of total FDI. Top sectors have been ITC, gems and jewelry, textile and apparel, food processing, construction, air transport infrastructure, banking, and hospitality.

Nevertheless, the resources of the diaspora have not been used effectively to realize its full potential. There is no comprehensive policy for attracting diasporan human, financial, and network assets. The current initiative to establish the Armenian Executive Network (ArmEN) is aimed at engaging diaspora members who are executives employed at MNCs or who own their own companies.

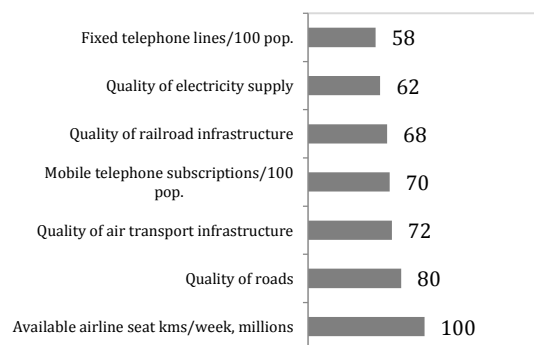
## Infrastructure

***Despite its notable deficiencies, infrastructure is not considered a binding constraint for growth.***

In 2000s, Armenia notably upgraded certain physical infrastructure, for telecommunications, air transport, energy, roads, using international development and private funding. This has enabled significant improvements in internal infrastructure. Recent large investment projects launched are directed to internal road improvements and completion of airport renovation. In 2013 a decade of monopoly in the air transport market was ended and the government announced an open sky policy. Currently, Armenia is negotiating with several airlines, including low-cost air carriers.

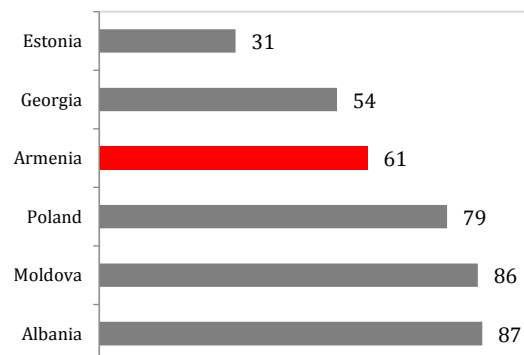
Armenia's average international rankings on infrastructure are slightly higher than the overall country ranking, which suggests that infrastructure is probably not a binding constraint for economic growth. Armenia's stance on technological readiness, 71, is also better than the country's overall ranking of 85. Performance indicators on Internet and mobile usage and penetration have made notable in terms of number of individuals using the internet and international Internet bandwidth.

**Figure A1. 7: Armenia's GCR Rankings on Infrastructure Indicators**



\*Source: GCR 2014-2015, WEF.

**Figure A1. 8: Quality of Infrastructure, Armenia and Comparators, GCR Rankings**



\*Source: GCR 2014-2015, WEF.

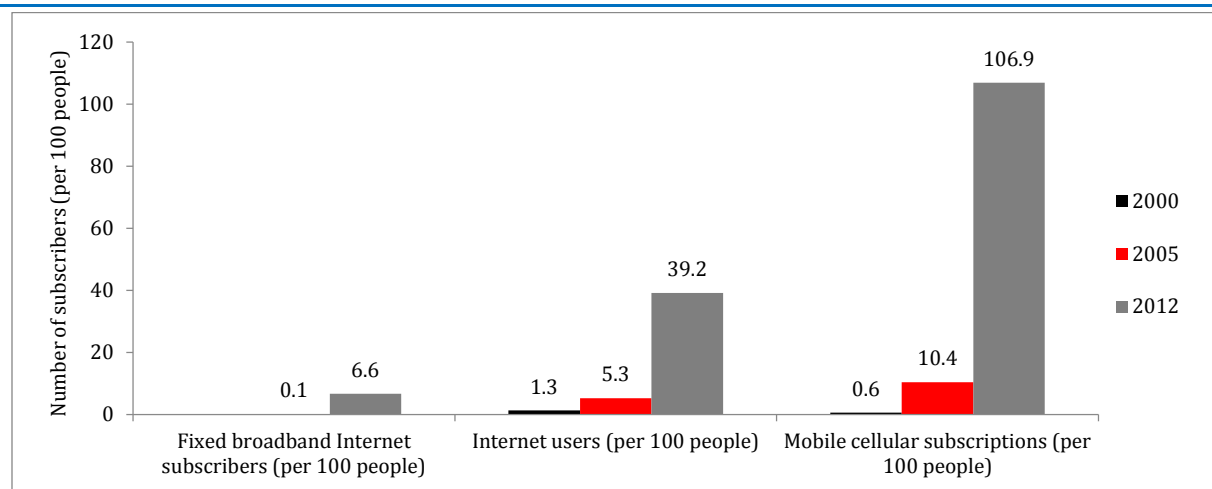
***The IT and communication services sector stand out for rapid growth and attraction of investment.***

Armenia's IT sector built on the pool of highly qualified professionals that existed in Soviet times, and several foreign IT companies established a presence in Armenia post-independence, but the expansion of branches of MNCs started in the mid-2000s because the cost of IT engineering talent was comparatively low. The accelerated foreign presence in the IT sector allowed for high rates of technology transfer to local industry - Armenia ranks 79<sup>th</sup> in the effect of FDI on technology transfer (GCR 2014-2015).

However, to a certain extent the IT industry has remained detached from the rest of the economy, restricting the adoption of new ICT tools by local businesses. The remarkably unfavorable international stance proves this disconnection: Armenia ranks 102<sup>nd</sup> in company spending on R&D, 112<sup>th</sup> in university-industry collaboration in R&D, and 121<sup>st</sup> in government procurement of advanced technological products.

On the other hand, Armenia scores favorably on a few sub-pillars of technological readiness on which it needs to capitalize to enhance the local technology industry. The communications infrastructure has been notably uplifted in recent years by the penetration of computers, the Internet, and cellular phones. Internet access has improved mainly due to increased coverage, updated technical specifications, and falling prices.

**Figure A1. 9:ICT Indicators for Armenia. 2000-12**



Source: WDI.

Following a boost in accessibility and affordability, the IT industry saw significant qualitative transformations (Table A1.6). A number of active projects and planned initiatives aim to upgrade the science infrastructure, enhance the entrepreneurial culture in the IT sector, and, most importantly, prepare a highly qualified and internationally competitive workforce.

**Table A1.6:Armenia's GCR Rankings in Technological Readiness**

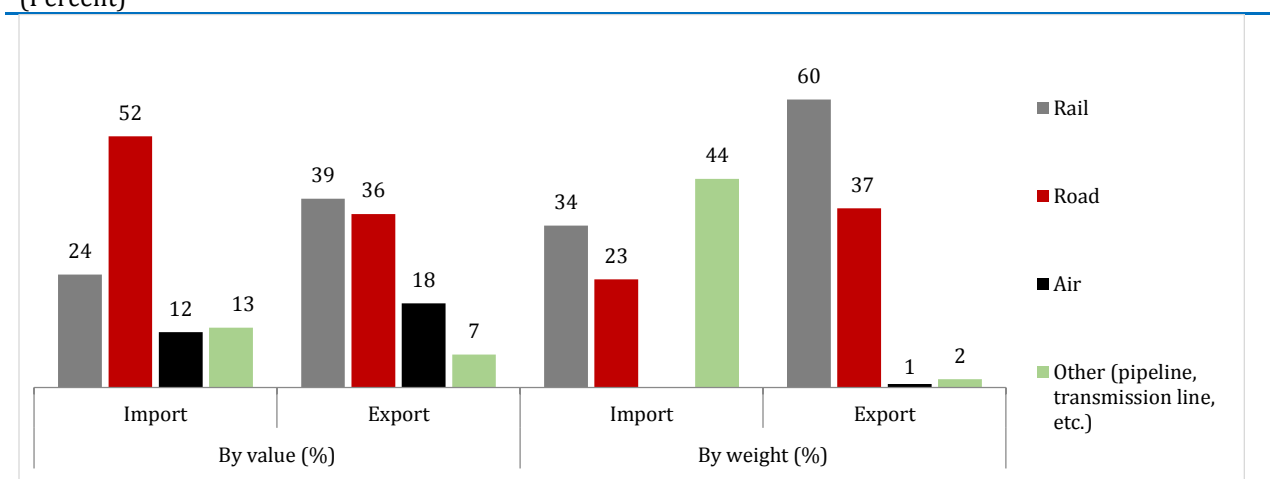
	Rank in 2014-2015	Rank in 2008-2009	Change
Availability of latest technologies	95	116	+21
Firm-level technology absorption	113	109	-4
FDI and technology transfer	79	92	-13
Individuals using internet	71	102	-31
Broadband internet subscriptions	70	102	-32
International internet bandwidth	48	N/A	N/A
Mobile broadband subscriptions	67	N/A	N/A

Source: GCR 2014-2015, WEF.

***Although logistics limitations adversely affect Armenia's economic performance, it is difficult to categorize them as a constraint on economic growth.***

Armenia's transportation infrastructure is complicated by the lack access to sea and closed borders with two neighbors out of four. Rail transport is used for exports of mining and other resource-based products but road transport is the main channel for exports of other products (Figure A1.10). Air transport is used for high-value-added and low-weight commodities.

**Figure A1. 10: Transportation Modes for Armenia's Foreign Trade, 2012**  
(Percent)



Source: Armenian Customs Service.

Armenia mainly exports to Russia, its main trading partner, by land. The inland transportation route from Yerevan to Moscow passes through the upper Lars customs checkpoint in Georgia, the operations of which are not stable. The cost for transporting one truckload from Yerevan to Moscow is about US\$4,000–4,500 (Table A1.7). (Sea transportation via Georgia is even more costly.) By comparison, the cost to Moldova, which compares with Armenia in terms of its exports to Russia, is US\$3,000–3,500.

**Table A1.7: Benchmark Logistics Costs to Export 20 Tons**

	Cost (US\$)
Yerevan-Moscow (land transportation through Lars)	4,000–4,500
Yerevan-Moscow (sea transportation through Poti and Ilichevsk ports)	5,500–6,000
Kishinev-Moscow (land transportation)	3,000–3,500

Source: Interviews with logistics service companies of Armenia and Moldova, 2013.

The magnitude of logistics constraints differs by product group (Table A1.8). Costs are negligible for high-value commodities like brandy and copper but have a notable share in the overhead for wine and fruit.

**Table A1.8: Average Logistics Costs in Prices of Selected Export Commodities**  
(Percent)

Commodity	Destinations	Share of Logistics Costs in the Wholesale Export Price
Textiles	Canada	7-9
Wine	Russia	15-17
Fruits	Russia	27-29
Brandy	Russia	4-6
Copper	Germany	3-5

Source: Interviews with exporters 2013.

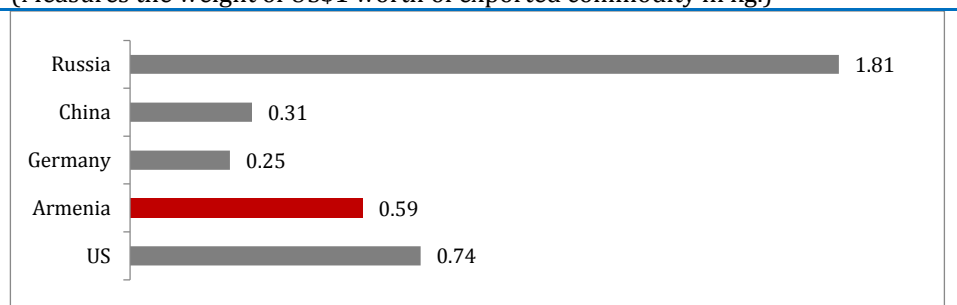
The proportion of logistics expenses in total commodity costs is determined by the ratio of the weight of the exported good to its value. Benchmarking the ratio for Armenia with a few countries



that have the most diversified exports and where transportation is not a binding constraint (Figure A1.11) does not confirm that logistics costs are a binding constraint on Armenia's economic growth.

**Figure A1. 11: Weight-to-value Ratio for Exports, 2011**

(Measures the weight of US\$1 worth of exported commodity in kg.)



