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HOW TO SUSTAIN EXPORT DYNAMISM BY REDUCING DUALITY IN THE DOMINICAN REPUBLIC

A World Bank Trade Competitiveness Diagnostic

WORLD BANK GROUP

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ADOEXPO	Dominican Association of Exporters *(Asociación Dominicana de Exportadores)*
ADOZONA	Dominican Association of Free Zones *(Asociación Dominicana de Zonas Francas)*
AGEXPORT	Guatemala Exporters Association
ATC	Agreement on Textiles and Clothing
BEC	Broad Economic Categories
CAFTA-DR	Dominican Republic- Central America Free Trade Agreement
CAGR	Compound Annual Growth Rate
CARICOM	Caribbean Community and Common Market
CBTPA	Caribbean Basin Trade Partnership Act
CEI-RD	Dominican Republic Export and Investment Center *(Centro de Exportación e Inversiones de RD)*
CEPII	French Research Center in International Economics
CNC	National Council of Competitiveness
CNMSF-DR	National Committee for the Application of Sanitary and Phytosanitary Measures
CNZFE	National Export Processing Zones Council *(Centro Nacional de Zonas Francas Exportadores)*
CODOPESCA	Dominican Council of Fisheries and Aquaculture
COMTRADE	UN International Trade Statistics Database
CONACADO	Dominican Republic Cocoa Exporters Confederation *(Confederación nacional de cacao cultores dominicanos)*
CSR	Corporate Social Responsibility
DGA	General Customs Bureau *(Dirección General de Aduanas)*
DICOEX	Department of Foreign Trade and Trade Agreements Administration
DR	Dominican Republic
DWPE	Detention without Physical Examination
EPA	Export Promotion Agency
EU	European Union
EXPY	Index of sophistication of a country's export basket
FAVIR	Fruits and Vegetables Import Requirements
FDA	US Food and Drug Administration
FDI	Foreign Direct Investment
FTA	Free Trade Agreements
FTZs	Free Trade Zones

GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GNP	Gross National Product
HACCP	Hazard Analysis and Critical Control Point
HOPE	Haitian Hemispheric Opportunity through Partnership Encouragement Act
HS	Harmonized System Description and Codification of Merchandise
IADB	Inter-American Development Bank
IIBI	Institute for Innovation in Biotechnology and Industry
IPM	Integrated Pest Management
IRR	Import Refusal Report
ISO	International Standards Organization
ITBIS	Tax on the Transfer of Industrialized Goods and Services
JAD	Dominican Agricultural Board
LAC	Latin America and the Caribbean
LAVECEN	Ministry of Agriculture Central Veterinary Laboratory
LCR	Latin America and the Caribbean Region
LDC	Least Developed Country
MEPyD	Ministry of Economics, Planning and Development
MFA	Multi-Fiber Arrangement
MIT	Ministry of Industry and Trade
NGO	Non-Governmental Organization
NSF	National Science Foundation
PPP	Purchasing Power Parity
PRA	Pest Risk Analysis
PRODY	Individual Product or Industry's Export Basket Sophistication
PROMPEX	Peruvian Commission for Export Promotion
PVS	Private Voluntary Standards
RRR	Relative Rejection Rate
SANCO	European Commission for Health and Food Safety
SCM	Subsidies and Countervailing Measures
SEZs	Special Economic Zones
SMEs	Small and Medium Enterprises *(PYME)*
SPS	Sanitary and Phytosanitary
UNIDO	United Nations Industrial Development Organization
US	United States
USD	United States Dollar
USDA-APHIS	U.S. Department of Agriculture Animal and Plant Health Inspection Service
USAID	United States Agency for International Development
VAT	Value-Added Tax
WLD	World
WTO	World Trade Organization

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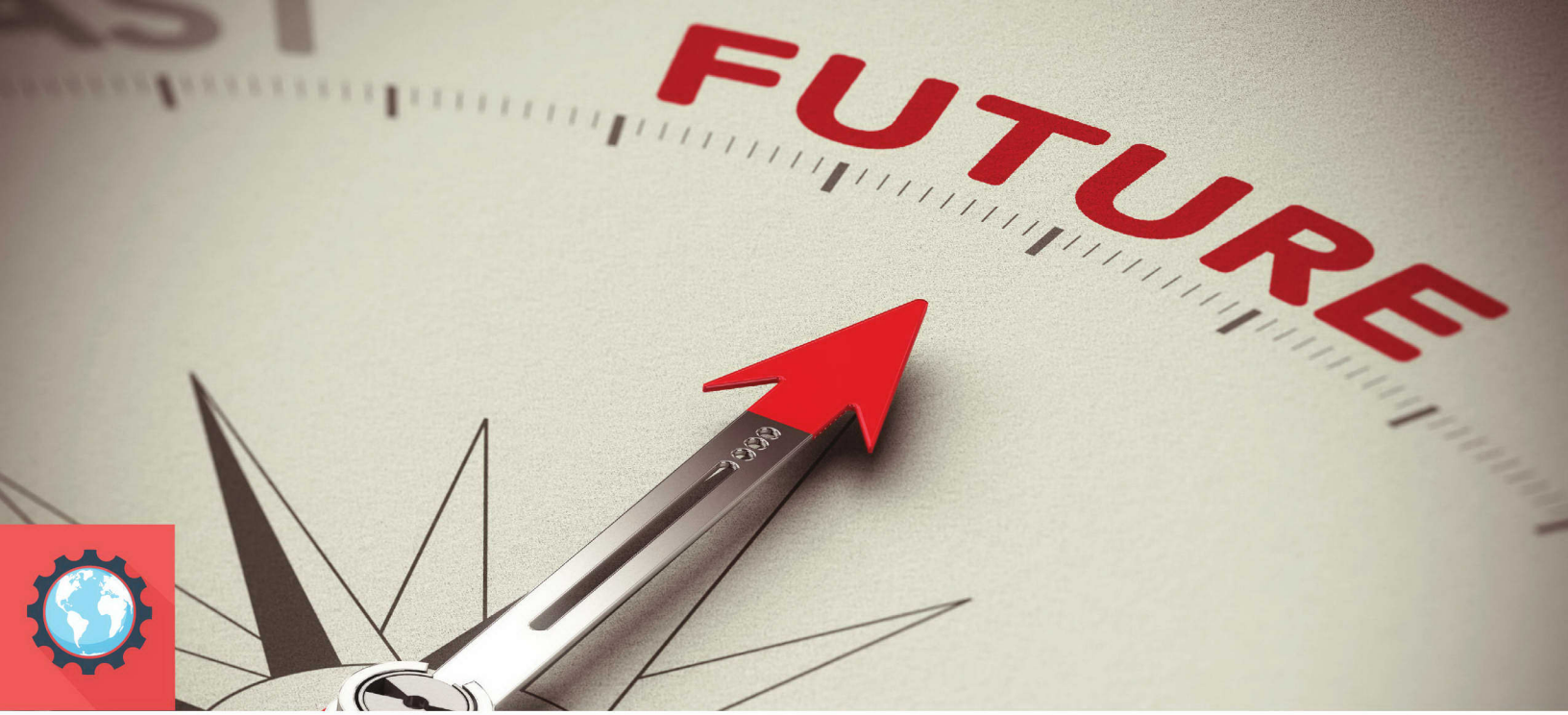


EXECUTIVE SUMMARY

During the past decade, responding to changes in the global economy and international investment, the Dominican Republic has transformed itself from a country dependent on resources and clothing production to one with a more diversified export base. The phasing out of the Multi-fiber Agreement (MFA), completed at the beginning of 2005, led to a decline in the textile-led exports. Once the MFA expired, the Dominican Republic was unable to compete with cheaper clothing from China, Hong Kong, Vietnam, and Bangladesh, and it lost much of its share in the US garment market. In the aftermath of the CAFTA-DR, however, minerals, metals, and relatively more sophisticated manufacturing products such as medical devices, footwear, and pharmaceuticals have started to emerge. In 2010, the Haitian earthquake impacted the Dominican Republic's export basket; shipments to its neighbor soared.

However, the Dominican Republic still underperforms similar countries in terms of trade openness and, more precisely, share of exports per capita. In the face of the recovery in export dynamism in the aftermath of the global slowdown of 2008, results indicate that Dominican exports are way below what would be expected at its stage of economic development.

To understand which factors could be preventing the Dominican Republic from fulfilling its potential in terms of merchandise exports, we have applied a Trade Competitiveness Diagnostics toolkit. Following the methodology proposed by Reis and Farole (2012), we first apply a Trade Outcomes Analysis, which helps identify strengths and weaknesses in terms of exports performance (growth and share), diversification in terms of products and markets, quality and sophistication, and entry and survival. In the second part of the report, we analyze the weaknesses in more detail to better understand the factors that are constraining export competitiveness.

According to the diagnostic, export growth in the Special Economic Zones (SEZs) usually results from expansion of existing relationships; outside the zones, we find more dynamism in terms of new entrants and exploration of new products and markets. The majority

of export growth in the Dominican Republic's SEZs (89% in 2010-12) occurs by the development of established export relationships—the intensive margin of trade. This is quite common in these zones; the firms based are highly specialized and usually have well-established export channels that allow them to deepen export relationships. In the same period, a much larger proportion of export growth outside the SEZs is found on the extensive margin—36% for net entry of firms, 9% for net market diversification, and 4% for new product diversification. However, it is worth noting that the higher dynamism observed outside SEZs may be also due to lower survival rates among companies, an issue we later discuss. Overall, the analysis suggests that after the slowdown of 2009, Dominican exports have grown because of push factors (increased productivity), but demand in partner countries has not contributed significantly.