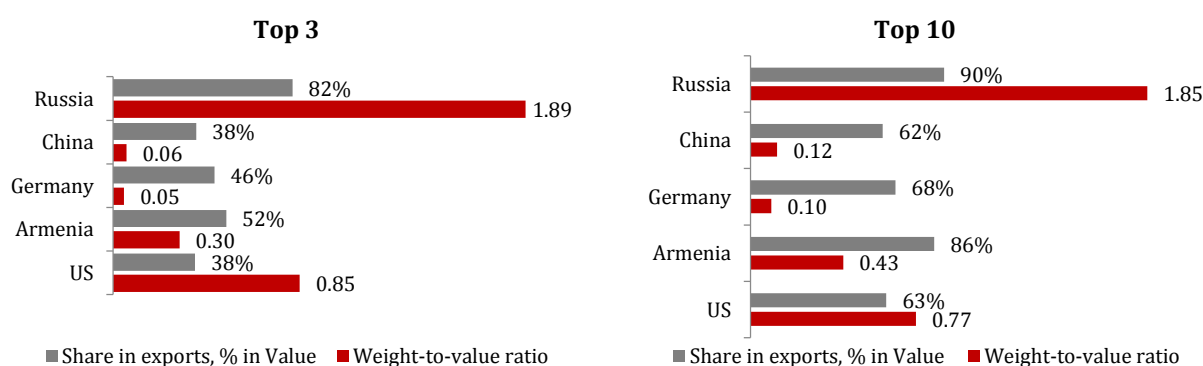
Source: UN Comtrade, EV analysis.

Further analysis of the weight-to-value ratio in the export structure of Armenia demonstrates that the top exported commodities have a lower weight-to-value ratio than the export basket average (Figure A1.12). This is accounted for by the fact that high-value-added natural minerals and diamonds dominate in Armenian exports, for which logistics costs have a negligible share.

Despite notable cost disadvantages, local businesses, generally do not consider road quality and air transport infrastructure to be a major problem (GCR 2014–15). However, absence of its own port infrastructure is a competitive weakness. The infrastructure quality of Georgia's Poti port, which also serves Armenia's exports, was ranked 67<sup>th</sup> by Georgian exporters and 134<sup>th</sup> by Armenian exporters. This is due both to the costs of getting exports to the port and the instability of transportation services Armenian exporters experience in Poti.

**Figure A1. 12: Weight-to-value Ratio and Share in Exports, Top 3 and Top 10 Export Commodities, 2012**

(Measures the weight of US\$1 worth exported commodity in kg, in percent)

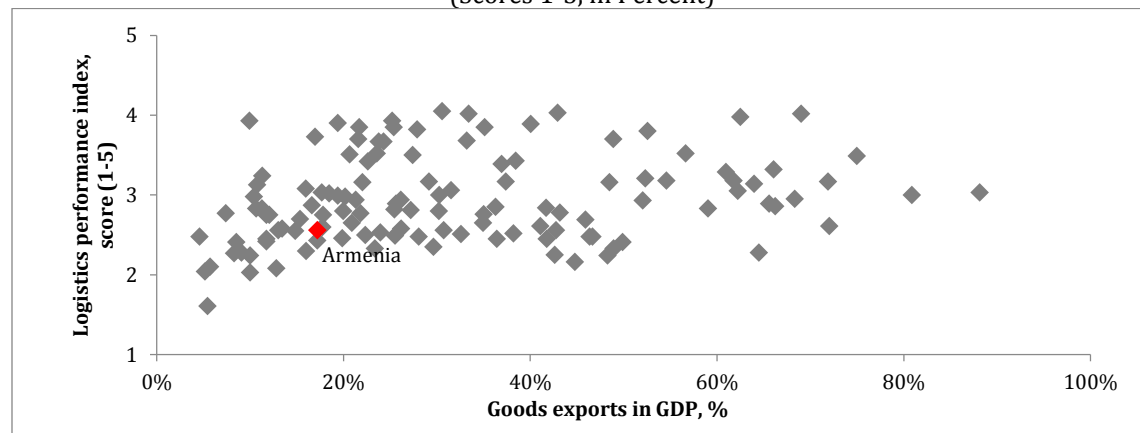


Source: UN Comtrade, EV analysis.

Armenia is ranked 100<sup>th</sup> among 155 countries in the World Bank Logistics Performance Index (Figure A1.13). However, benchmark analysis demonstrates that a significant number of economies with similar or worse rankings perform much better in exports.

**Figure A1. 13: Logistics Performance Index and Export Performance, World, 2012**

(Scores 1-5, in Percent)



Source: WB WDI.

Note: Data for several countries is for 2011.

Armenia ranks least well in tracking and tracing (139<sup>th</sup>), customs (125<sup>th</sup>), and international shipments (123<sup>rd</sup>). Its highest rank, 77<sup>th</sup>, is for timeliness. While Armenia has certain disadvantages in transportation, there is no strong evidence that logistics infrastructure is a binding constraint for Armenia's economic growth at this stage.

### **Financial Capital**

The financial depth of the Armenian economy is estimated to have been about 49 percent of GDP in 2013. This is only one-sixth of the global level, indicating that in Armenia financial system growth is uneven. In Armenia, access to finance has three main problems: the level of domestic savings, the cost of finance, and the availability of finance. There is a lack of long-term savings to channel to productive firms at affordable interest rates and there is little diversity of financial instruments.

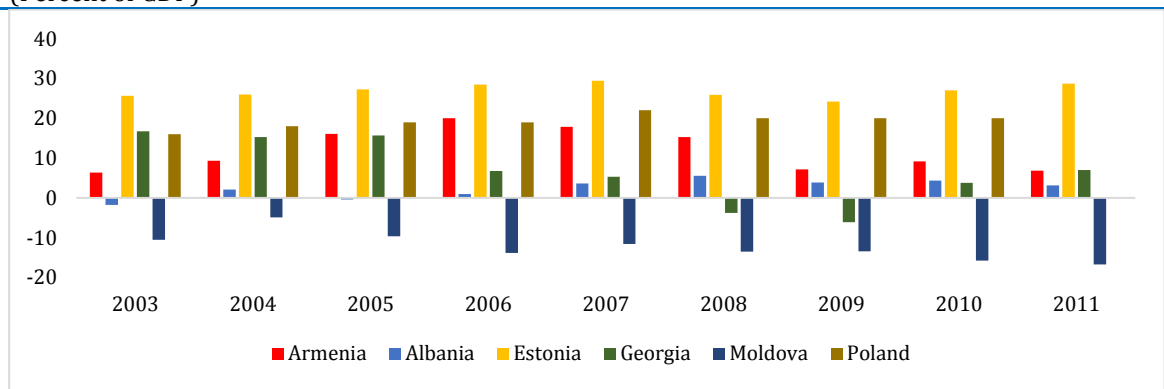
#### ***Domestic savings are low in Armenia and they are mainly short-term.***

The level of domestic savings is low and as of August 2013 about one-third of total deposits matured in less than one year.<sup>16</sup> This skews possible investment towards short-term projects.

The expansion of aggregate savings in 2003–06 was notable, but for the last decade gross domestic savings have been modest. Savings peaked in 2006 at 20 percent of GDP, higher than in many Central and Eastern European and CIS countries, fell in during the crisis, and returned to pre-crisis levels after of the crisis (Figure A1.14).

<sup>16</sup> Source: Central Bank of Armenia (CBA).

**Figure A1. 14: Gross Domestic Savings by Country, 2003–11**  
(Percent of GDP)



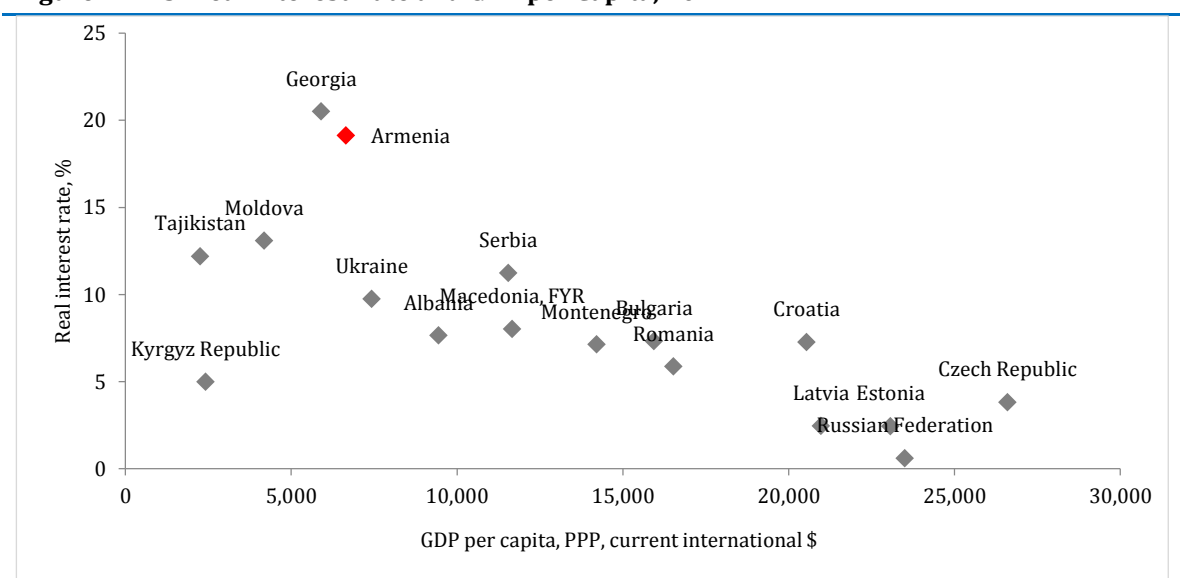
Source: WDI.

Household savings are the smallest component of total savings and have been negative in recent years, reflecting the low level of household income in Armenia. Corporate savings make up the majority of gross savings. If fully enacted, pension system reform will facilitate prolonged savings.

***The real interest rate in Armenia is higher than in most peer countries.***

Armenia's financial system is marked by an uncompetitive real interest rate. In benchmark economies lower interest rates are correlated with higher income (Figure A1.15).

**Figure A1. 15: Real Interest Rate and GDP per Capita, 2012**

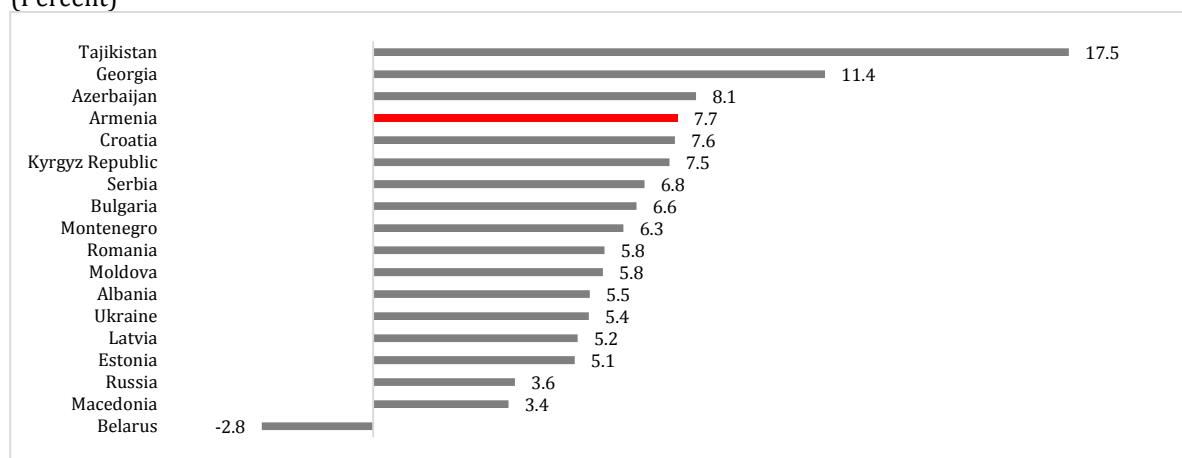


Source: WDI.

The average cost of funding is high and has recently been rising in Armenia based on the country's sovereign risk rate and the risk rates for commercial banks. The volume of new corporate clients entering the loan market has been eroding in recent years, which has intensified competition among banks and pushed down the spread for business loans. However, the spread is still higher than in most peer economies (Figure A1.16).

**Figure A1. 16: Interest Rate Spread, 2012**

(Percent)



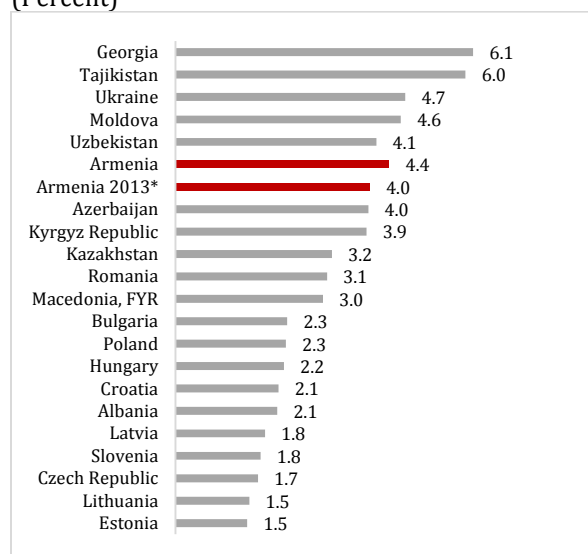
Source: WDI.