The Dominican Republic has been relatively successful in diversifying products. As mentioned above, the Dominican Republic's comparative advantage in textiles progressively eroded over the past decade, but the country has experienced a noticeable expansion in exports of foodstuff, minerals, chemicals, and plastics—despite the fact that the comparative advantage in these products is relatively small. The Dominican Republic has been also able to build up comparative advantages in footwear and medical equipment. These changes have been mainly driven by dynamics in SEZs, although the importance of non-SEZ exports has increased substantially over the past four years.

At the same time, we observe the persistence of a high degree of concentration in destination markets. The US share of Dominican exports declined from 87% (2003-04) to 55% (2012). However, the United States and Haiti still account for 70% of total exports, making the Dominican Republic the least diversified among selected regional peers (El Salvador, Jamaica, Costa Rica, and Colombia). This is caused by SEZs. Non-SEZ exports are much more diversified in terms of destination markets. Overall, analysis using a gravity model suggests that Dominican exports to South America and the New Growth Poles (Brazil, China, Russia, etc.) are below potential.

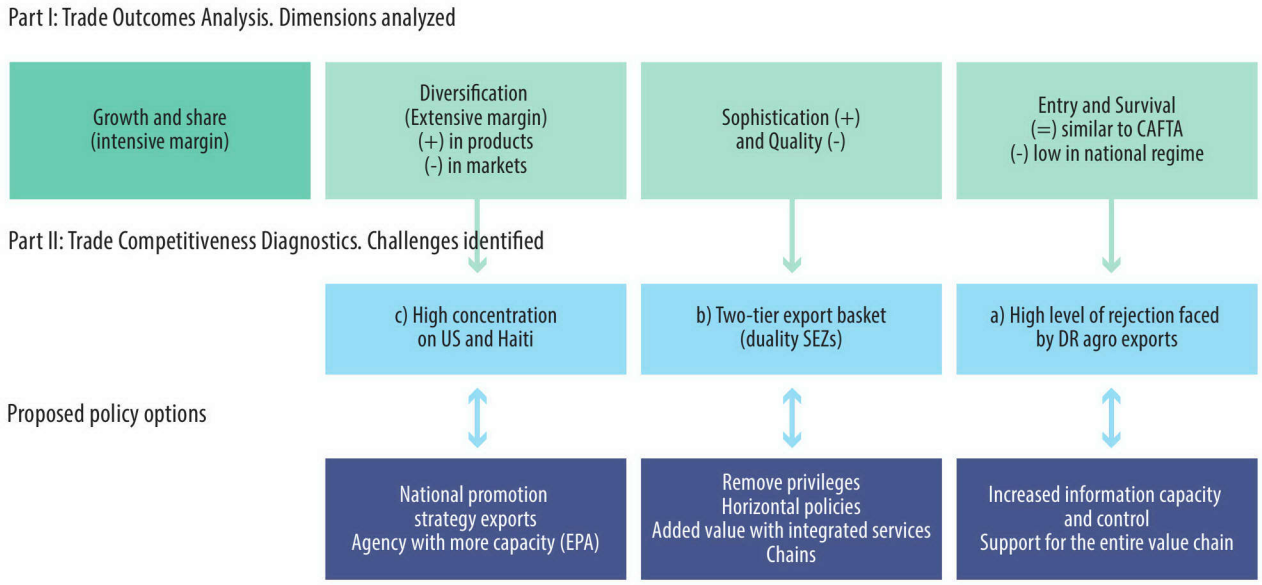
The sophistication of Dominican exports is relatively high for a country of its level of development, but the degree of complexity is intermediate[1], and issues of quality persist. Results indicate that exports are more 'sophisticated' in the Dominican Republic than in peer countries, with the exception of Costa Rica. The degree of economic complexity is just below Costa Rica, Colombia, and El Salvador. It is worth noting the market duality in the exports basket—firms operating inside SEZs tend to export goods with some level of technological transformation, while exporters operating outside of them focus on primary and resource-based products. In terms of quality, the main products exported from the SEZs seem to lag other regional competitors, suggesting the Dominican Republic is not climbing the quality ladders as fast as other Central American countries. When we look at the main agro exports, Dominican cigars exhibit high quality, but rum is perceived as of low quality compared to the products of other CAFTA-DR countries. Over the past decade, Dominican cocoa beans have seen a noticeable improvement in quality, although room for further improvement remains.

Finally, the survival rate of Dominican exporters seems to be average for the CAFTA-DR area, although it is significantly lower among non-SEZ exporters. When we analyze survival rates for agricultural exporters, the probability of a firm-product export relationship surviving the first year of operations is only 42% among non-SEZ firms, compared to 53% for SEZ exporters. By the fifth year, these probabilities have declined to 4.4% outside SEZs and 21% inside them.

In sum, the Trade Outcomes Analysis presented in part I suggests Dominican exports fare well in terms of performance, sophistication, and survival in SEZs. Three

1 Sophisticated products are defined by Hausmann, Hwang and Rodrik (2006) as those produced in advanced economies, whereas complex products would be those with higher levels of embedded knowledge (Hausmann et al, 2012).

Figure 1. Structure of the report



Source: authors' elaboration.

main challenges are identified: quality issues, the export basket's duality, and excessive concentration in terms of markets.

First, the perceived quality of certain agricultural products is lower than regional competitors. Even if the Dominican Republic is well-positioned to take advantage of favorable US market access, the exploitation of these opportunities remains conditional on the capacity to comply with the US market's stringent sanitary and phytosanitary standards (SPS).

Second, the future of free zones will depend on how their accumulated strengths are leveraged in a new era of competitiveness built on fundamentals rather than transient policy distortions. As already noted, a duality characterizes the Dominican export basket: SEZs ship products with a certain degree of transformation, while non-SEZ exporters focus on primary and resource-based products. The potential problem for the Dominican Republic is that SEZs may constitute "enclaves" that are relatively isolated from the rest of the economy, reducing the potential for generating positive externalities that could benefit non-SEZ exporters and other domestic companies (backward and forward linkages, technology transfer, demonstration effects, etc.). At the same time, SEZs present a notable fiscal cost for the Dominican Republic, with tax exemptions estimated to be close to one percent of GDP.

Third, the Dominican Republic has been relatively successful in diversifying export products, but diversification of destination markets has been more limited. The heavy reliance on the US arises mainly because the majority of SEZ production is directed to the US market. Preliminary findings suggest that the Dominican Republic could expand exports to China and Brazil by exploring sectors outside the extractive industries—in particular, pharmaceuticals, plastic products, and medical equipment.

Policy options aiming at improving the outcomes in these three areas are discussed in the remainder of this section and summarized in Table 1 at the end of this Executive Summary.

The *Competitiveness Diagnostic* in part 2 discusses in more detail some of the constraints and bottlenecks hampering the competitiveness of Dominican exports, defining a series of challenges:

Duality and WTO compliance

First, as discussed in section I.b, the Dominican Republic has developed a Two-Tier Export Basket in terms of Sophistication and Quality (Figure 15). Exporters from outside SEZs basically sell minerals, agricultural goods, and other primary products, while the more sophisticated transformation processes take place in SEZs (clothing, shoes, medical instruments, plastics, etc.). This duality is likely to persist or even to become more pronounced because SEZ companies have weak linkages to the rest of the economy, limiting the potential for technology transmission, learning by doing, and other positive externalities that could benefit domestic companies.

To comply with WTO rules, the Dominican government is considering to grant strategic industries benefits similar to those currently enjoyed by SEZ companies, most likely resulting in a missed opportunity to address the duality inside and outside SEZs. WTO rules require countries to phase out subsidies contingent on export performance in 2015 (Box 6). To comply, the Dominican Republic is considering to declare most of the sectors currently producing in SEZs to be "strategic"—a pragmatic approach to prevent rapid changes in the SEZ sectors. A few tentative steps have already been taken towards a strategic sector-based model. In 2007, textile, shoe, and leather companies all obtained SEZ-equivalent benefits because they were singled out as "strategic," eligible for benefits regardless of their location (inside or outside SEZs) or export performance. Abolishing the minimum export requirement for SEZ companies has been another important step. However, since the current legal framework in the DR still favors exports over domestic sales, this is unlikely to be sufficient for the Dominican Republic to comply with WTO rules. Should the Dominican Republic continue introducing changes in the legal framework to fully opt for a "strategic sector" approach, it would be important to engage in multi-stakeholder discussions for the definition of strategic sectors, in order to prevent a generalization of exemptions that would result in an important fiscal cost. The opportunity to streamline existing distortions would be missed. In the short run, as SEZs adapt to the end of export performance-based subsidies, authorities could try to set up safeguards to prevent a transition markedly influenced by entrepreneurial groups and institutions strongly interested in preserving the status quo. Giving into these forces could endanger compliance with the WTO and is unlikely to bring the dynamism needed to build export competitiveness.

In the medium and long term, Dominican stakeholders could consider the progressive homogenization of benefits offered to companies inside and outside SEZs, which would help level the playing field, reducing distortions. In the medium term, the Dominican Republic would need to progressively reduce the number of "strategic sectors," perhaps temporarily maintaining those with notable value added and the potential to become growth engines for the economy. According to Hausmann et al. (2011), for example, the cluster of furniture, domestic appliances, and construction materials entails relatively sophisticated activities that are close to the Dominican Republic's current productive structure—but it remains unexploited.

In the long run, these "strategic sectors" would eventually not be longer needed, and the country should be moving toward policies that are "horizontal" in nature and would benefit all kind of exporters. Overall, exporters outside and inside SEZs should be receiving support from the export promotion agency (EPA) in the form of commercial actions, technical assistance, identification of export opportunities, etc. At some point, as tax exemptions are reduced, the country could be able to further boost exporters' competitiveness by lowering and homogenizing corporate taxes and import tariffs (as has been done in China and Mauritius, among others). It is duly acknowledged that following this path would require from a long and sustained process of national dialogue, leading to an agreement among public and private sector actors on the strategy to be adopted. It may be argued that reducing incentives would result in missing opportunities for attracting FDI, multinationals abandoning the DR, and

problems to compete with other countries in Central and South America. To avoid undesired outcomes, a first step would be conducting a thorough cost-benefit analysis of Special Economic Zones, as well as surveys to companies established in SEZs, to understand their strategic motivations and inform the debate.