***More efficient operations and possible consolidation would reduce overhead rates.***

While Armenia's bank overhead costs are competitive with those in economies at its income level, higher-income countries require better efficiency. The Armenian banking sector is not particularly concentrated: the cumulative assets of the three largest banks account for about one-third of total banking sector assets (Figure A1.17) and a five-bank concentration ratio is one of the lowest among peer economies (Figure A1.18). The large number of banks and low concentration equal a fragmented market. As a result, small-scale lending leads to higher operational overhead for most banks. A significant portion of the overhead consists of security and monitoring costs due to the lack of transparency of businesses, which heightens borrower risk.

**Figure A1. 17: Ratio of Bank Overhead Costs, to Total Bank Assets, 2011**

(Percent)

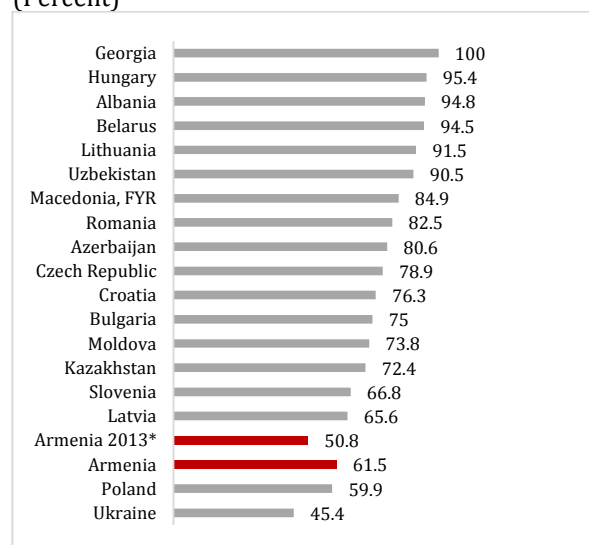


Source: WB Global Financial Development Database.

Note: As of October 2013.

**Figure A1. 18: Five-bank Assets Concentration, 2011**

(Percent)



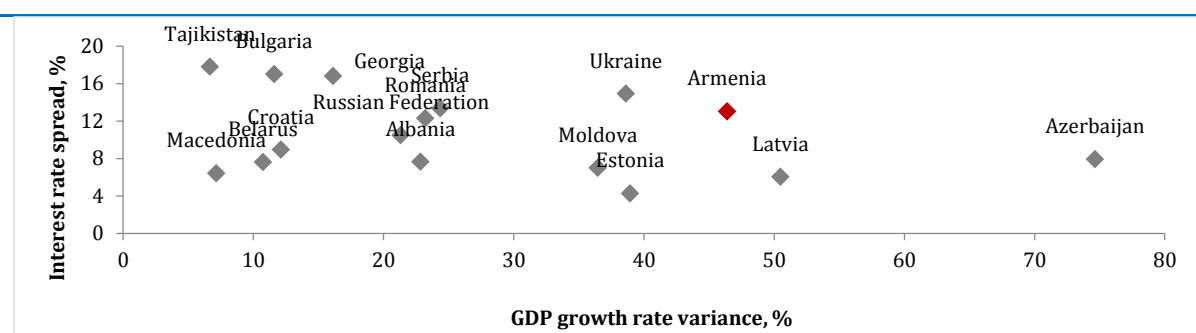
Source: WB GFDD, CBA

Note: As of June 2013.

***Lack of transparency and maturity in the corporate sector raises high-risk premiums.***

One of the major reasons for high interest rates in Armenia is the risk profile of local businesses: financial reporting that is not transparent, gaps in corporate governance, low level of financial literacy of company management. This raises the risks for banks, increasing the burden of administrative costs and necessitating strict terms for collateral. About 72 percent of the total loan portfolio in Armenia is made of loans backed by collateral, movable and immovable. On the other hand, even collateralized loans do not mean that banks are fully secure given the illiquidity of industrial property and machinery markets. Other financing instruments, such as factoring and leasing, have a tiny share in total banking sector assets.

**Figure A1. 19: GDP Growth Rate Variance and Interest Rate Spread, Average 1997–2012, Percent**



Source: WDI.

***The evidence on the cost of finance in Armenia does not entirely support the idea that it is a binding constraint on growth.***

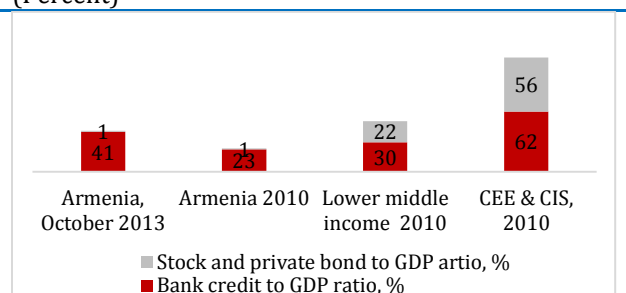
The statistical linkage between private investments and loan rates is not sufficient to support straightforward causality (Figure A1.19). Simultaneous moves in investments and interest rates when economic growth is high may be explained by a fall in perceptions of the business risk. The consequent contradictory movements in these during the crisis were the result of market distortions caused by nonmarket forces.

The true impact of the cost of financing needs to take into account the distinctive structure of the local financial system. The cost of finance in Armenia is largely a reflection of loan interest rates; the general lack of alternate financial instruments erodes the quality of local finance.

***The major imbalance in Armenia's financial system is the overwhelming dominance of banking.***

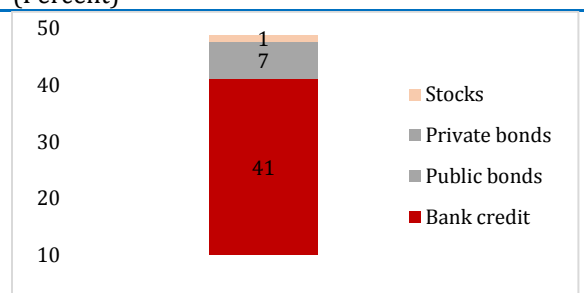
Armenia's financial system is predominantly bank-driven wherever capital markets, private equity (PE), and alternative financial institutions are still immature. The banking system comprises about 60 percent of total financial depth in countries in the same income economies; Armenia's performance is somewhat narrower (Figures A1.20 and A1.21).

**Figure A1. 20: Financial Depth Ratios (excluding Public Bonds)**  
(Percent)



Source: CBA, Nasdaq-OMX, WB GFDD, McKinsey 2011.

**Figure A1. 21: Armenia's Financial Depth Ratio, October 2013**  
(Percent)



Source: CBA, Nasdaq-OMX, WB GFDD, McKinsey 2011.

***Banking intermediation has continuously increased since the second half of the 2000s but any more will be costly and risky.***

Starting from a very low base, the bank credit-to-GDP ratio quadrupled in the 2000s, surpassing 40 percent of GDP in 2013. Pre-crisis the expansion was triggered by economic growth; after the crisis the steady growth in bank lending was partially sustained by injection of financial resources by the government.

The banking sector has managed to keep the share of nonperforming loans (NPLs) low;<sup>17</sup> in 2012 it was 4.4 percent, among the lowest in peer economies. However, given the lower base of financial intermediation, it may be that currently only the most secure borrowers are served. Further expansion would necessitate providing credit to more risky segments of the economy, which will be more costly.

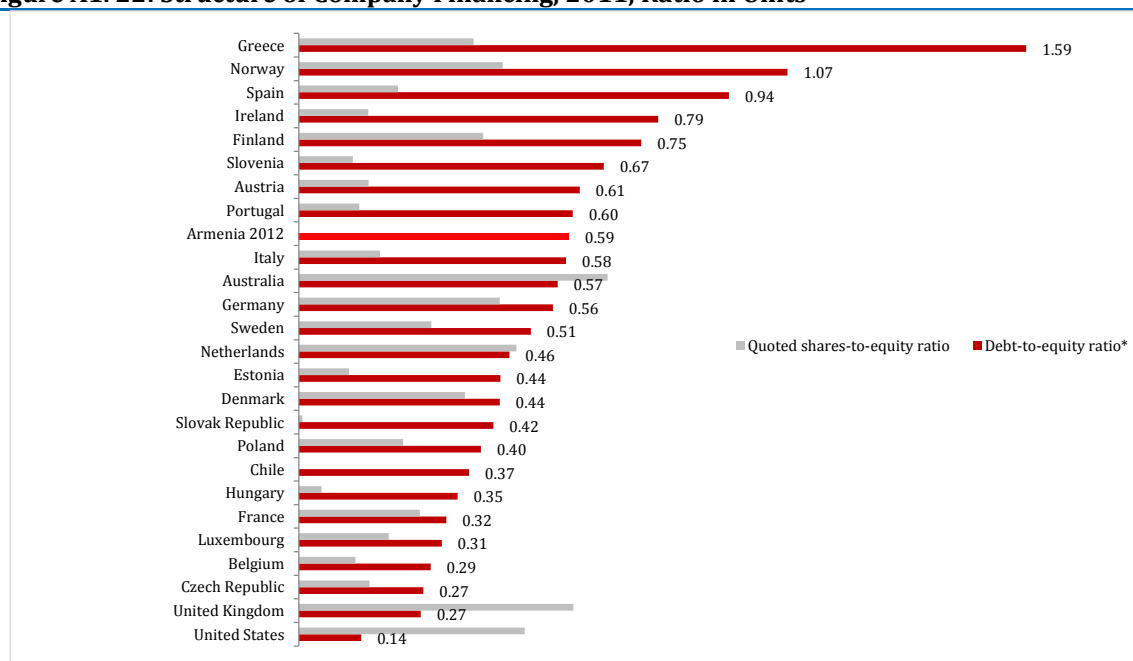
***Armenia's private sector has higher leverage compared to advanced economies.<sup>18</sup>***

Armenian firms have a higher debt burden than firms in developed countries; in 2012 the debt-to-equity ratio was about 0.6 .

<sup>17</sup> However, some experts believe the real value of NPLs might be much higher due to refinancing of bad loans.

<sup>18</sup> Data for peer country groups is largely not available.

**Figure A1. 22: Structure of Company Financing, 2011, Ratio in Units**



Source: OECD Data Lab, EV analysis.

Note: Armenian data is for 2012. \*The debt-to-equity ratio is taken as the ratio of long-term bank loans and borrowings to total equity. The sample for Armenia includes 470 of the largest companies. Information is from their published financial reports.

Distribution of the leverage burden is uneven across both sectors of the Armenian economy and companies. The segment with the lowest leverage consists of MNCs, branches of international organizations, and sectors that are highly profitable. Companies in the highly leveraged segment mainly belong to manufacturing, energy, trade, food, and accommodation sectors; this segment relies heavily on refinancing. The businesses normally have little equity, an even smaller asset base, and tight cash flow cycles. It appears that this segment is currently on the rise in Armenia, creating significant risks to the soundness of the financial system.

***Lack of financing instruments for working capital limits opportunities for growth.***

Working capital is highly important to Armenia's private sector due to certain peculiarities: The average working capital cycle is usually longer for local businesses due to size disadvantages in terms of international trade. Thus, local importers have to pay higher advance payments. Also, logistics issues and customs administration red tape require Armenian companies to keep large inventories. In local market, pressures by large retailers often result in extended accounts receivables. Other pressures include VAT charges at the border.

The prolonged working capital cycles are not well-served by financial institutions. There is a lack of diversified financing instruments: factoring and purchase order financing have a minimal role.

***SMEs rely heavily on financing from donor organizations and the state.***

More than 95 percent of businesses registered in Armenia are SMEs, which the Ministry of Economy estimates contribute 45–50 percent to the country's GDP. On the other hand, according to the central bank, the share of SME financing in total bank loans was about 25 percent in 2012. This



inclination toward larger firms may be an indirect indication of the financing constraints that SMEs and start-ups with poor asset experience.

***The one-dimensional nature of the local financial system prevents companies from accessing finance***

International experience shows that large companies normally get funding from capital markets and SMEs from banks. Armenia, which has no capital markets, large businesses source financing from banks, generating strong competition for SMEs. Lack of access to equity markets also restricts development of debt instruments due to over-leveraged risks. The banking system is close to depleting the segment of large low-risk corporations with healthy cash flows.

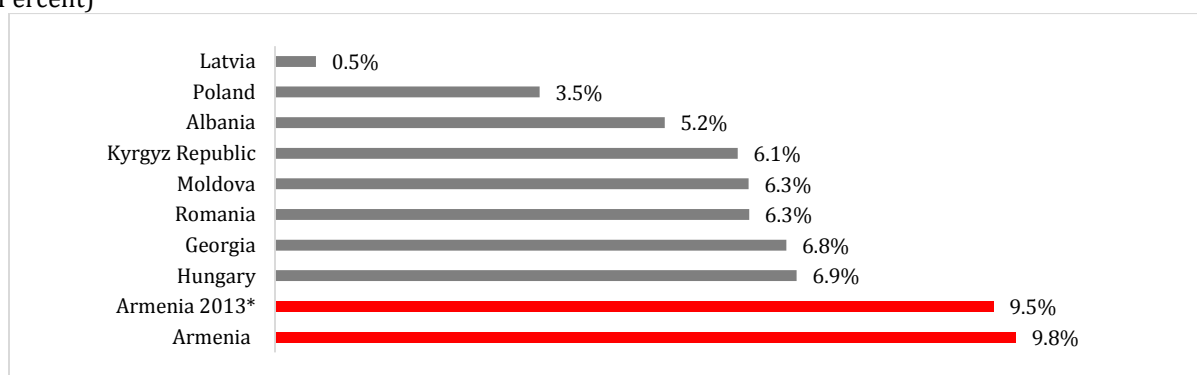
***Immature capital markets and lack of private equity distort the distribution of capital and suppress credit growth.***

The current state of large-scale bank-loaned debt requires that further debt expansion be supported by a sound equity base. The lack of equity market development in Armenia significantly restricts debt growth. The pattern of past privatization, the small scale of the economy, the large scale of the shadow economy, and the general absence of institutional investors have been the main obstacles to enhancement of Armenia's stock market.

***While the government bond market is expanding in Armenia, the yield curve is not an efficient benchmark.***

Domestic public debt in the Armenian economy has been steadily expanding, hitting almost 6.5 percent of GDP by mid-2013. However, the public bond market is illiquid and formal. Armenia has a higher yield for T-bills than most peer countries (Figure 1.23), which means the risk-free interest rate in the economy is set at a high level.

**Figure A1. 23: T-bill Interest Rates, 2012**  
(Percent)



Source: International Monetary Fund

Note: The data for Poland is for medium and long-term government bonds. \*As of October 2013.

The rather narrow gap between government bond yield and bank rates for lending to large businesses is one of the main factors restraining firms from issuing bonds in local currency. Thus, the public bonds market in Armenia may be crowding out private bonds, making them less attractive.

***Corporate bonds in foreign currency may jumpstart the private bond market and a Eurobonds issue is vital for setting a foreign exchange benchmark.***

Up to 2012, Armenian companies were not allowed to issue forex bonds; the intent was to reduce dollarization in the economy. Elimination of the ban has encouraged companies to issue private bonds. While recently there has been increased activity in US\$-denominated corporate bonds, this will be hard to sustain if no benchmark is set for forex borrowing in Armenia. Financing allocated by international institutions cannot effectively fill this role because it demands that rates be determined in a free market and that the country enters global capital market. The issuance of Eurobonds by the Armenian government in the fall of 2013 and a follow up in spring of 2015 can be a major contribution to this.

***Lack of private equity and venture funds in Armenia distort financing options.***

The scale of equity investments in Armenia is minimal; most PE investments function as subordinated corporate debt. The total volume of PE fund investments in Armenia is estimated at about US\$60 million. Limited opportunities for exit force PE funds to close deals with put options at prearranged prices. This form of investment is not common in economies with a developed PE sector and does not contribute to the development of the Armenian economy.

The absence of exit channels in Armenia is to a certain extent accounted for by the poorly developed of merger and acquisitions (M&A) and initial public offering (IPO) markets. The underdeveloped corporate sector is an additional constraint because it generates higher overhead costs for PE funds.

The general lack of high-risk financing is a deterrent to growth of a technological entrepreneurship culture in Armenia. Absence of an equity investment culture, poor knowledge of global experience, information asymmetry, and market instability are serious limiting factor for development of high-risk financing. The set-up of the first Armenian venture fund in 2013, Granatus Venture Fund I, was a major milestone for the venture capital industry in the economy.

**Natural Resources**

***Armenia has few natural resources.***

Armenia's stock of natural resources is one of the smallest among peers in the Eurasian region (Gill et al. 2014) in both physical terms and per capita.

**Table A1. 9: Natural Resource Wealth in Armenia and Eurasian Peers**

(Per Capita, 2005 US\$ Thousands)

Country/region	Total Natural Capital	Forest and Land	Coal and Minerals	Oil and Gas
Armenia	3.1	3.0	0.1	0.0
Azerbaijan	11.7	2.5	0.0	9.2
Belarus	6.0	5.2	0.0	0.8
Georgia	3.3	3.2	0.0	0.1
Kazakhstan	23.9	3.6	3.1	17.2
Kyrgyz Republic	3.0	2.9	0.0	0.1
Moldova	4.1	4.1	0.0	0.0
Russia	31.3	7.1	1.0	23.2
Tajikistan	1.8	1.7	0.0	0.0
Turkmenistan	37.9	5.4	0.0	32.5
Ukraine	6.9	4.9	0.6	1.4
Uzbekistan	7.7	2.3	0.0	5.4
Eurasia	20.8	5.5	0.8	14.5

*Source:* World Bank 2011.

Armenia has deposits of gold, copper, molybdenum (estimated at 7 percent of the world reserves), and some other rare metals. There are several large mines and enrichment factories and a large number of smaller mines. In recent years, several major investment projects have been undertaken that will increase industry output (e.g., exploitation of a large copper mine in Teghout).

There are also stone mines in Armenia that are rich in with travertine, granite, Armenian tuff, and other stones in demand both in Armenia and abroad. Several local and diaspora investors have made considerable investments in this field and introduced modern technologies.

Hydro power is produced by both large and small power plants.

Because Armenia is not resource-abundant, use of its natural resources must be balanced and sustainable. Unfortunately, certain scarce natural endowments, such as arable land, are not being used effectively; for instance, only about 30 percent of all arable land in Armenia is irrigated.

## Appendix 2: Discovery and Seizure of New Export Opportunities

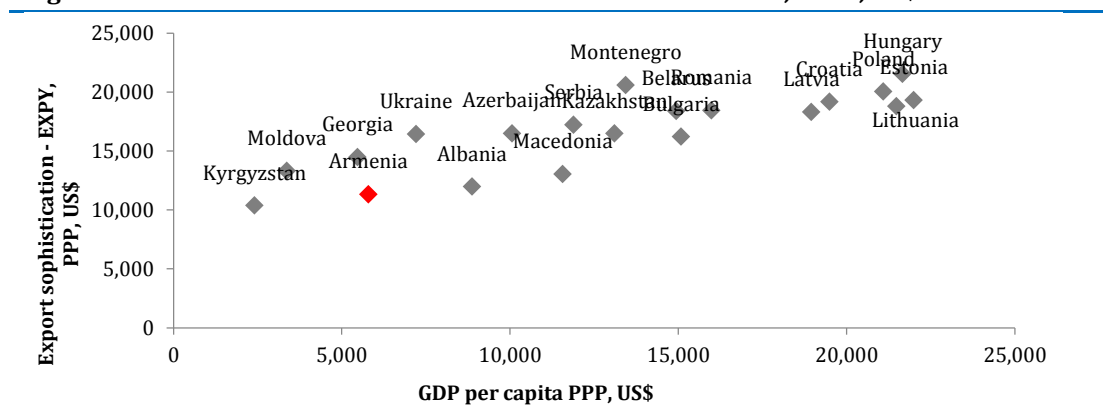
Two possible channels of market failures—information externalities and coordination failures—lead to low self-discovery, which means that the economy fails to effectively identify its most productive areas for specialization. Poor performance in innovation and exports is a symptom of poor self-discovery practices.

Armenia's economic growth is in a phase where, given the small domestic market, the channel to further development should be predominantly via exports. On the other hand, in general local exports lack sophistication, diversification, and uniqueness, so their growth potential is restricted. Unless these impediments are eliminated, local exports will not be a sustainable source of strong economic growth.

***Armenia fails to follow the path of advanced economies in export sophistication, and lack of diversity undermines the quality of its export basket.***

Armenia's exports have major structural issues that limit the significance of exports as contributors to economic growth. The pattern of global economies demonstrates a close correlation between export sophistication (EXPY **[[add to acronym list]]**) and level of income. Armenia's EXPY is average for its income group (up to US\$10,000, PPP adjusted). Countries that manage to achieve higher EXPY than their income group are in a good position to grow (Hausmann, Hwang, and Rodrick 2006). Armenia does not follow the course of developed economies in shaping export structure, which subtracts from its development prospects. Among benchmark countries, Armenia's exports are the least sophisticated after Kyrgyzstan's.

**Figure A2. 1: EXPY and Income Levels in Benchmark Countries, 2011, US\$ PPP**

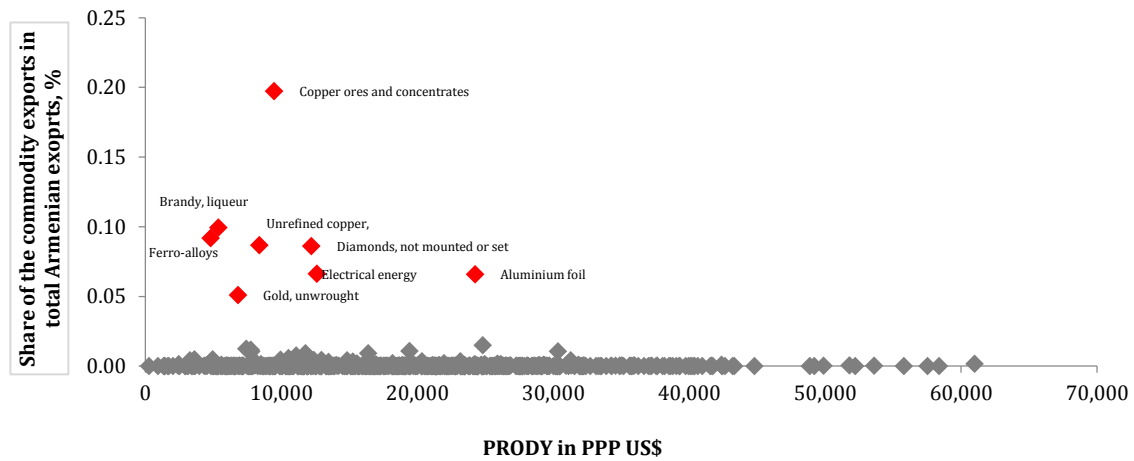


Source: UN Comtrade, WDI, EV analysis.

Within Armenia's export portfolio, the commodities with more than a 5 percent share in total exports have a remarkably low level of sophistication (revealed sophistication of products, PRODY—it is lower than the average for those goods. Armenian export products with higher than average PRODY have insignificant shares in total exports. This results in a relatively unsophisticated export basket.

**Figure A2.2: Sophistication of Exported Goods (PRODY) and their Shares in Armenian Exports, 2011, US\$ PPP**

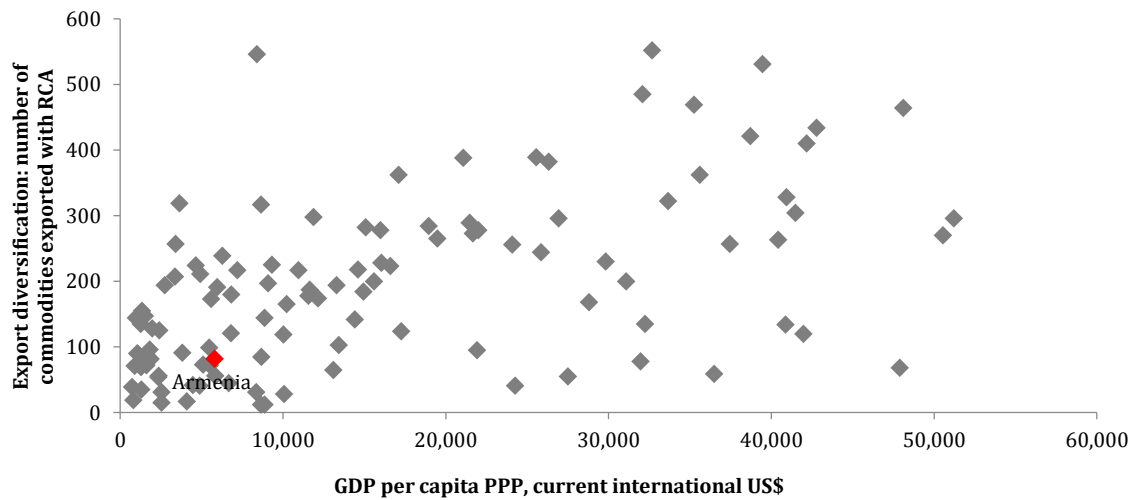
(Percent)



Source: UN Comtrade, WDI, EV analysis.

Armenia's export diversification is poor. In 2011, it exported 82 commodities<sup>19</sup> for which it has a revealed comparative advantage (RCA)—just 14 percent of the total number of commodities exported.