Only by climbing up the value chain and increasing quality and productivity will Dominican SEZ exporters be able to remain globally competitive in in the medium and long term. It has been argued that special benefits and exemptions are needed for competitiveness because Dominican SEZ exporters can no longer compete on the basis of low wages. However, the competitive advantages derived from low tariffs, fiscal incentives, and wage restraint were not enough to prevent the decline of the textile sector in the 2000s. This suggests it would be crucial to begin building fundamental competitiveness, rather than relying on transient preferential taxes or tariffs. For this to happen, the institutional architecture supporting Dominican trade and competitiveness policies might need to be adjusted to better support exporters and attract more investments. This can be done by adding value to the products through vertical integration, offering "bundles" of manufacturing and services activities to foreign investors willing to locate in SEZs, and betting on innovation. Examples of leading Dominican companies that have gone through some of these processes, and are discussed in this report, are Grupo M and Conacado.

Finally, to foster backward linkages from SEZs to the rest of the economy, the EPA can support capacity building in local producers. Policies to increase local firms' volume and quality will help them become reliable suppliers to companies in SEZs. In addition, efforts could focus on attracting FDI in sectors more likely to bring positive externalities to the rest of the economy—metals, machinery, and other manufacturing, among others. More research would be needed to understand the current nature and status of those linkages and better tailor policies aimed at strengthen them.

Rejection of agro exports

Second, the problems associated to this dual structure are patent in the agricultural sector, with survival rates much lower for non-SEZ exporters (Figure 17). This is likely to be the result of limited exchange of information between companies inside and outside SEZs, insufficient institutional support for non-SEZ exporters, and an overall lack of capacity to comply with US SPS measures. The Trade Outcomes Analysis shows that the perceived quality of Dominican agro exports is mediocre (Figure 16), and that rejection rates at the US border are higher for Dominican fruits and vegetables than those from other CAFTA countries. The Dominican Republic has historically received favorable US market access due to strong economic ties and favorable CAFTA-DR trading rules; however, its ability to comply with US SPS regulation is low. In addition, evidence suggests that Dominican products may be subject to more frequent and stringent inspections due to a past compliance difficulties (Jouanjean et al, 2012). Unless challenges in this area are tackled, the country is unlikely to fulfill its potential for agricultural exports.

This calls for a revision of the national capacity to meet international standards in agro and food products, including improvements in physical and institutional infrastructure, better coordination between international bodies and the private sector, and increased transparency along the value chain. There is a need to create standardization bodies, system certifications, conformity assessments, and accreditation mechanisms. Existing institutions in charge of the surveillance of animal health and control of plant pests could also benefit from capacity building. In addition, vaccination campaigns and wider dissemination of risk-mitigation methodologies could be organized.

The Dominican Republic also needs to expand its physical infrastructure, including refurbishing existing laboratories to enhance analytical testing capabilities and creating new inspection warehouses at several border points.

The relevant Dominican agencies should participate in international SPS standard setting institutions as well as the WTO SPS committee. This would ensure that the Dominican support infrastructure conforms international norms and prompts updates of regulations on SPS and pesticides, helping the country doing a better job of preventing entry of banned products and reducing the risk of unintended inter-crop contamination. If they have not already done so, authorities may want to create and frequently update a list of banned pesticides and enact a law setting maximum residue levels for fruits and vegetables.

Finally, a set of actions could be aimed at supporting producers and exporters associations along the value chain, as well as at improving the coordination of public and private stakeholders. In Peru and Guatemala, export promotion agencies have been essential to promoting good agricultural practices, by ensuring the transmission of information between producers and importers. The EPAs provide information to producers on quality requirements and promote quality products in export markets. They are also essential for implementation of public-private partnerships and supporting regulations. In the Dominican Republic, CEI-RD has been initiating similar actions on ad-hoc basis,[2] and this kind of support could be systemized and extended to diverse agricultural products. A related policy option involves carefully supporting private certifications schemes. Experience by various donors shows that it is important to adapt the certification needed to the market channel and the specificities of demand in the destination market.

Institutional overlaps and limited market diversification

Third, as discussed in section II.c, The institutional infrastructure supporting international trade, also presents a marked duality and fragmentation, which is likely to result in suboptimal export promotion and entrepreneur support efforts. The National Council for Free Trade Zones and CEI-RD are *de facto* in charge of investment attraction inside and outside SEZs. A similar duality is found in private exporter associations. In spite of commendable coordination efforts, duplicities are likely to appear, and achieving economies of scale in supporting exporters would be more difficult. The overlaps among the different institutions in which the Ministry of Industry and Trade participates are also likely to result in a suboptimal use of public resources (Figure 27). Legal attributes and responsibilities among the institutions do not seem clear.

Under its current structure, CEI-RD may not be sufficiently empowered to efficiently perform its mandate to promote exports and attract investment. Its budget per capita slightly lags the median for Latin America. However, the budget per employee is the lowest in Latin America, indicating a heavy staffing burden. This limits space for commercial support and technical assistance as well as its presence abroad. Most Dominican trade representatives abroad are in fact diplomats belonging to the Ministry of Foreign Affairs who devote only part of their time to export promotion.

An institutionally empowered EPA might be an option for promoting export competitiveness and market diversification: it is fully consistent and complementary to the previously identified policy options. First, this EPA would need to address significant information shortages and focus primarily on increasing Dominican exports to previously untapped markets where exports seem below potential, such as the South American countries and the New Growth Poles. The more important trade barriers are, the more efficient the EPA will be. Second, this EPA would need to offer bundled services and a tailored approach to ensure efficiency. As noted above, EPAs' support of agricultural producers by promoting good agricultural practices and increasing the capacity to comply with SPS norms has proven efficient in Peru and Guatemala. In the Dominican Republic, EPA's support in increasing agricultural exporters' capacity to comply with SPS norms might

2 CEI-RD has been accompanying producers of red pepper to upgrade their production process and ensure compliance with SPS norms.

be very useful because of the relatively low quality of certain agricultural products. Third, counting with a unified and strenghtened EPA promoting exports and offering efficient support to all Dominican companies may help in shifting from discriminatory fiscal policies and "special regimes" toward more horizontal support that offers general, stable, and predictable assistance. This would include bundled services consisting of several actions and a tailored approach with help in forming consortia of SMEs in exporting sectors, financing activities, and identifying potential buyers and partners.

To reach that point, it will be necessary to clarify the role of the different institutions dealing with export promotion, streamline support processes and reducing overlaps. A first step in that direction would be a dialogue among private and public stakeholders to achieve a national strategy for promoting exports and attracting investment. This strategy would facilitate the alignment of strategic plans, the setting of rules to coordinate attracting investment (reducing the scope for favoritism), and the defining of support actions. Moreover, the strategy would need to identify how authorities are planning to move from generalized fiscal incentives in "strategic sectors" toward more "horizontal" and non-discriminatory schemes of support, ultimately eliminating the existing duality between exporters inside and outside SEZs. Policies to promote productivity and encourage innovation would need to be part of that strategy.

Finally, it is worth noting that Dominican exporters perceive unreliable electricity, relatively complicated procedures to pay taxes, informality, and the limited availability of skilled workers as constraints on their ability to operate. Although a deep assessment of these hurdles is beyond the scope of this report, some policy options emanating from recent research and country dialogue are: (i) In the electricity sector, reduce the price of generation by minimizing arrears and diversifying the energy mix, while continuing to improve efficiency and enhance monitoring and evaluation on transmission and distribution (World Bank, 2014). (ii) On qualified labor supply, continue improving the quality of education at all levels and provide technical formation that is suitable to the needs of exporters and manufacturers. (iii) Continue improving several aspects of the business framework, including burdensome procedures that result in informality and perceived unfair competition, and strengthen the foreign investor protection framework, both inside and outside SEZs. In addition, according to private sector actors, a higher real exchange rate (compared to the nineties) may be also a drag for export competitiveness.

Further research will be needed to better understand how to achieve a higher growth potential by increasing the linkages between SEZ companies and the rest of the Dominican economy. We have been able to establish on a preliminary basis the lack of backward linkages between SEZs and foreign-owned companies and the rest of the economy (Box 7). However, we are far from understanding the nature of existing linkages and the position of the Dominican Republic in global value chains. We would like to better understand the characteristics of Dominican exporters, comparing them to non-exporting firms, as well as the determinants of successful exporters (those with longer survival rates). A follow-up analysis based on enterprise surveys and a deeper look at companies that are both exporters and importers would be needed to address these pending questions.

In conclusion, the Dominican Republic is at a juncture where inter-institutional and multi-stakeholder discussions are needed to benefit from an opportunity to reform incentives and infrastructure to support exporters and fulfill foreign trade potential. The Caribbean Growth Forum initiative[3] may constitute the ideal space for debate among public and private actors. Drawing from the dialogue, Dominican authorities could try to formulate a national strategic plan for promoting exports and attracting investment, which would help coordinate efforts in these areas and make them more efficient. This plan could envisage a series of short- and

3 For more information, access http://caribgrowth.competecaribbean.org.

medium-term actions aimed at maximizing the potential of the agrarian sectors by increasing the capacity of Dominican exporters to meet international SPS standards. In addition, the plan could contemplate the transition of SEZs in a way that reduces the dual treatment of companies outside and inside SEZs, and moves the Dominican Republic into compliance with WTO rules. In the long run, support could be granted through a series of non-discriminative "horizontal" policies implemented by a better empowered EPA.