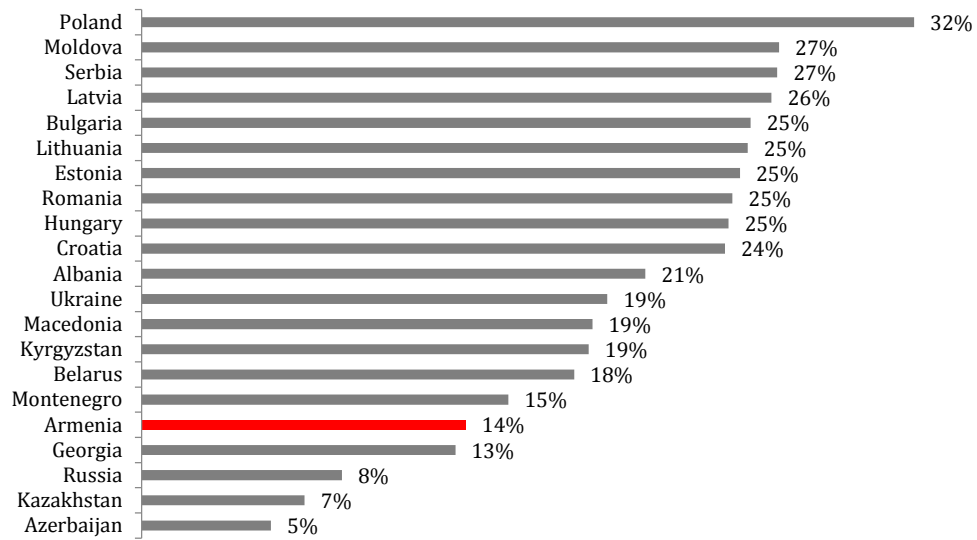
**Figure A2. 3: Export Diversification and Income Levels, 2011**



Source: UN Comtrade, WDI, EV analysis.

<sup>19</sup> UN Comtrade 4-digit HS codes.

**Figure A2. 4: Share of Commodities with RCA in Total Commodities Exported, 2011**  
(Percent)

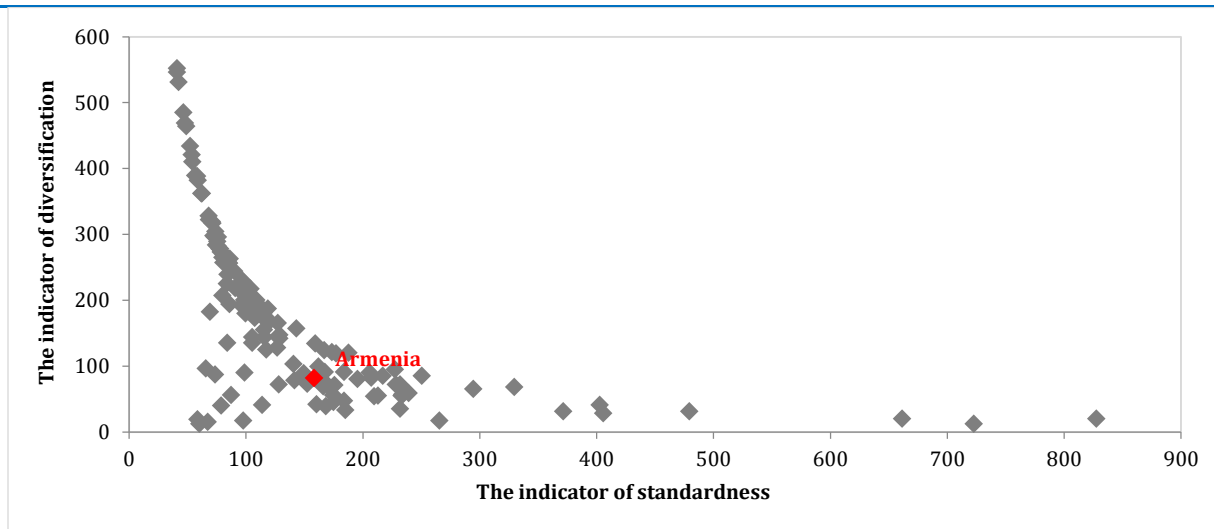


Source: UN Comtrade, WB WDI, EV analysis.

***Armenia lacks uniqueness in exporting certain goods with a revealed competitive advantage.***

“Standardness” measures how many countries export the same commodity with RCA that a given country exports. A low the indicator means that the country is among only a few exporters of the product. The standardness of Armenian exports exceeds the global average by 9 percent. The general trend observed globally is that low export diversification is correlated with low uniqueness.

**Figure A2. 5: Standardness and Diversification, 2011, Units**

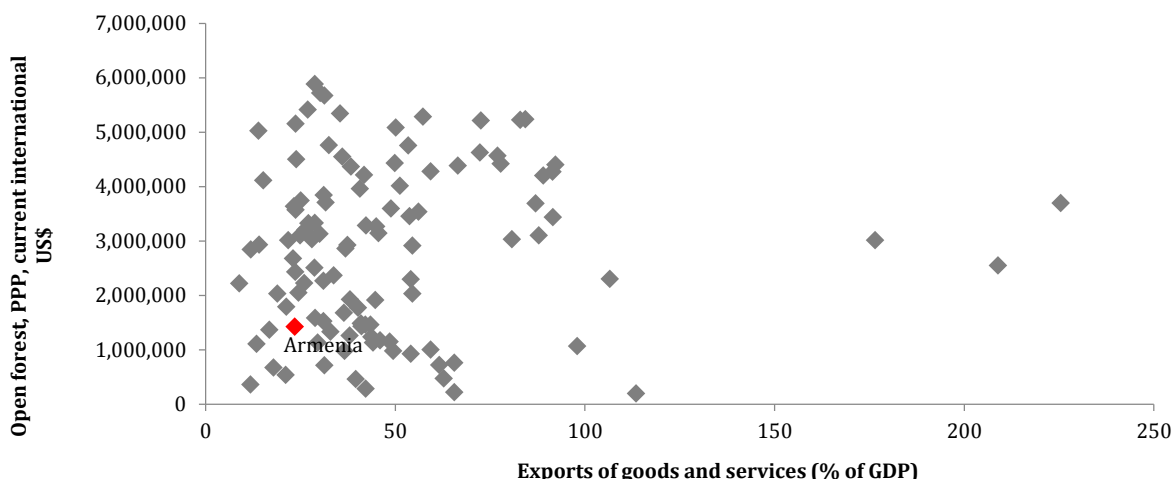


Source: UN Comtrade, WB WDI, EV analysis.

***The low option value of the export basket shows that Armenia has the challenge of finding new economic activities.***

A country has many options for structural transformation of exports if the exports are concentrated in a dense part of the product space map; that means that there are many close products for which the economy can build up export capacities. This index of potential (“open forest”) is remarkably low for Armenia compared to peer countries. This indicates a general lack of export-oriented self-discovery practices in the Armenian economy.

**Figure A2. 6: “Open forest” of Armenian exports, 2011, Percent of GDP**



Source: UN Comtrade, WDI, EV analysis.

***Armenia’s problems with self-discovery are rooted in an inability to identify and specialize in higher productivity fields.***

Abilities to correctly identify and effectively specialize in highly productive areas are channeled by the generation of ideas and innovations that facilitate development of novel products. This makes R&D and innovation vital components of a country’s development strategies. Low investment returns are correlated with a slow (or no) pipeline of new productive ideas (Hausmann, Hwang, and Rodrick 2006). Countries often fail to trigger innovation initiatives due to the difficulties and cost of initiating but the ease of replication.

Self-discovery challenges are more complex for countries whose economies are less developed. A distinctive feature of self-discovery is that in tradable sectors its processes are more challenging; however, the returns from supplying the global market are generally higher.

The minimal state of development of Armenia’s innovation infrastructure is a considerable restraint on self-discovery that also interferes with the development of knowledge-intensive industries. Despite having a knowledge-intensive economy as a priority, Armenia’s rank on the GCR innovation pillar is the second lowest of its competitiveness factors (after market size).



**Table A2. 1: GCR Rankings on Innovation**

	Estonia	Poland	Armenia	Georgia	Albania	Moldova
Capacity for innovation	31	67	98	110	115	128
Quality of scientific research institutions	25	63	105	119	130	121
Company spending on R&D	36	98	102	126	73	135
University-industry collaboration in R&D	34	73	112	128	135	124
Gov't procurement of advanced tech products	15	89	121	69	70	127
Availability of scientists and engineers	104	62	75	122	110	128
PCT patents, applications	27	40	53	65	84	73

Source: WEF GCR 2014-2015.

Armenia has a broken link between industry and science. Minimal commercialization coupled with inadequate spending on R&D (among the lowest in benchmark countries) undermine Armenia's sizable scientific heritage and interfere with opportunities to transform the economy toward higher value-added, more sophisticated products. Restoration of this link and enhancement of innovation capabilities are the core challenges for self-discovery.



## Appendix 3: Review of How Action Plans Are Being Implemented

### Pharmaceutical and Biotechnologies Sector

Implementation of the Pharmaceutical sector action plan has generally been collaborative, engaging stakeholders from donor projects as well as the private and public sectors. The introduction of GMP was a critical focus of activity. It involved adoption of regulations to comply with EU standards, capacity building in both the public and the private sector, and the first certification. Certification of two other local producers is in process, which lays a solid foundation for future export growth. The process of securing international recognition of national certification was launched with the application to join the Pharmaceutical Inspection Convention and Pharmaceutical Inspection Co-operation Scheme (PIC/S).

Human capital development, largely related to GMP introduction, had the highest completion rate among other activities. The GXP Training Center of MPI Union, the main industry association, has delivered 13 training courses that had 213 participants. The university-private sector collaboration has intensified—MPI Union has signed partnership agreements with seven universities. The production technology laboratory at Yerevan State Medical University was launched with the donation of production equipment by two large producers.

The private sector had high demand for export support, which led to high completion rates for such related activities as

- Cofinancing for product certification in export markets,
- Cofinancing of inbound missions of export market distributors and doctors, and
- Market analyses of potential export destinations.

International trade fair participation was not planned in 2013 but due to emerged interest by sector companies, participation in 3 trade shows are targeted for 2014.<sup>20</sup>

**Table A3. 1: Performance on Pharmaceutical Initiatives**

<b>Implemented</b>	<b>GMP regulation officially introduced in Armenia:</b> GMP regulation is integrated into the RA Law on Drugs the draft of which has been presented for Parliament approval.
<b>In progress</b>	<b>GMP certification of local producers:</b> One producer is already certified; certification of 2 more in process and expected by the end of 2014. <b>International recognition of GMP certification:</b> Application made to join PIC/S is being assessed. A prerequisite for membership will be a revised RA Law on Drugs.
<b>Not implemented</b>	<b>Organization of investment forums to attract FDI:</b> The forums were planned to engage large foreign pharmaceutical producers. Since an international business forum is scheduled to be held in Armenia in 2015 (with the support of UNIDO and the Asian Development Bank), the planned separate pharmaceutical industry business forums will now be integrated into that forum.

In the period covered,<sup>21</sup> of 33 actions in the Pharmaceutical sector action plan due to be at last started, about half have been completed and over one-third are in progress (Tables A3.1 and A3.2). Of four actions not implemented, three in the same stage in all the target sectors: Launch of export

<sup>20</sup> IPHEX 2014 (Mumbai, India), CPHI 2014 (Paris, France), APTEKA 2014 (Moscow, Russia).

<sup>21</sup> In the current document, for the purpose of assessing the performance of the action plans, the analysis is as of March 2014.

financing mechanism; equity investments in companies; and inbound and outbound investment business missions.

The objective and outcome monitoring indicators for sector performance are in progress. Of these, the export target for 2013 was close but no MNCs were attracted to the sector.

Of 13 action performance indicators, 10 have been achieved. Of the 3 not achieved, timing of 2 has been shifted and 1 is a problem for all target sectors (Table A3.3).

**Table A3.2: Implementation Status of the Pharmaceutical Action Plan**

Status	Number of Activities	Percentage
In process	12	36
Implemented*	17	52
Not implemented	4	12
Total	33	

\*Some of the actions are continuous.

<b>Table A3. 3: Implementation Status of Pharmaceutical Initiatives by Strategic Direction</b>			
Strategic directions		Performance	
		Number of activities	Percentage
<b>1</b>	<b>Quality assurance</b>	In process - 6	67%
		Implemented - 3	33%
		Not implemented - 0	0%
<b>2</b>	<b>Easing access to raw materials</b>	In process - 1	50%
		Implemented - 1	50%
		Not implemented - 0	0%
<b>3</b>	<b>Workforce development</b>	In process - 2	29%
		Implemented - 5	71%
		Not implemented - 0	0%
<b>4</b>	<b>Easing access to financing for investment and export</b>	In process - 1	14%
		Implemented - 4	57%
		Not implemented - 2	29%
<b>5</b>	<b>FDI attraction</b>	In process - 0	0%
		Implemented - 0	0%
		Not implemented - 2	100%
<b>6</b>	<b>Sector promotion</b>	In process - 2	33%
		Implemented - 4	67%
		Not implemented - 0	0%

In mid-2013, the sector council conducted an interim review of the sector action plan that led to revision of the timing of selected initiatives to make it more realistic.