This Trade Competitiveness Diagnostic expects to facilitate well-informed decisions and better targeting of policies in a moment of transition. The discussion on SPS compliance in fruits at vegetables will be used to shape a World Bank loan aimed at increasing efficiency in agricultural value chains, currently under formulation. In addition, this report is expected to contribute to ongoing discussion about WTO compliance and a new customs law because it highlights the limitations of the current SEZ regime and the competitiveness constraints suffered by non-SEZ exporters. Moreover, the report signals how Dominican exporters could explore diversification into new markets (China, Brazil) that demand certain products currently produced by the Dominican Republic (iron and steel, medical equipment).

Table 1. Summary of policy options aimed at improving the competitiveness of Dominican exporters

Diagnosis area	Challenge	Policy solution
a) Survival rates of agricultural exports similar to other CAFTA-DR countries, but lower perceived quality and higher levels of rejection at the US border	Increase capacity to comply with SPS measures	Building capacity of institutions for the surveillance and inspection of plant pests and animal health, including creation of standardization bodies, system certifications, conformity assessments. Organize vaccination campaigns and disseminate risk mitigation methodologies
		Improve laboratory infrastructure, analytical testing capabilities, create new inspection warehouses at entry points (terrestrial borders, ports, or airports)
		Ensure participation of Dominican SPS standard-setting institutions in the WTO SPS committee to quickly align national standards with international norms
		Create list of banned pesticides and enact regulations dealing with maximum residue levels
	Survival rates for agricultural exporters are significantly lower outside than inside SEZs	Supporting producers and exporters associations along the value chain of the different agro products. The Export Promotion Agency can be very useful to facilitate the transmission of information both ways, linking producers and importers and to set public-private partnerships in the sector
		Carefully target support for private certifications schemes to encourage them to adapt to market channel and demand

Table 1. Summary of policy options aimed at improving the competitiveness of Dominican exporters (cont.)

Diagnosis area	Challenge	Policy solution
b) A duality is observed: SEZs export products with a certain degree of transformation, whereas non-SEZ exporters focus on primary and resource-based products	Dominican SEZ exporters can no longer compete in the basis of low wages	To remain competitive in the current global context, Dominican exporters need to continue adding value to their products by vertically integrating new processes, offering "bundles" to foreign investors, innovating, trying to climb the value chain, and working to increase the quality and productivity
	Enhance backward linkages between SEZs and the rest of the economy	Promote backward linkages between foreign companies in SEZs and local suppliers by introducing incentives to attract foreign investors to sectors that rely more on domestic inputs (metals, machinery, and other manufacturing); in addition, the EPA and other relevant institutions have a role in enhancing the capacity and capabilities of local producers, so they become reliable SEZ suppliers
	Seize the opportunity of the need to comply with WTO ban on export subsidies to pursue country-wide reform	In the short run, enact a series of safeguards to prevent export-promoting policies from being captured by anti-reform coalitions Conduct a cost-benefit analysis of SEZs, considering job creation, contribution to growth, and fiscal costs
		On the basis of the cost-benefit analysis, in the medium term, consider combining nationwide export promotion policies (regardless of the export regime) with enhanced selectivity in terms of strategic sectors (only a couple of growth engines)
		In the long run, progressively level the playing field between strategic and non-strategic sectors, with lower taxes and import tariffs extended to non-strategic companies; enact export promotion policies that are "horizontal" in nature
c) Recently, the Dominican Republic has been relatively successful in exporting new products, but not in selling to new destination markets	Most of the commercial agents abroad are diplomats belonging to the Ministry of Foreign affairs, while specialized trade promotion officers would be more effective; CEI-RD has a budget slightly below the Latin American average, but the payroll burden leaves it with scarce resources compared to other EPAs	Clarify the roles of the various institutions dealing with export promotion to avoid overlaps and reduce demanding coordination needs under the actual structure, ultimately enhancing the efficiency of the export promotion budget and activities

Table 1. Summary of policy options aimed at improving the competitiveness of Dominican exporters (cont.)

Diagnosis area	Challenge	Policy solution
c) Recently, the Dominican Republic has been relatively successful in exporting new products, but not in selling to new destination markets	Export promotion efforts are dispersed across multiple stakeholders, which may decrease the efficiency of resources and the effectiveness of actions	Enact a national strategy for promoting exports and attracting investment that aligns existing strategic plans, establishes standards in attracting investment (avoiding arbitrary benefits and unequal treatment), and signals key sectors for export promotion (instead of generalized support). Include specific policies to promote productivity and innovation
	Promote export market destination diversification to reduce reliance on the US market	Foster a well institutionally empowered EPA, which would focus on (i) addressing significant information shortages to increase exports to relatively unexplored markets in South America and among the New Growth Poles; (ii) increasing the capacity of agricultural producers to comply with SPS norms; (iii) offering bundled services and a tailored support approach with help in forming consortia of SMEs in exporting sectors, financing activities, and identifying potential buyers
		Use difference-in-difference and matching methodologies (Volpe Martincus, 2010) to assess the effects of current EPA activities (promotion, identification of partners, technical assistance, etc.) on companies that benefited from support, comparing them to those that did not benefit
d) Other obstacles in the business environment	Relatively expensive and unreliable electricity supply hampers the competitiveness of Dominican exporters	Reduce the price of generation by minimizing arrears and diversifying the energy mix; continue improving efficiency in distribution (World Bank, 2014)
	The limited availability of skilled human capital may be a constraint in the future	Continue improving the quality of education at all levels and provide technical formation suitable to the needs of exporters and manufacturers
	The Dominican Republic has not made significant gains in the Doing Business rankings lately, which may negatively affect the perception of potential foreign investors and the operations of domestic firms	Continue working in facilitating several aspects of the business framework, including guarantees over movable assets, investor protection, insolvency regulation, and procedures to pay taxes

Source: World Bank staff elaboration.

INTRODUCTION AND MOTIVATION

Although the Dominican Republic underwent a successful structural transformation over the past five decades, high growth did not translate into poverty reduction. Beginning in the late 1960s, the Dominican Republic started to diversify its economy, bringing to an end centuries of dependence on agriculture, especially sugar production. By the 1980s, the country's economic focus had shifted to mining, tourism, and manufacturing. Successive governments helped build up the country's manufacturing sector by creating Special Economic Zones (SEZs) or Free Trade Zones, which offered tariff exemptions and a series of tax concessions to foreign companies. The main activity in the SEZs was garment assembly for export mainly to the market. The dynamism of this sector boosted exports and helped the Dominican Republic to achieve impressive GDP growth rates in the 1990s and early 2000s. After that, economic growth continued, but it was no longer led by exports.[4]

In the past decade, the country saw a change in fortune. The phasing-out of the Multi-Fiber Arrangement (MFA), completed at the beginning of 2005, resulted in the decline of Dominican exports. For 30 years, the MFA had regulated global trade in textile and apparel products. It was notable mainly for permitting major apparel importers, such as Canada, the US, and the European Union, to set quotas on the amount of foreign-made apparel and textiles they would import from any specific producing country. The main impact of these import quotas was to restrict the amount of apparel from China and some other countries in the Far East, allowing the signing countries, such as the Dominican Republic, to meet the unfulfilled demand. Once the MFA expired, the Dominican Republic was unable to compete with the cheaper clothing from China, Hong Kong, Vietnam, and Bangladesh, and it lost much of its share in the US garment market. Between 2004 and 2006, US garment imports from China surged by 65%, and in 2006 China accounted for 30% of the US market, with other Asian countries accounting for an additional 25%. In 2000, the Dominican Republic had a 4% share of US garment imports; by 2006, it had fallen to 1.6%.

4 GDP growth averaged 5.7 percent per year between 1991 and 2013, making the DR one of the top performers in the Latin America and Caribbean region (LCR).

Deteriorating terms of trade and overvaluation respect to the nineties may have also impacted the competitiveness of Dominican exports. The financial sector crisis in the Dominican Republic resulted in inflation reaching 42 percentage points in 2003, which was temporarily compensated with a sharp depreciation that resulted in a rebound in economic growth. However, in 2005 real exchange rate levels were already higher than in the pre-crisis situation, and have since remained much higher than in the nineties. Private sector actors in the Dominican Republic often quote exchange rate overvaluation as one of the main causes behind the decline in export competitiveness. By looking at the terms of trade index, it is possible to observe certain deterioration since 2002, meaning that the unit value of exports is on decline if we compare with the unit value of imports.

Authorities reacted to this new external environment by joining ongoing negotiations to a free-trade agreement between the Central American region and the US, but the Dominican foreign trade remains below potential. The Dominican Republic was a latecomer to the Central America Free Trade Agreement (CAFTA), formally accepted in 2004. The agreement was renamed CAFTA-DR, and it entered into force in the Dominican Republic in 2007, one year later than for the other member countries.[5] In addition to this agreement, the Dominican Republic had also signed trade pacts with the Caribbean community (CARICOM) in 1998 and with Panama in 2003. Since October 2008, it has been a member of the Economic Partnership Agreement (EPA) between the EU and the Caribbean. In spite of tariff declines, Dominican exports and imports as a share of GDP is lower than in other economies with the same level of income per capita, suggesting international trade is below potential.