## Issues

### *Quality assurance*

**GMP certification** of producers is moving more slowly than planned. To a certain extent this is accounted for by termination of the large-scale financial and technical support from the USAID EDMC project. The GMP component is the anchor for pharmaceutical sector development. To accelerate the certification process, the state could subsidize the financing required for GMP certification of companies, particularly covering the costs of the international inspector's visit.

For the **draft RA Law on Drugs**, the Ministry of Economy has provided negative feedback on introducing mandatory good distribution practice in the sector because of concerns about the possible emergence of a wholesale distribution monopoly or oligopoly. Adoption of the law without the good distribution practice component may lead to rejection of Armenia's application to join PIC/s on the grounds of incomplete good practices. This component might be phased in with dedicated monitoring and control mechanisms.

### *Easing access to financing for investment and export*

So far there has been no demand from sector companies for loans with subsidized interest rates.

### *Attracting FDI*

The critical sector action plan where there was underperformance was attracting FDI. This also covers attracting outsourcing contracts for local producers. There is a need for a clear strategy and targeted FDI promotion. The FEZ and GMP certification of companies should be used as attracting points.

### *New opportunities*

Several **bio-equivalency test** labs recently established in the Armenian pharmaceutical sector have already embarked on pilot projects. Currently, there is international untapped potential for bio-equivalency tests: the global market is about US\$50 billion annually. When it joins the Eurasian Customs Union, Armenia can conduct bio-equivalency tests of drugs going to Customs Union markets, particularly Russia. It is expected that according to the common technical and quality regulations in Customs Union territory, tests implemented in Armenia will be recognized in Russia. Since 2010 Russia has been selective about recognizing the results of bio-equivalency tests done outside Russia; tests done in India, which accounts for about 70 percent of the global market, are not usually accepted due to quality issues. Armenia can thus become a cost-effective alternative for tests done in Europe and Russia.

What the bio-equivalency labs in Armenia now need are specialized training for of staff and international certification. For this purpose, the action plan can be complemented with the following activities:

- Co-finance workforce training and activities aimed at international certification.
- Co-finance (at least in initial period) tests ordered by local pharmaceutical companies.

For the next phase of strategy implementation, interventions and toolsets employed need to enhance progress in areas where they are already successful—quality assurance, workforce

development, and sector promotion; and accelerate positive developments in lagging areas— attracting FDI and ease of access to financing.

Continuing successful cooperation between the main stakeholders in the sector will be instrumental in sector growth and achievement of strategic targets, particularly in the critical areas of quality assurance and FDI attraction.

## **Wine sector**

The wine sector strategy and action plan was approved in 2012 and full implementation began in 2013. Notable activities have taken place in sector promotion, with work on developing the country brand for the sector, participation to international expos, and other promotional events. There has been some progress in easing access to raw materials, mostly through private initiatives (establishment of new nurseries with selected seed sorts). On the other hand, activities related to state development of viticulture, which is critical for expansion of raw material are incomplete.

Investments in modernizing production and establishing new wineries have made the wine sector an active user of loans with subsidized interest rates.

Prioritization of the industry via the Industrial Strategy facilitated the engagement of Armenia in the Dutch CBI winemaking support project.<sup>22</sup> Five local producers have been selected for support for the next few years.

Areas of workforce development and easing access to finance have demonstrated successful performance.

To increase international awareness of Armenian viticulture and acquire international expertise, the Government of Armenia has applied to join the International Organization of Vine and Wine (OVI).

Activities for establishing a sector association have started.

The winemaking sector is experiencing a revival due to numerous investments in producing quality wine. New wine producers, such as Zorah wines, Tierras de Armenia, and Golden Grape Armas are expanding offerings in the quality wine segment, which has also triggered technological upgrades by incumbents. Both diaspora Armenians and local investors are showing increased interest in the wine sector. Several projects are now underway, mostly in Vayots Dzor region. Armenian wine brands have not only begun to participate in international contests but have earned awards and are getting publicity in international mass media. In 2013 Zorah's Karas was included on Bloomberg's top 10 list. Armenian wine producers have also been awarded the prestigious international Decanter World Wine Award. Current investments create a solid base for accelerated growth of the sector.

Overall, the process of implementing the sector action plan has been successful in multiple strategic directions. While the majority of the scheduled initiatives have been implemented or are in process, the effectiveness of the action plan will only become clear after full implementation of a number of key initiatives.

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<sup>22</sup> CBI (Centre for the Promotion of Imports from developing countries) is an agency of the Ministry of Foreign Affairs of the Netherlands.

**Table A3.4: Performance on Wine Sector Initiatives**

<b>Implemented</b>	<p><b>Selection of local grape varieties and establishment of nurseries:</b> six endemic grape varieties have been selected for experimented by a private entrepreneur, who has acquired 3 ha of land in Vayots Dzor marz and set up a nursery.</p> <p><b>Participation to international expos:</b></p> <p><i>Prodexpo (Russia), 2014 February</i> - 14 participants with 6 on a common country booth supported by IDF.</p> <p><i>Prowein (Germany) 2014 March</i> - visit of 9 companies with the support of GIZ and CBI. It is planned to participate as exhibitor in 2015.</p> <p><i>Shanghai International Wine &amp; Spirits Exhibition (China), 2013 November</i> - 8 participants.</p> <p><b>Establishment of Wine Academy:</b> The International Center for Agribusiness Research and Education (ICARE) in collaboration with a specialized local consulting company have established the Wine Academy at Armenian National Agrarian University (ANAU). The academy will deliver wine-making courses on different advanced levels.</p> <p><b>Subsidized interest rate on loans for capital investment:</b> Five of the 11 companies supported through this scheme in 2013 were wine producers, and another received support in 2014.</p>
<b>In Progress</b>	<p><b>“Wines of Armenia” umbrella branding for the sector:</b> An international branding company is expected to complete the work by the end of 2014.</p> <p><b>Improvements in sector regulation and technical standards:</b> To comply with EU technical standards, the RA Law on grape-based alcoholic beverages has been changed, and new technical standards for wine and spirit products have been drafted. The draft Law has been sent to Parliament.</p> <p>Also, importantly, planned membership in the Eurasian Customs Union will lead to introduction of joint technical regulations for the sector within the Customs Union territory. Currently, work is in progress to customize the technical regulations of the Customs Union for Armenia.</p> <p><b>Establishment of the “Wines of Armenia Association”:</b> The association was legally established in July 2013 and the first session was held in May 2014.</p>
<b>Not Implemented</b>	<p><b>Assessment of vineyards and establishment of a central register of vineyards:</b> The state has delayed financing by trying to find international donors. Talks have been held with GIZ for possible financing.</p> <p><b>“Wines of Armenia” web portal:</b> The content and technical features of the portal are ready, but released is planned for after completion of the “Wines of Armenia” branding.</p> <p><b>Bringing journalists of reputable international wine publications to Armenia and subsequent publication of articles</b></p>

**Table A3. 5: Implementation Status of the Wine Action Plan**







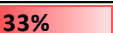
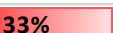







Status	Number of Activities	Percentage
In process	11	34
Implemented*	15	47
Not implemented	6	19
Total	32	

\*Some of the actions are continuous.

By the time of preparing the current Report, out of the 32 actions in the Wine sector action plan due for implementation/process start, nearly half have been completed and around one-third are in process of implementation.

Among strategic directions, sector promotion has the highest proportion of implemented activities – 60 percent.

**Table A3. 6: Implementation Status of Wine Initiatives by Strategic Direction**

Strategic directions		Performance	
		Number of activities	Percentage
1	Quality assurance	In process - 2	50% 
		Implemented - 2	50% 
		Not implemented - 0	0% 
2	Easing access to raw materials	In process - 4	50% 
		Implemented - 2	25% 
		Not implemented - 2	25% 
3	Workforce development	In process - 1	33% 
		Implemented - 1	33% 
		Not implemented - 1	33% 
4	Easing access to financing for investment and export	In process - 1	50% 
		Implemented - 1	50% 
		Not implemented - 0	0% 
5	Sector promotion	In process - 3	20% 
		Implemented - 9	60% 
		Not implemented - 3	20% 

Source:

Sector export and production targets for 2012 were underachieved by about 10 percent and targets for 2013 by about 15 percent. Export volume for 2013 makes 40 percent of the 2015 target.

**Table A3. 7: Performance on Wine Sector Objective Indicators**

Indicator	Baseline	Performance	
	2011	2012	2013
Wine production, m liter			
Target	-	6.6	7.4
Actual	6.2	5.7	6.4
Wine export, m liter			
Target		1.3	1.6
Actual	0.7	1.2	1.4

Outcome indicators for the targeted increase in exports to Russia and China were not achieved in 2012–13. Underperformance for Russian exports was 12 percent on average in 2012–13, whereas in the case of the exports to China indicator, there were nearly no export in 2013.



Of 10 action performance indicators, half have already been completed.

In mid-2013, the sector council conducted an interim review of the action plan, which led to revision of the timing of selected initiatives to make it more realistic.

For the next phase of strategy implementation, the interventions and toolsets need to build on the promising start to the sector's development strategy. A few aspects of strategic areas need to be monitored and addressed now to avoid later adverse consequences. For example, in the area of quality assurance, the approach to sector regulation and technical standards to be adopted in the territory of the Customs Union will be critical.

## **Issues**

### ***Viticulture development***

The state is mainly responsible for viticulture development but has not yet taken any active steps. Assessment of vineyard stocks and establishment of a centralized vineyard register is crucial for subsequent viticulture actions.

Given the critical importance of raw materials—in this case grapes—the importance of improving performance in this strategic direction cannot be understated. One important factor in strategy effectiveness and achieving the target set results is the commitment by state to financing. In this context, the RA Ministry of Agriculture has failed to secured the required state funding. The ministry needs an approved budget for this purpose to be integrated into the State Medium-Term Expenditure Framework. Another option is to allocate the funding required through the Industrial Development Fund.

Another area for which state financing was assumed is the selection and improvement of Armenian grape varieties and establishment of dedicated grapevine nurseries. Here, work initiated by the private sector needs reinforcement. The following options are possible:

- The state will take over the project and cover the required financing.
- Other companies will join the project initiator, provide financing, and share in the project.
- The project initiator will continue solo to develop the project into a business venture (selling the grown plants).
- The state will subsidize farmers who buy plants from the nursery (or other special-purpose nurseries established).

It is necessary for the state to at least clarify its level of engagement in the project and the support it will provide.

A special financing mechanism is needed for establishing vineyards with new varieties.

### ***Quality Assurance***

The perception of the private sector is that the few local labs in the sector do not deliver precise and trustworthy results. This means that local wines are often tested in Georgia. Armenian labs need support for upgrading to deliver high quality tests and gain the trust of local producers. For this purpose, the state could co-finance workforce training and international certification for the labs.

## **New opportunities**

### ***DNA database of native Armenian Grape Varieties***

New initiatives in the sector need to be integrated into the action plan, such as the project for creating a DNA database of native Armenian grape varieties. The project is implemented by students in the Biology Faculty of Yerevan State University, supported by the U.N. Food and Agriculture Organization (FAO).

### ***Workforce Development***

Collaboration of ANAU and ICARE with international educational institutions specialized in viniculture studies will enhance workforce development. Current talks with a few French, German and U.S. HEIs can move to the next level around the new Wine Academy. The latter also needs to become an integrating point for current master classes by local and international specialists.

## **Redefining Target Export Markets**

Sector promotion seems on the right track to generate critical results. Regular participation in international expos and establishment of a country brand for the sector should trigger notable sector promotion in export markets. After establishing the “Wines of Armenia” brand there will be a need for targeted and effective promotion, which will require financing. In the current phase promotion needs to focus on the following:

- Regular participation in international expos, in particular ProWein (Germany) and Prodexpo (Russia), making effectively use of the “Wines of Armenia” country brand
- International promotion of the sector via reputable sommeliers and prestigious promotional platforms: magazines, tastings, etc.
- Creation of an Internet portal for “Wines of Armenia.”

Implementation of the Wine sector strategy revealed that the Chinese market is not particularly attractive because of such problems as logistical issues, the need for a continuous and large-scale supply, and complicated import clearance procedures.

The target export markets for Armenian wine need to be re-categorized into three main segments:

- Countries with significant numbers in the diaspora (Russia, U.S.A., France)
- CIS markets (Russia, Ukraine, Belarus)
- Large European markets (Germany, Switzerland, etc.)

In addition to export markets, the local market emerges as a growing segment able to absorb a sizable portion of increased local production.

Overall, performance in the strategic directions of enhancing the raw materials base, quality assurance, and sector promotion will be instrumental for wine sector growth.

## Brandy Sector

The sector action plan is being carried out with mixed effectiveness (Table A3.8). The majority of activities are in the area of sector promotion, in particular, participation in international expos in Russia, Germany, and China. The efforts that have been made in the quality assurance area to upgrade sector regulation and technical standards need to be carried further. Export logistics issues have been resolved with the reopening in 2012 of the Upper Lars checkpoint for excise taxed products; this is on the Georgia-Russia border on the only ground transport route from Armenia to Russia. It has reduced transportation costs by 20–30 percent and shipment time by half.

**Table A3. 8: Performance on Brandy Initiatives**

<b>Implemented</b>	<b>Reopening of Upper Lars (Georgia) checkpoint:</b> This has notably shortened export routes to Russia and eased logistics costs for exporters. <b>Participation in international expos:</b> <ul style="list-style-type: none"> <li>• <i>Prodexpo (Russia), March 2014</i></li> <li>• 6 companies participated with a shared country booth and 8 others participated on their own with their distributors in Russia.</li> <li>• <i>Prowein (Germany), March 2014</i></li> <li>• With the support of GIZ and CBI, representatives of Armenian brandy-making companies attended Prowein without exhibiting their own products. The plan is to participate in Prowein in 2015 with their own products.</li> <li>• <i>Shanghai International Wine &amp; Spirits Exhibition (China), November 2013</i></li> <li>• 8 Armenian brandy companies participated.</li> <li>• <i>Global Purchasing Season Expo by International Brand Management Center of China Association of International Trade (China), 2013 August</i></li> <li>• Products of 5 Armenian brandy-producing companies were exhibited.</li> <li>• <i>International Green Week 2013 (Germany)</i></li> <li>• 3 Armenian companies participated.</li> </ul>
<b>In Progress</b>	<b>Improvements in sector regulation and technical standards</b> <i>(See point 2 under critical initiatives in progress in “Review of implementation progress of Wine sector action plan” part).</i>
<b>Not Implemented</b>	<b>Sector web portal:</b> A domain for the website has been acquired and a contract signed with a website development company but content has not yet been provided by producers to fill in the website.

*Note:* Activities to enhance the raw material base are part of the wine sector strategy and action plan.

Extra efforts are required to catch up on a number of initiatives, such as workforce development and enhancing the capacity of the producers’ union. There is also uncertainty regarding a key initiative in the quality assurance area, establishment of an isotope lab.

Overall, the private sector has a concern about adequate demand the sector's development strategy.

**Table A3. 9: Implementation Status of the Brandy Action Plan**

Status	Number of Activities	Percentage
In process	5	31
Implemented*	7	44
Not implemented	4	25
Total	16	

\* Some of the actions are continuous.

At the time this report was being prepared, of the 16 actions in the Brandy sector action plan due to be implemented or the process started, 44 percent have been completed and nearly one-third are in progress (Tables A3.9 and A3.10).

The export value target was notably over-achieved in 2012–13 but the targeted change in share to China in exports was not. Export volume of the sector in 2013 passed over the 2015 target.

**Table A3. 10: Implementation Status of Brandy Initiatives by Strategic Direction**

Strategic directions		Performance	
		Number of activities	Percentage
1	Quality assurance	In process - 1	25%
		Implemented - 2	50%
		Not implemented - 1	25%
2	Workforce development & capacity enhancement	In process - 1	25%
		Implemented - 1	25%
		Not implemented - 2	50%
3	Sector promotion	In process - 2	33%
		Implemented - 3	50%
		Not implemented - 1	17%
4	Improving transport infrastructure	In process - 1	50%
		Implemented - 1	50%
		Not implemented - 0	0%

Source:

The only outcome indicator on export value to China was achieved in 2013. Of 6 action performance indicators, 4 have been achieved and 1 is in progress (improvements in sector regulation and technical standards). The target on creation of the sectoral web portal was not achieved.

In mid-2013, the sector council conducted an interim review of the action plan that led to revision of the timing of selected initiatives to make it more realistic (Table A3.11).

**Table A3. 11: Performance on Brandy Sector Objective Indicators**

Indicator	Baseline		Performance
	2011	2012	2013
Export value, US\$m			
Target		130	135
Actual	132.3	162	181
Change in share of China in Armenian exports (US\$m), percent			
Target		0.4%	1.1%
Actual	10.1%	-4.1%	-3.7%

## Issues

**Collaboration** among brandy producers is minimal. This has been reflected on a number of platforms, such as ineffective operation of the producers' union, failure to set up a dynamic web portal, and lack of interest among producers for country branding for the brandy sector.

**Quality assurance** is a major problem that needs to be resolved. Failing to establish an isotope lab may jeopardize brandy exports over the long term, though establishing it will create risks for some low-quality producers in the short term.

## New Opportunities

Scheduled **membership of Armenia to the Customs Union** is expected to improve conditions for export to Russia, Belarus, and Kazakhstan. Russia has traditionally been the top major export destination. In 2013 it accounted for 83 percent of total exports. Belarus and Kazakhstan are in 3<sup>rd</sup> and 4<sup>th</sup> places.

There is a real need to enhance the sector capacity and preparedness for operating within Customs Union. This necessitates specific action in a few areas:

### *a) Improvements in sector regulation and technical standards*

- Recently, there have been notable promising developments in upgrading sector regulation and technical standards. Rapid and effective completion of the improvements and compliance with the standards to be adopted within the Customs Union will be critical.
- Certain quality assurance activities in the sector action plan and due to start in 2014–15 (introduction of quality labels, launch of quality checks) should significantly boost exports.
- A final decision is needed on establishing the isotope laboratory. Deciding to continue with establishing it will mean that preparatory work should be launched as soon as possible.

*b) Increased presence on promotional platforms in Russia*

- Sector producers need participate more actively in promotional events in Russia. For instance, Prodexpo is a key exhibition for the sector in Russia, as producers and experts recognize.
- Along with the augmented significance of the Russian market, not enough effort has been put into intensifying exports to China in order to diversify export geography. Too much focus on exports to Russia will heighten dependency on a single market; the short-term gains may be more than surpassed by the possible long-term losses.

For the next phase of strategy implementation, the private sector needs to reaffirm the need for the Brandy sector development strategy and its willingness to participate in moving the action plan forward via public-private partnerships. Otherwise, the strategy and action plan need to be temporarily put on hold.

If it is decided to move forward with implementing the strategy, the focus should be on quality assurance.

### **Precision Engineering Sector**

Implementation of the precision engineering action plan has had mixed effectiveness so far. Certain initiatives in multiple directions have, however, laid a solid foundation for sector growth (Table A3.).

To attract FDI, a specialized FEZ has been established, negotiations have been launched with several MNCs, and a system for identifying and attracting MNCs has been adopted.

Establishment of ANEL at SEUA and the launch of Gyumri Technopark have provided a quality physical environment and educational content for workforce preparation and development. This should enhance the capacity of the local private sector and attract foreign companies. Legal reforms related to intellectual property rights and regulation of dual-purpose products are in progress.

Nevertheless, the results generated so far are not sufficient to significantly trigger sector growth. First, the precision engineering sector needs a clearer definition and effective engagement of the target producer segments. Also, the physical infrastructure created and the educational and technological environment on their own cannot attract the desired international presence. Targeted approaches and continuing efforts are needed to effectively promote the sector and put it on the global map in order to attract a critical mass of FDI.

**Table A3. 12: Performance on Precision Engineering Initiatives**

<b>Implemented</b>	<p><b>Establishment of FEZ:</b> Free economic zones were launched at the Mergelyan Institute and RAO Mars in August 2013. Sytronics Armenia is the operator; it has invested US\$6 million in FEZ infrastructure, and the first residents have settled in.</p> <p><b>Establishment of ANEL at SEUA:</b> The public-private partnership ANEL was officially launched at SEUA in 2013. ANEL is the initiative of the National Instruments Armenian Branch and is comprised of about 30 specialized and universal educational and research labs covering all 6 major SEUA specializations. It is to be a main platform for workforce development and enhancing collaboration between SEUA and industry.</p> <p><b>Participation in international expos:</b></p> <p>Elcom Caucasus (Tbilisi, Georgia), November 2013 - 2 companies participated.</p> <p>Photonics West (San Francisco, USA), February 2014 - 3 companies participated.</p> <p><b>Co-financing of international certification of products of local companies:</b> The mechanism has been developed and one engineering company (Thermorex) has been supported.</p> <p><b>Creation of venture fund:</b> Granatus Venture Fund I was established in Armenia as a PPP at the end of 2013 to finance Armenian start-ups in higher technologies.</p>
<b>In progress</b>	<p><b>Identification of MNCs to attract to Armenia and communication and negotiations with them:</b> The ADA has selected about 100 companies and communication has been opened with a number of them. Memorandums on potential educational, technological and production cooperation have been signed with IBM, Oracle, and GFI Software.</p> <p><b>Framework and implementation mechanisms for state co-financing of R&amp;D by MNCs in Armenia:</b> The framework has been drafted but needs improvement, particularly to comply with international norms.</p> <p><b>Launch of new building at Gyumri Technopark:</b> Reconstruction of the building dedicated to Gyumri Information Technologies Centre (GITC) was completed in 2013 December and official launch is expected by mid-2014. Its quality infrastructure and environment are aimed to be an attraction point for commercial, educational and research activities in the sector.</p> <p><b>Establishment of Armenian Executive Network (ArmEN)</b></p> <p>Works are in progress on creating a database on Diasporan executives employed at MNCs and Diasporan Armenians' companies.</p>

Of the 29 actions in the sector action plan due to be implemented or started, nearly half have been completed and half are in the process of being implemented (Tables A3.13 and A3.14).

**Table A3. 13: Implementation Status of the Precision Engineering Action Plan**

Status	Number of activities	Percentage
In process	14	48
Implemented*	14	48
Not implemented	1	3
Total	29	

\*Some of the actions are continuous.

**Table A3. 14: Implementation Status of Precision Engineering Initiatives by Strategic Direction**

Strategic directions		Performance	
		Number of activities	Percentage
<b>1</b>	<b>FDI attraction</b>	In process - 3	<b>75%</b>
		Implemented - 1	<b>25%</b>
		Not implemented - 0	<b>0%</b>
<b>2</b>	<b>Promoting innovation</b>	In process - 2	<b>40%</b>
		Implemented - 3	<b>60%</b>
		Not implemented - 0	<b>0%</b>
<b>3</b>	<b>Sector promotion</b>	In process - 4	<b>80%</b>
		Implemented - 1	<b>20%</b>
		Not implemented - 1	<b>0%</b>
<b>4</b>	<b>Easing access to financing for investment and export</b>	In process - 1	<b>25%</b>
		Implemented - 2	<b>50%</b>
		Not implemented - 1	<b>25%</b>
<b>5</b>	<b>Workforce development</b>	In process - 3	<b>38%</b>
		Implemented - 5	<b>62%</b>
		Not implemented - 0	<b>0%</b>
<b>6</b>	<b>Legislative reforms</b>	In process - 1	<b>50%</b>
		Implemented - 1	<b>50%</b>
		Not implemented - 0	<b>0%</b>

Source:

Sector export, sales, and outsourced or own production value indicators for 2013 have not been achieved (Table A3.15).

**Table A3. 15: Performance on Precision Engineering Objective Indicators**

Indicator	Baseline	Performance	
	2011	2012	2013
Export value, US\$			
Target		33.8	35
Actual	28.5	38.7	25.3
Sales value, US\$m.			
Target		38.8	45
Actual	35	38.8	35.7
Value of outsourced/own production by MNCs, US\$*			
Target		-	2
Actual		-	-

\*Orders by MNCs attracted because of implementing the sector strategy.

The only outcome indicator on the number of new MNCs attracted to Armenia in 2013 has not been achieved. Of 6 action performance indicators, 2 have been achieved and 1 is in progress. The 2 indicators not achieved are the number of MNCs with which active negotiations are being held and provision of data and analysis on target market segments.



## Issues

The next phase of implementing the precision engineering strategy needs to focus on specific clusters with distinct potential, e.g., automated measurement and testing, growing crystals, and optical and laser equipment.

The strategy and action plan for the entire sector have provided opportunities for different segments to demonstrate their potential, identify exact needs, and identify opportunities for developing clusters. Currently, a baseline survey on needs assessment has been implemented in the sector at the request of GIZ to specify target clusters with viable growth potential.

### ***Attracting FDI***

The FEZ launched in 2013 has not been effectively promoted which makes it harder to attract international residents. However, a few measures can still be taken:

*Better promotion:* Coordinated and sizable efforts of the state and the private sector are needed to adequately promote the FEZ and attract residents, particularly MNCs. A special working team needs to be created, with the possibility of hiring international brokers, to initiate and coordinate actions. The FEZ operator needs to dedicate a specific budget for effective promotion of the FEZ, particularly abroad.

*Expanding the range of the EZ:* Other sectors adjacent to sectors currently eligible to operate in the FEZ need to be allowed in as required, e.g., assembly of machines (particularly agricultural), production of car components, acting as a regional storage center for global trade companies. In this context, RAKIA free industrial zone in Poti (Georgia) can be referenced; it allows a wide variety of economic activities.