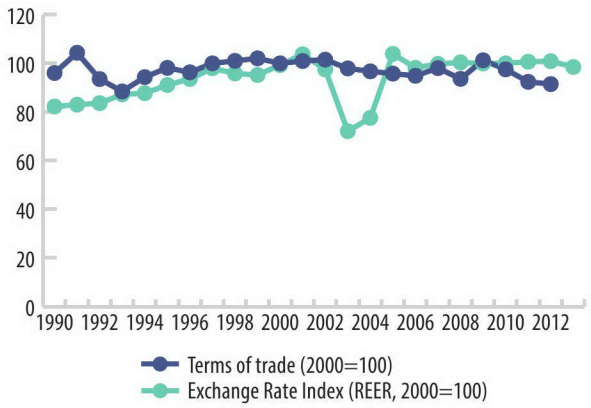
Exports have recovered some dynamism after 2009, and the Dominican Republic has been able to diversify in terms of products, although the export value in real terms remains far below the level of the 1990s. As discussed above, the sharp contraction in textile exports over the past decade led to a decline in SEZ economic activity and employment. In the aftermath of the global economic slowdown of 2009, SEZs have shown signs of revival. They have been able to expand production of a more diversified bundle of goods, including surgical equipment, shoes, and plastics and chemicals. In addition, some companies have initiated vertical integration processes, or have started to offer complementary services, to increase their products' value added. Furthermore, non-SEZ exports have shown a markedly greater dynamism in recent years, thanks to the vitality of agricultural exports and the beginning of gold export activity. Despite reasons for optimism, the Dominican Republic continues to lag Costa Rica, Honduras and other DR-CAFTA countries and other small islands in export growth.

SEZs have been often characterized as "enclaves," and their relative isolation from the rest of the economy could be one explanation for the limited inclusiveness of the Dominican growth model. Research on the Dominican Republic's economic development has often highlighted—but not thoroughly proven—the lack of the backward linkages between SEZs and the rest of the economy (Kaplinsky, 1993; Willmore, 1995; Sánchez-Ancochea, 2006). The result is limited opportunities for technology and knowledge transfer between firms outside and inside SEZs, constraining the opportunities for upgrading of Dominican production processes. As discussed in section I.c,, even when SEZs have been successful in generating employment and economic growth, they have also originated a two-tier exports basket as well as dual standards in taxation and labor markets. It seems legitimate to question the current role of SEZs, and how they should evolve in the future, especially now that the country faces a December 2015 deadline to comply with WTO rules by phasing out of export subsidies (see section II.b.2).

Together with SEZs, tourism has been since the nineties the other engine for the Dominican economy. At an average of 8.3 percent of GDP in 2009-2013, exports of travel services remain as an essential component in

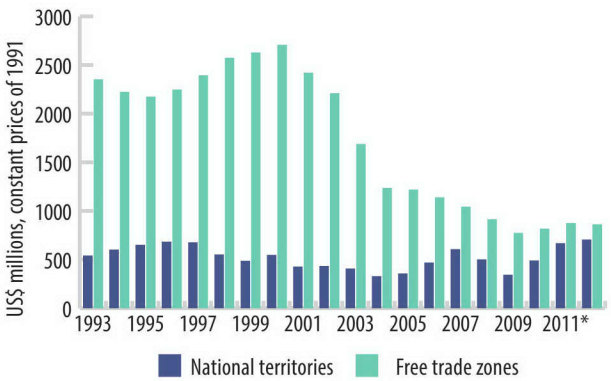
5 With the exception of Costa Rica, where CAFTA-DR entered into effect in 2009.

Figure 2. Evolution of terms of trade and real exchange rate in the Dominican Republic



Source: World Development Indicators.

Figure 3. Evolution of SEZ and non-SEZ real exports in Dominican Republic



* Indicate partially revised figures and preliminary figures subject to rectification
Source: WB staff calculations based on Central Bank data.

the balance of payments, to compensate for a wide trade deficit (averaging 14.9 percent in the same period). They also constitute an important source of foreign currency, which helps mitigating exchange rate fluctuations and ensuring external sustainability. However, it is worth noticing that travel receipts have declined in relative terms, if we compare to the pre-crisis period (as they averaged 11.9 percent of GDP in 2005-08). As we will see, this report does mainly focuses in exports of goods, given that the customs transaction database we analyze does not record exports of services; nevertheless, it is important to acknowledge the importance of tourism in the Dominican economy, as well as to emphasize the need for further research about the topic.

The idea of conducting a Trade Competitiveness Diagnostic originally emerged during a series of e-seminars on Free Trade Agreements (FTAs) held in September 2011.[6] In a series of follow-up meetings, government counterparts in the Ministry of Industry and Trade, and the Ministry of Economy, Planning and Development have expressed their concerns about the lack of solid analytical work to guide public policies on trade issues. This report tries to contribute to filling this gap by applying the Trade Competitiveness Diagnostic methodology (Reis and Farole, 2012) to systematically assess Dominican goods exports.

In light of this history and motivation, this report's *objective* is to thoroughly assess export performance, identify the main bottlenecks for export competitiveness, and come up with suitable policy options to address them. In pursuit of this objective, the report tries to answer these questions: *How did export of goods evolve in the last decade and how did the Dominican Republic compare to other LAC countries? Were changes in exports driven by intensive or extensive margins? To which extent is export concentration a source of vulnerability? Is there space to improve trade relationships with other countries? How has trade with the new growth poles (BRICS) evolved? What is the untapped potential in the country's exports? Which sector presents the lowest rate of export survival?*

The report is structured in two main parts—a Trade Outcomes Analysis and a Trade Competitiveness Diagnostic. Part I assesses Dominican Republic trade outcomes over the past two decades, compared to its CAFTA

6 During the Annual Meetings 2010, President Fernandez, in discussion with President Zoellick, voiced his interest in learning from international experiences in FTAs, to take better advantage of the existing CAFTA-DR. Following this request, the World Bank organized two e-conferences called "International Experiences on Free Trade Agreements, Lessons for the DR." They took place in September 2011, connecting experts in Santo Domingo, Washington, and Singapore, including the CEO of the Chamber of Commerce of Singapore and two Dominican ministers. The case of Singapore, successfully becoming an Asian hub for biotech and pharmaceutical industries thanks to the US FTA, was brought up, along with the example of Chile.

peers and some other international peers. Three main challenges emerge from the Trade Outcomes Analysis: low compliance with international norms in agricultural exports, the economic duality emerging from SEZs, and the fragmented institutional support for exports. These challenges have also been highlighted as topics of interest that, to our knowledge, have not been thoroughly investigated so far. They are analyzed in detail the in the Trade Competitiveness Diagnostic section.

Section II.a of the Trade Competitiveness Diagnostic studies the capacity of Dominican exporters to comply with US sanitary and phytosanitary (SPS) measures in the fruits and vegetables sector. It first provides an overview of the US market access policies and reviews the current provisions specific to the Dominican Republic. It then employs US Food and Drug Administration import alerts and import rejection information to track Dominican trade compliance and benchmark it against other CAFTA-DR countries. Looking at compliance is crucial because the inability of exporters to meet developed markets' stringent SPS measures often hinders their export survival and hampers their integration into the global economy.

Section II.b looks at the current competitiveness of Dominican SEZs and their broader achievements and failures to date. It diagnoses key factors that might be associated with these successes and failures, to finally suggest a forward-looking policy course, drawing partly on cross-country international experience of maturing or graduating SEZs in the region and beyond. It is also worth noting that we also include some preliminary evidence about backward and forward linkages between foreign owned companies and the rest of the economy (Box 7).

Section II.c assesses the Dominican Republic's institutional infrastructure to support export promotion and attracting investment. First, it analyzes existing institutions and bodies in charge of these functions as well as their interactions. Second, it discusses how export promotion agencies in the Dominican Republic join efforts to achieve more efficient outcomes and use of public resources.

Finally, we acknowledge the importance of other factors that may have a bearing on export competitiveness but, for different reasons, are beyond the scope of this research. As abovementioned, the report focuses on three bottlenecks for export competitiveness: agro exporters' difficulty in complying with SPS standards, a two-tier export basket with limited linkages between SEZs and the domestic economy, and fragmented institutional support efforts. In addition, other factors such as the quality and cost of production inputs (affected by energy prices, taxes or tariffs), the factors of production (functioning of capital and labor market) and available technology (often imported foreign technology) are also likely to influence the competitiveness of Dominican exports. A detailed analysis of these factors could not be included in this assessment, since some of them entail questions well beyond a trade competitiveness diagnostic (electricity sector and labor market factors), and others have been already covered in a number of studies by the IADB and USAID (transport and logistics). Preliminary analysis using World Bank Enterprise Surveys reveals electricity, tax administration, informality, and insufficient availability of skilled labor as perceived by Dominican exporters to be more of an obstacle than in other parts of the world. Results from this preliminary analysis are presented in more detail in Annex 6, *Dominican Exporters—Results from the Enterprise Survey*.

The report focuses on 2002-12 and uses General Customs Directorate merchandise export transaction database as its main source. The export transaction database is thoroughly assessed in part I *Trade Outcomes Analysis*. Section II.a employs newly available data on US import refusals to determine the Dominican agricultural exports' rejection rate by US border authorities. Section II.b complements the analysis on the role of SEZs by looking at Central Bank and CNZFE data and by drawing from in-depth interviews with stakeholders. Section II.c, put together in collaboration with CEI-RD officials, discusses the role of export promotion agencies in light of regional and international experience.

The main *audience* for the report will be public and private stakeholders in the foreign trade area. As mentioned above, the idea for this report came out of discussions with the Ministry of Economy, Planning and Development and the Directorate for Foreign Trade at the Ministry of Industry and Commerce. In addition, the audience for this report would include other public sector bodies (CEI-RD, CNZFE, the National Competitiveness Council), private sector associations (ADOZONA, the Dominican Association of Importers, the Dominican Association of Exporters, etc.), entrepreneurs, civil society organizations, and members of academia.