Overall, if precision engineering is to grow, clear scoping of the sector, active engagement of the target clusters, and a proactive approach to attracting FDI will be instrumental. For the next phase of strategy implementation, to achieve concrete outcomes interventions are needed to build on the foundations created in the areas of FDI attraction and capacity enhancement .

### **Jewelry, Diamond-cutting, and Watch-making Sectors**

Recent developments in a number of strategic directions have created a solid foundation for the growth in these sectors. In particular, establishment of the specialized FEZ is expected to be a critical platform in attracting foreign companies for outsourcing or setting up their own production. Promoting the sectors via the annual international jewelry expo in Armenia already demonstrates highly positive outcomes. A significant recent development in the sector has been the removal of the tariff on importing Russian rough diamonds.

The Armenian government approved the action plan for jewelry, diamond-cutting, and watch-making sectors only in mid-2013, so there has not been a great deal of time to engage in activities.

**Table A3.16: Performance on Jewelry, Diamond-cutting, and Watch-making Initiatives**

<b>Implemented</b>	<p><b>Jewelry Expos in Armenia</b></p> <p><i>AJA Yerevan Show (October 2013):</i> About 125 local and international jewelry companies from over 20 countries exhibited and over 140 visitors from abroad attended.</p> <p><i>10<sup>th</sup> International Jewelry Expo Sales (December 2013):</i> The event was organized by the Union of Jewelers and Diamond Cutters of Armenia; 42 jewelry companies participated, mostly from Armenia, but also some from Italy and Russia.</p> <p><b>Favorable conditions on import of rough diamonds from Russia to Armenia:</b> In December 2013, Russia and Armenia signed agreements to remove the 6.5 percent tariff on importing Russian rough diamonds to Armenia.</p>
<b>In Progress</b>	<p><b>Establishment of sectoral FEZ:</b> The Armenian Jewelers Association (AJA) has established a free economic zone in Yerevan. Currently, it is being constructed. The FEZ is planned to officially launch in 2014 and be fully operational by 2015. About 120–150 companies are expected to operate in the FEZ, the majority of them and some Diasporan</p> <p>In April 2014, memoranda of cooperation were signed between the FEZ operator and 7 future residents for the latter to establish operations as soon as the FEZ is ready. Preliminary agreements have also been sought with other 15 companies.</p>

At the time this report was being prepared of 20 actions due to be implemented of begun, 30 percent had been completed and the rest are in progress (Table A3.17). Half of the activities implemented so far are in the area of quality assurance.

**Table A3.17: Implementation Status of the Jewelry, Diamond-cutting, and Watch-making Action Plan**

Status	Number of activities	Percentage
In process	14	70
Implemented*	6	30
Total	20	

\*Some of the actions are of continuous nature.

**Table A3.18: Implementation Status of Jewelry, Diamond-cutting, and Watch-making Initiatives by Strategic Direction**

Strategic directions		Performance	
		Number of activities	Percentage
<b>1</b>	<b>Quality assurance</b>	In process - 4	57%
		Implemented - 3	43%
		Not implemented - 0	0%
<b>2</b>	<b>Workforce development</b>	In process - 3	100%
		Implemented - 0	0%
		Not implemented - 0	0%
<b>3</b>	<b>Easing access to financing for investment and export</b>	In process - 1	100%
		Implemented - 0	0%
		Not implemented - 0	0%
<b>4</b>	<b>Easing access to raw materials</b>	In process - 1	50%
		Implemented - 1	50%
		Not implemented - 0	0%
<b>5</b>	<b>Legislative reforms</b>	In process - 2	100%
		Implemented - 0	0%
		Not implemented - 0	0%
<b>6</b>	<b>Sector promotion</b>	In process - 2	67%
		Implemented - 1	33%
		Not implemented - 0	0%
<b>7</b>	<b>FDI attraction</b>	In process - 1	50%
		Implemented - 1	50%
		Not implemented - 0	0%

Source:

Export value indicators for both jewelry and Diamond-cutting were achieved in 2013.

**Table A3.19: Performance on Sector Objective Indicators**

Indicator	Baseline	Performance
	2012	2013
Jewelry export value, US\$		
Target		19.4
Actual	13.2	21.3
Diamond-cutting export value, US\$m		
Target		81.4
Actual	79.1	88.1

### **New opportunities**

The initiative by one of the leading watch makers to establish a **watch-making training center** in Armenia is aimed to enhance both the quantity and the quality of the sector workforce. For this purpose, talks have begun between the initiator and the state.

For the next phase of strategy implementation, the focus needs to be on securing effective operations of the FEZ (in particular, facilitating favorable trade conditions with the Customs Union); accelerating sector promotion both within Armenia and abroad by organizing and participating in expos and enhancing workforce capacity.

Expansion of the Jewelry, Diamond-cutting, and Watch-making sectors necessitates parallel development of the workforce. Systematic interventions are needed to enhance both the number and the quality of workers to match specific needs for sector growth. The concepts for enabling initiatives, such as the cross-sectoral design academy and a training center for the jewelry sector, need to be put on track to secure sustainable growth.

### **Textile, Apparel and Footwear Sectors**

The Armenian government approved the strategy and action plans for the Textile, Apparel and Footwear sectors later than planned, in December 2013. Thus, there has not been much time to get the activities started.

In 2010–13, textiles and apparel grew by an average of 80 percent annually and the footwear sector grew by nearly 20 percent. The notable performance of both sectors has built up their potential for future growth. For the textile and apparel sector particularly, the focus needs to be on enabling sustainable growth in critical areas, such as attracting global outsourcing orders and enhancing. The former will require that more workers be available and the latter will need its own design capacity. The prospect of joining the Customs Union is expected to create opportunities for both local producers and international outsourcing companies in Armenia to export to other members of the Customs Union on favorable terms.

## References

- Amsden A. H. 2001. *The Rise of the Rest: Challenges to the West from Late-Industrializing Economies*. New York, USA: Oxford University Press.
- Benáček, V. 2010. *Is the Czech Economy a Success Story? The Case of CzechInvest; the Strategic Promotion Agency in Czech Industrial Restructuring*. Santiago, Chile: United Nations, ECLAC.
- Block F., and M. Keller. 2009. "Where do Innovations Come From? Changes in the U.S. Economy, 1970-2006," *Socio-Economic Review* 7(3): 459–483.
- Breznitz D. 2007. *Innovation and the State: Political Choice and Strategies for Growth in Israel, Taiwan, and Ireland*. New Haven, USA: Yale University Press.
- Christensen, S. R., D. Dollar, A. Siamwalla, and P. Vichyanond. 1997. *Institutional and Political Bases of Growth-Inducing Policies in Thailand*. Bangkok, Thailand: Thailand Development Research Institute Foundation.
- Czarnitzki, D., and A. Fier. 2001. "Do R&D Subsidies Matter? Evidence for the German Service Sector." *ZEW Discussion Papers* 01-19.
- Duguet, E. 2012. "The Effect of the Incremental R&D Tax Credit on the Private Funding of R&D: An Econometric Evaluation on French Firm Level Data". *Revue d' économie politique* 122(3): 405-435.
- Economy and Values Research Centre, 2010. *National Competitiveness Report of Armenia 2010: Higher Education Challenge*. Yerevan, Armenia: Economy and Values Research Centre
- . 2004. *The Role of the Diaspora in Attracting Foreign Direct Investments in Armenia*. Yerevan,, Armenia: Economy and Values Research Centre.
- Economy and Values Research Centre and EV Consulting. 2014. *National Competitiveness Report of Armenia 2013–14: Growth Imperative and Constraints*. Yerevan, Armenia: Economy and Values Research Centre.
- . 2012. *National Competitiveness Report of Armenia 2011–12: Agenda for Upgrading Management Practices*. Yerevan, Armenia: Economy and Values Research Centre.
- European Bank for Reconstruction and Development and the World Bank. 2014. *Business Environment and Enterprise Performance Survey 2013-2014 (BEEPS V)*. London (UK) and Washington DC (USA)
- . 2009. *Business Environment and Enterprise Performance Survey 2008-2009 (BEEPS IV)*. London (UK) and Washington DC (USA).
- EV Consulting, 2013. *Enterprise Survey*. Yerevan, Armenia.
- . 2013. *Survey on Growth Constraints*. Yerevan, Armenia.
- . 2011. *Demand in Higher Educated Workforce and Employment in Armenia, Employer Survey*, Yerevan, Armenia.

- EV Consulting and Strategy Partners Ireland. 2012. Review of Foreign Direct Investment Promotion and Facilitation Policies and Practices in Armenia. Yerevan, Armenia
- Farole, T. 2011. *Special Economic Zones: What Have We Learned?* Washington, DC, USA: World Bank
- Farole, T., and G. Akinici. 2011. *Special Economic Zones. Progress, Emerging Challenges, and Future Directions.* Washington, DC, USA: World Bank
- FIAS, World Bank, 2008. *Special Economic Zones: Performance, Lessons Learned and Implications for Zone Development.* Washington, DC, USA: World Bank
- Gill I., I. Izvorski, W, van Eeghen, and D. De Rosa. 2014. *Diversified Development: Making the Most of Natural Resources in Eurasia.* Washington, DC, USA: World Bank
- Government of the Republic of Armenia. 2014. *Armenia Development Strategy for 2014–25.* Yerevan, Armenia: Government of the Republic of Armenia
- Guimon, J. 2013. "Why Should Governments of Developing Countries Invest in R&D and Innovation?" *African Journal of Business Management* 7(12): 899-905.
- Hausmann, R., J. Hwang, and D. Rodrick. 2006. What You Export Matters. NBER Working Paper No. 11905. Cambridge, USA: National Bureau of Economic Research
- Hausmann, R., and D. Rodrick. 2006. Doomed to Choose: Industrial Policy as Predicament, Paper presented at the Blue Sky Conference, September 9-10, Cambridge, USA.
- Hill, H. 1995. "Indonesia's Great Leap Forward? Technology Development and Policy Issues" *Bulletin of Indonesian Economic Studies* 31(2): 83–123.
- International Labor Organization. 2012. "Statistical Update on Employment in the Informal Economy." Geneva, Switzerland: ILO.
- Karsai, J., and G. Baranyai. 2005. The Development of Venture Capital and Private Equity Industry in Hungary 1989–2004. Discussion Paper MT-DP 2012/1. Budapest, Hungary: Institute of Economics, Hungarian Academy of Sciences.
- Klette, T. J., and J. Moen. 2011. "R&D Investment Responses to R&D Subsidies: A Theoretical Analysis and a Microeconometric Study." Discussion Papers 2011/15. Oslo, Norway: Department of Business and Management Science, Norwegian School of Economics
- Kuznetsov, Y. 2006. *Diaspora Networks and the International Migration of Skills: How Countries Can Draw on their Talent Abroad.* Washington, DC USA: World Bank
- Lach, S. 2000. "Do R&D Subsidies Stimulate or Displace Private R&D? Evidence from Israel". NBER Working Papers 7943, National Bureau of Economic Research, Inc. Cambridge, USA: National Bureau of Economic Research, Inc.
- Melo, A. 2001. Industrial Policy in Latin America at the Turn of the Century, Inter-American Development Bank, Research Department WP No 459, Washington, DC, USA.
- Morisset, J., and N. Pirnia. 2000. "How Tax Policy and Tax Incentives Affect Foreign Direct Investment." Washington, DC, USA: Foreign Investment Advisory Service, World Bank and International Finance Corporation.

- Organization for Economic Cooperation and Development. 1997. *Government Venture Capital for Technology-Based Firms*. Paris: Organization for Economic Cooperation and Development.
- RA Ministry of Economy. 2011. "Export-led Industrial Policy Framework of Armenia". Yerevan, Armenia.
- Riain, O. 2014. "Enterprise Policy and Ireland's Economic Recovery." Presented at Nevin Economic Research Institute, Dublin. Dublin, Ireland.
- Rodrick D., 2007. "Normalizing Industrial Policy." John F Kennedy School of Government, Harvard University. Cambridge, USA: Harvard University.
- . 2004. "Industrial Policy for the Twenty-First Century". Cambridge, USA: Harvard University.
- Saxenian, A. 2006. *The New Argonauts: Regional Advantage in a Global Economy*. Cambridge, USA: Harvard University.
- UNCTAD, 2014. "World Investment Report 2014". New York, USA: United Nations Conference on Trade and Development.
- Weiss, L. 2005. "Global Governance, National Strategies: How Industrialized States Make Room to Move under the WTO." *Review of International Political Economy* 12(5): 723–749.
- Wolf, M. 2007. "The Growth of Nations." *Financial Times*, July 21, 2007.
- World Bank. 2014. *Doing Business 2015*. Washington, DC, USA: World Bank.
- , 2013. *Doing Business 2014*. Washington, DC, USA: World Bank.
- World Economic Forum. 2014. *The Global Competitiveness Report 2014–15*. Cologny, Switzerland: WEF.
- . 2013. *The Global Competitiveness Report 2013–14*. Cologny, Switzerland: WEF.