The Trade Competitiveness Diagnostic is one of the first building blocks in developing a new agenda of inclusive growth and enhanced competitiveness in the Dominican Republic. This document has been developed in the context of country priorities established by the National Development Strategy 2010-2030[7] (Strategic Axis 3, "Desarrollo Económico y Competitividad"). It also responds to Objective 2 under the new World Bank Country Partnership Strategy with the Dominican Republic—"improving the investment climate and fostering private sector development," aimed at achieving sustained and inclusive growth. This analytical piece accompanies ongoing World Bank technical assistance efforts aimed at improving the Dominican business climate. In addition, the results of this report, especially section II.a, with title *The Dominican Republic's Trade Compliance Capacity in Fruits and Vegetables*, are going to contribute to the design of an upcoming World Bank operation aimed at enhancing value chains in the agricultural sector.

7 Organic Law 1-12 of the National Development Strategy.

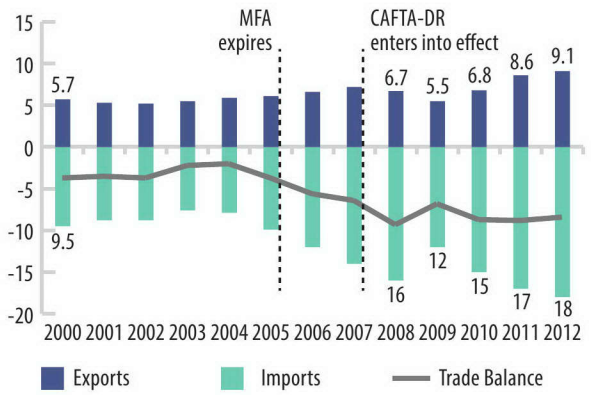
CHAPTER I
TRADE OUTCOMES ANALYSIS[8]

This chapter reviews the country and firm level performance of Dominican exports along various dimensions that, taken together, give a fairly comprehensive picture of trade competitiveness. The analysis is intended to guide a systematic generation of hypotheses about the country's export performance, prospects, and challenges. During the analysis, we benchmark the Dominica Republic with other CAFTA countries and, in some cases, with selected peers outside the region. The chapter is organized as follows. Section a reviews the evolution of export performance and the role of SEZs in shaping export dynamics over the past decade. Section b discusses the changes in sector specialization caused by changes in preferential access in the US market, the Dominican Republic's main export destination. It also highlights the narrow product and destination mix of Dominican exporters. Section c reveals the existence a two-tier export basket in terms of sophistication and quality: products from SEZ firms involve some technological transformation, while products from outside the zones are mostly primary or resourced based, with low value added and low quality in international markets. Section d looks at survival rates of agricultural exporters and finds them low but no different from other CAFTA countries. Finally, section e summarizes the main challenges to export competitiveness.

Through the analysis, we are able to identify three main challenges to export competitiveness. First, the survival rates for Dominican agricultural exports are not different from other CAFTA countries, but the perceived quality of certain products is lower, providing room for potential for enhancing quality. Second, there is a duality in sophistication of exported products: non-SEZ exporters focus on primary and resource-based products; SEZs export products with a certain degree of transformation, becoming "enclaves" with limited positive externalities for the rest of the economy. Third, the Dominican Republic has been relatively successful in diversifying export products, but it has done less well in finding new destination markets. These challenges are assessed in more detail in part II of this report, *Trade Competitiveness Diagnostic*.

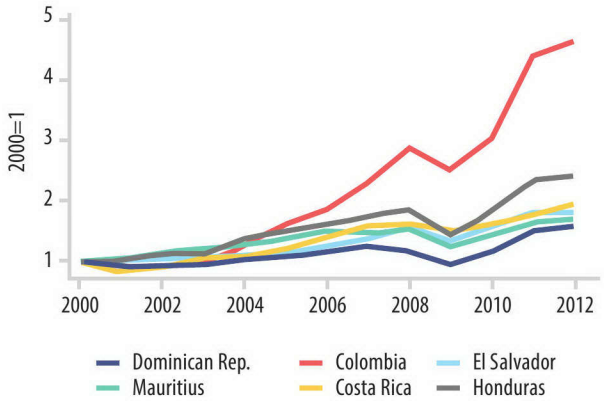
8 The Trade Outcomes Analysis was prepared by José Daniel Reyes, with contributions by Cristian Ugarte.

Figure 4. Dominican Republic: exports, imports, and trade balance (Billions of USD)



Note: This figure shows the evolution of export and imports for merchandise trade in the Dominican Republic. Source: Authors' calculation using Central Bank information. Data for 2013 is preliminary.

Figure 5. Export performance between 2000-12 (2000=1)



Note: This figure compares merchandise export growth in the Dominican Republic with selected peer countries. Source: Authors calculation using World Development Indicators.

A. RECENT EXPORT PERFORMANCE AND THE ROLE OF SPECIAL ECONOMIC ZONES

Swapping global preferences in certain sectors (MFA) for preferential market access in the US market (CAFTA-DR) did not payoff automatically, but there are some encouraging signs. Figure 4 shows the trends in exports, imports, and trade balances in current USD dollars. Between 2000 and 2012, imports almost doubled, partly due to dependency on foreign energy and increasing international oil prices, while exports increased by just 60%. This dynamism increased trade deficits over time, reaching11.9% of GDP in 2013.[9] The 2008-09 global financial crisis certainly affected trade performance, but exports bounced back to their 2008 level in 2010. In 2011, exports displayed an impressive annual growth rate of 26%, led by a 45%surge in non-SEZ exports. Exports then grew at a more moderate 5% in 2012 and 6% in 2013, with non-SEZ exports growth rate (12%) outperforming the SEZ growth rate (2%).

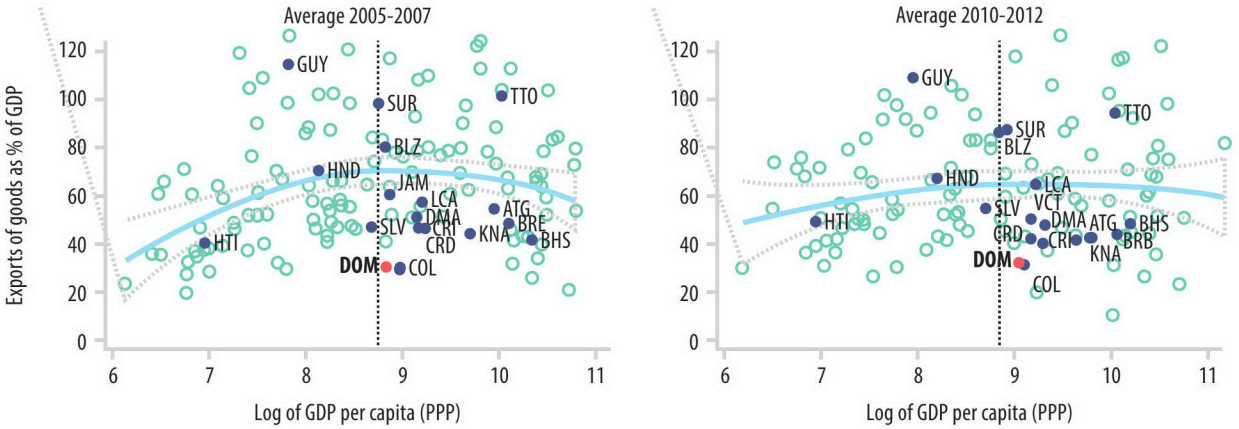
The global conditions that the Dominican Republic had to sail over the past decade are not specific to the country. Many nations with similar reliance on MFA benefits also had to adjust to the new international rules. Countries in the same region also negotiated preferential trade agreements. Different export strategies were put to the test. Unfortunately, the Dominican Republic seems to trail similar countries in export performance. Figure 5 compares export trends in the Dominican Republic and Mauritius, Costa Rica, Honduras, Colombia, and El Salvador.

The Dominican Republic's below-average export performance also holds when compared against all countries of similar per capita income. Exports over GDP and per capita income have a concave relationship: countries tend to export more as a share of the GDP as incomes rise but at a decreasing rate. Figure 6 show the location of the country along these two dimensions for 2005-07 and 2010-12. The results indicate that Dominican exports are far below the norm for its level of economic development (denoted by the band in each figure). In fact, the Dominican Republic is the worst performer among other Caribbean islands (labeled by their ISO country codes) as well as among peers outside the region. Other dots indicate the rest of countries in the world.[10]

9 This deficit has been traditionally financed by (i) tourism related revenues, (ii) remittances, and (iii) FDI. According to preliminary central bank data released in 2013, tourism related revenues accounted for 6.43% of GDP and remittances for 5.49% of GDP. FDI reached 3.28% of GDP.

10 These figures do not take into account services, which are especially important in the Dominica Republic. When they are considered, however, the country still underperforms the norm for its development stage.

Figure 6. Exports over GDP and GDP per capita



Note: The curve shows expected export levels as a share of GDP given each country economic development. The band represents the 95% confidence interval. The vertical dotted line is the average per capita income of countries in the sample. Source: Authors' calculation using World Development Indicators.

Over the past decade, export growth has been more dynamic in non-SEZ areas than in SEZs—although SEZs remain a main driver of export performance. Highly detailed data allows us to review the export performance through the lens of the firms. Table 2 separates the export performance of companies inside and outside SEZs between 2002 and 2012.[11] An in-depth discussion about recent developments and challenges SEZ will be facing ahead is provided in section II.b, *The role of Free Trade Zones in the Dominican Republic: Adjusting to a New Era of Competition*. There are four main patterns worth noting: First, the share of export value originated from SEZ firms has consistently decreased from 80% in 2002 to 54% in 2012. Second, the number of firms has not followed suit, suggesting a change in specialization within SEZs from the clothing sector to more services-oriented activities. Third, the increase in exports from firms operating outside SEZs has been accompanied by a steady increase in the number of exporters. Fourth, the product scope (number of six-digit codes) is much broader for firms operating outside SEZs than SEZ exporters.

The source of export growth also differs greatly, with non-SEZ firms more driven by the extensive margin. We decompose total export growth at the firm-level along the so-called "margins of trade." At this level of analysis, export growth can come from four main components. First, increased exports of the same products, by the same firms to the same markets—the "intensive margin" of trade. Second, existing exporters may introduce or remove products; third, they may enter or exit new markets; and fourth, new firms may enter export markets for the first time—together, these three are known as the "extensive margin" of trade. Figure 7 depicts the source of export growth by type of exporter. (Details on the decomposition of export growth along the margins of trade using firm-level data are provided in Annex 2 and correcting for partial year effects in Annex 5 section 1.) The majority of export growth in Dominican SEZs occurs by developing established export relationships—the intensive margin of trade. Between 2010 and 2012, around 89% of the export growth in firms located inside SEZs comes from the intensive margin. This is a feature quite common in these zones as firms based there

11 Data from 2007 and 2012 was provided by the Dominican sustoms authorities (Dirección General de Aduanas, DGA hereafter) for the purpose of this study. Data for 2002-09 was previously collected by the World Bank by Molina et al. (2010). When possible, we use both datasets, but we cannot track firms between the two databases because firms' identifiers are incompatible. The DGA data provides customs-level information of all export transactions recorded by the DGA between 2007 and 2012. The database also identifies if an export transaction originated in an SEZ. Export transactions are available daily for the period of reference. For the purpose of this analysis, we aggregate transactions at the firm-product-country-year-month level. A product is a six-digit HS code. Total exports from the DGA data match fairly well with COMTRADE data (see Annex 1).

Table 2: Export performance by type of exporter (2002-2012)

	Exporters located outside Special Economic Zones					Exporters located in Special Economic Zones				
Year	Total Export	Growth (%)	Firms	HS6 Products	Destinations	Total Export	Growth (%)	Firms	HS6 Products	Destinations
2002	847.7	6.7	1,909	917	109	4,317.3	-3.7	495	455	94
2003	1,064.0	25.5	2,137	1,016	114	4,406.8	2.1	513	519	106
2004	1,250.7	17.5	2,076	996	112	4,685.2	6.3	525	523	115
2005	1,395.1	11.5	2,054	943	112	4,749.6	1.4	543	522	113
2006	1,931.4	38.4	1,708	954	101	4,678.8	-1.5	496	586	112
2007	2,635.1	36.4	2,151	1,407	118	4,525.1	-3.3	591	948	118
2008	2,393.4	-9.2	1,877	1,396	115	4,354.1	-3.8	510	962	127
2009	1,689.3	-29.4	2,169	1,457	122	3,793.6	-12.9	544	971	121
2010	2,536.1	50.1	2,139	1,487	118	4,217.4	11.2	496	994	112
2011	3,678.0	45.0	3,007	1,527	124	4,814.1	14.1	641	1027	117
2012	4,129.0	12.3	4,168	2,468	122	4,940.1	2.6	431	1334	133

Note: This table shows the main characteristic of exporters operating inside and outside SEZs in the Dominican Republic. Export share is the percentage of total exports coming from each group. Source: Authors' calculation using information from the Central Bank and the DGA.

are highly specialized and usually have well-established export channels that allow them to deepen export relationships. Non-SEZ exporters have been able to expand evenly along the intensive and extensive margins. Particularly important is the contribution of the net entry of firms into exporting markets, which explains 36% of total non-SEZ export growth between 2010 and 2012.[12] Finally, the analysis also indicates that within firm market diversification played a role in export growth for non-SEZ exporters.

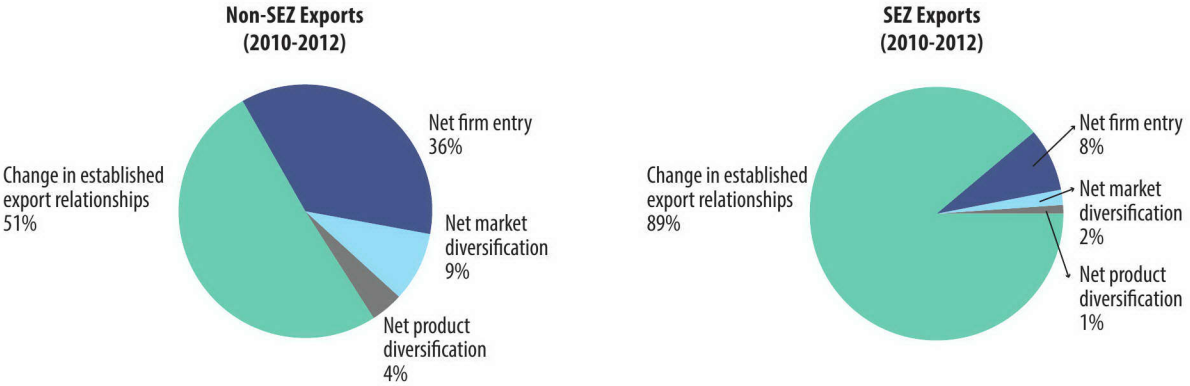
The emerging role of the extensive margin as a driver of export performance for firms outside SEZs is a positive indication because growth on extensive margins is usually associated with a healthy dynamic of export relationships. More competitive firms emerge, product and to a lesser extent sector diversification becomes possible, and firms move beyond local and traditional markets. To see how the Dominican Republic fares with respect to peer countries, Figure 8 compares its share of export growth from the extensive margin with other countries across a range of development levels and geographical locations, subject to data availability.[13] It shows that the role of the extensive margin significantly increases along the development path. In fact, the role of the extensive margin in the Dominican Republic is well above what would be expected at its income level; it is comparable to relatively more competitive countries, including Colombia and Mexico. Unfortunately, data availability precludes comparisons with other Caribbean countries. Annex 3 discusses the decomposition of the extensive margin for non-SEZ Dominican exporters in more detail.

In examining recent Dominican export performance, the final consideration is the role of international prices in export growth. True competitiveness gains come when export increases are accompanied by a surge of the quanti-

12 It is worth noting that net firm entry is very important for non-SEZ export growth, but these firms face lower rates of export survival in comparison to their SEZ counterparts (see Molina et al 2010).

13 Firm-level cross-country comparison are possible using the data available in the World Bank Exporter Dynamics at http://go.worldbank.org/KZGM120470 .

Figure 7. Exports growth decomposition

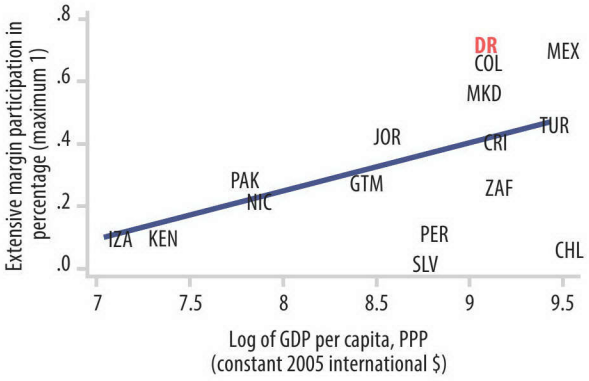


Note: These figures decompose export growth into the part that occurs within established export relationships—the intensive margin—and new export relationships—the extensive margin. For the intensive margin, the share is the net effect of changes of export values within established relationships. For the extensive margin, the shares are the net effect of entrants and exiting firms on export growth. Source: Author's calculations using DGA data.

ties a country ships abroad. Figure 9 shows the evolution of Dominican export growth in both value and volume from 2006 onwards. The figure also shows the deviation of observed export growth with respect to the world. The data come from Gualier, Santoni, Taglioni, and Zignago (2013), who also provide information about the sectoral and geographical composition of exports along with other factors specific to the exporting country. Sectoral effects indicate whether export performance is driven by sectors that are buoyant in international markets. Geographical effects indicate whether export performance is affected largely by main trading partners' economic conditions. Finally, the authors provide a measure of competitiveness (the so-called push effect) that isolates the impact of changes in international conditions (demand and a change in composition) from the changes due to other determinants of export performance.

After the global economic crisis of 2009, Dominican exports grew in both value and volume. While value growth has been similar to the overall world rate, export volume grew faster than the world average since 2011. This performance was mainly driven by push effects, suggesting an improvement in competitiveness and performance by Dominican exporters. Geographical effects seem to be minor for export performance, indicating that main Dominican exports' destination markets have not been increasing demand.

Figure 8. Participation of the extensive margin at different levels of development (Latest available year)

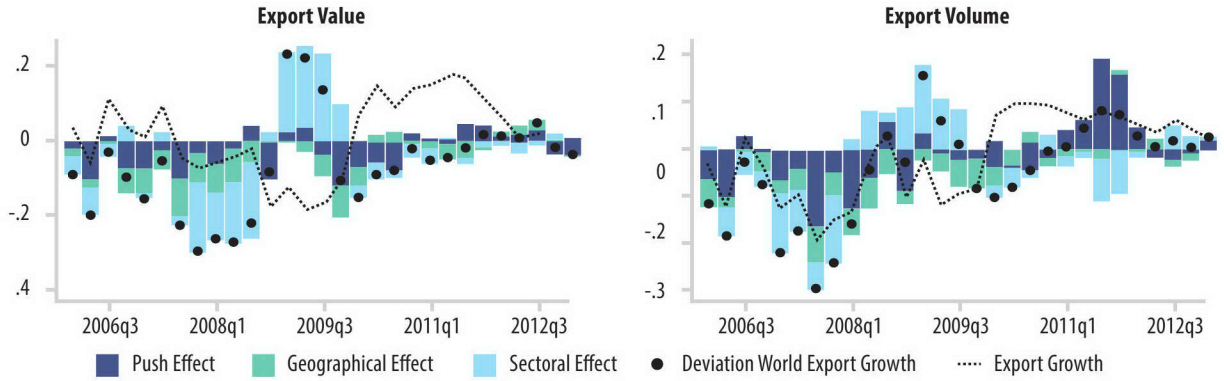


Note: The analysis takes into account all exporting firms in a given country, regardless of their location in SEZs. Due to data availability constraints, data for each country are an average across different years as follows: Iran: 2006-10, Chile 2003-09, Colombia 2007-09, Ecuador 2002-0, Jordan 2003-10, Macedonia 1998-2010, Pakistan 2002-10, Peru 2000-09, Mexico 2000-09, South Africa 2001-09, Nicaragua 2002-11, Turkey 2002-11; The Dominican Republic: 2007-12. GDP per capita is also the average over the corresponding time period. The choice of countries is dictated by the availability of customs transaction level data through the World Bank's Exporter Dynamics Database. Source: Authors' calculations.

B. CHANGES IN SECTOR SPECIALIZATION AND EXCESSIVE MARKET CONCENTRATION

Over the past decade, the Dominican Republic has transformed itself from a nation dependent on resources and clothing production, becoming a more diverse economy where minerals, metals, and relatively sophisticated manufacturing products have started

Figure 9. Dominican Republic export performance



Note: These figures show the year-to-year growth for export value and volume between 2006 and 2012. Three main sources of exports are identified: (i) geographical effects, which indicates the extent to which export performance is pulled by the growth in the main destination markets; (ii) sectoral effects, which indicates the extent to which export performance is pulled by high international demand in key export sectors; and (iii) push effect, which are country specific factors driven by export performance. The push effect is an indicator of the level of competitiveness of a given country. Source: Gualier, Santoni, Taglioni, and Zignago (2013).

to emerge. The decade brought a long-term shift in the engines of export growth, which is linked to the ability to appropriate gains from international trade and translate them into economic growth and development. Table 3 gives an overview of this change in Dominican sectoral specialization by showing the evolution exports, sector shares, revealed comparative advantages, and contributions to export growth over the past decade. To understand the impact of changes in market access policies (mainly with the US) on Dominican export performance, we decomposed the decade into four periods. First, we look at the average export performance in 2003-04, when the clothing industry was protected under the US quotas defined by the global Multi-Fiber Agreement (MFA). Second, we look at the average export performance in 2006-07, a year after the MFA expired but before the country signed the CAFTA-DR. Third, we look at the post-CAFTA-DR, post global financial crisis scenario by examining export performance in 2010-11. And fourth, we show the sectoral indicators of export performance for the latest year for which data is available.

The elimination of export quotas in textiles greatly impacted the Dominican Republic. While the sector is still predominant in the overall export basket, contributing 15.9% of total exports, the nominal value of clothing exports in 2012 ($1.1 billion) is slightly lower than it was in 2003-04 ($1.2 billion). It is important to note, however, that after declining over the last part of the 2000s, the textile sector made a positive contribution of 3.3 percentage points in 2012. In fact, it was the third best performing sector behind only mineral oils at 5.4 percentage point and chemicals at 4.8 percentage points. This uneven performance reflects a restructuration of the sector from large-scale sewing to more just-in time production, short series, and full-package solutions (discussed in detail in section II.b.1 on how SEZs are adjusting to a new era of competitiveness).

While the nominal value of clothing exports remained at best flat over the past decade, the country almost doubled the nominal value of merchandise exports, building on the good performance of agricultural products (vegetables and foodstuff[14]) and the emergence of metals, mineral oils, chemicals, and plastic and rubber products. The advent of these sectors was not simultaneous. For instance, the surge of metals' exports occurred between 2003 and 2006, when the sector contributed more than half of total export growth. It is important here to distinguish exports of ferronickel and gold from those of scrap metal.[15] Ferronickel exports were par-

14 It is worth noting that foodstuff includes tobacco exports from companies that are mainly located in special economic zones.

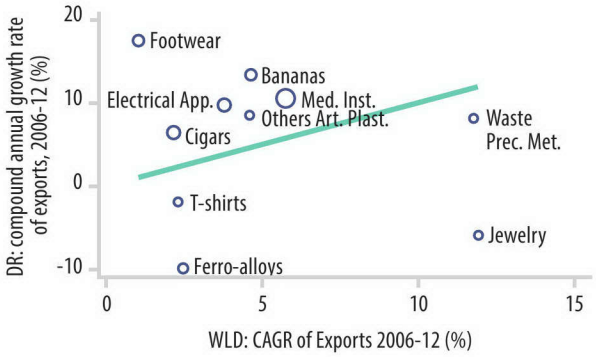
15 Growth in exports of metal (from 2008-2009 until 2011) was mainly caused by exports of scrap metal (HS heading 7404). Metal theft (in particular manhole covers, phone and electric wires, pieces structures of bridges, fences, etc.) for the purpose of exporting due to high international prices was a public scandal 3 years and pushed for

Table 3: Sectoral composition, revealed comparative advantage, and growth

	Sector	Average 2003-2004			Average 2006-2007				Average 2010-2011				2012			
		Value	Share	RCA	Value	Share	RCA	Cont. Gr.	Value	Share	RCA	Cont. Gr.	Value	Share	RCA	Cont. Gr.
01-05	Animal	2.4	0.1	0.0	8.0	0.2	0.1	0.2	29.9	0.5	0.3	0.4	20.0	0.3	0.2	-0.2
06-15	Vegetable	99.1	2.7	1.0	179.7	3.7	1.5	2.2	417.2	7.3	2.3	4.9	279.8	4.1	1.3	-2.4
16-24	Food products	494.3	13.6	4.6	731.3	15.1	5.6	6.5	1,097.9	19.2	6.4	7.5	1,069.3	15.6	5.2	-0.5
25-26	Minerals	7.6	0.2	0.2	41.0	0.8	0.6	0.9	89.5	1.6	0.8	1.0	213.5	3.1	1.7	2.2
27	Mineral Oils	2.3	0.1	0.0	4.0	0.1	0.0	0.0	143.9	2.5	0.2	2.9	454.9	6.6	0.3	5.4
28-38	Chemicals	75.3	2.1	0.2	104.5	2.1	0.2	0.8	277.8	4.9	0.5	3.6	554.7	8.1	0.9	4.8
39-40	Plastic / Rubber	67.3	1.9	0.4	171.1	3.5	0.8	2.9	325.5	5.7	1.3	3.2	322.3	4.7	1.1	-0.1
41-43	Hides, Skins	20.8	0.6	0.8	26.6	0.5	0.9	0.2	34.8	0.6	1.0	0.2	28.1	0.4	0.7	-0.1
44-49	Wood	86.9	2.4	0.7	155.1	3.2	1.1	1.9	166.0	2.9	1.2	0.2	98.4	1.4	0.6	-1.2
50-63	Textiles, Clothing	1,211.3	33.3	6.1	998.5	20.5	4.7	-5.8	903.0	15.8	4.0	-2.0	1,090.2	15.9	4.3	3.3
64-67	Footwear	175.4	4.8	5.3	153.0	3.1	4.1	-0.6	242.7	4.2	5.6	1.8	314.9	4.6	6.3	1.3
68-71	Stone / Glass	276.6	7.6	2.5	308.7	6.4	2.1	0.9	245.7	4.3	1.1	-1.3	348.8	5.1	1.4	1.8
72-83	Metals	67.4	1.9	0.3	751.0	15.5	1.8	18.8	546.1	9.5	1.3	-4.2	626.6	9.2	1.3	1.4
84-85	Mach/Elec	513.8	14.1	0.5	701.2	14.4	0.5	5.1	484.6	8.5	0.3	-4.5	642.9	9.4	0.4	2.8
86-89	Transportation	4.4	0.1	0.0	3.0	0.1	0.0	0.0	13.7	0.2	0.0	0.2	21.1	0.3	0.0	0.1
90-97	Miscellaneous	537.3	14.8	2.3	522.6	10.8	1.9	-0.4	712.6	12.4	2.3	3.9	761.1	11.1	2.1	0.8
Total		**3,642.1**	**100.0**		**4,859.2**	**100.0**		**33.4**	**5,730.8**	**100.0**		**17.9**	**6,846.6**	**100.0**		**19.5**

Note: A RCA index above one indicates that the country's share of exports in that sector exceeds the same sector's global export share in the same period. If so, we infer that the country has a comparative advantage in that sector. The contribution to export growth (Cont. Gr.) is computed as the compound annual growth rate multiplied by the share in total exports, and it indicates the importance of observed sectoral-level export changes to overall export performance. The contribution to export growth refers to changes between our periods of analysis. Export value is in millions of US dollars. It is worth noting that foodstuff includes tobacco exports, which is one of the main DR exports. Source: Authors calculations using data from the DGA.

Figure 10. Growth orientation of products



Note: This figure shows the top 10 most important export products in 2012 for the Dominican Republic. The y-axis shows the country's annualized growth rate of exports between 2006 and 2012. The x-axis shows the world annualized growth rate of exports during the same period. The size of each bubble corresponds to the importance of the product in the Dominican export basket. Observations above the 45 degree line (red line) indicate that the Dominican Republic has gained market share in the product. Source: Authors' calculations using COMTRADE data.

ticularly strong, coming from Falcondo, the only ferronickel producer and exporter.[16] A surfacing new product in the precious stones sector is gold, with exports jumping from $1.4 million in 2010 to almost $170 million in 2012, largely because of the Pueblo Viejo mine started commercial production in 2012. Petroleum and chemicals (mostly pharmaceutical products) developed as exporters after CAFTA-DR implementation. These sectors account for half of total export growth between 2011 and 2012. The plastics and rubber sector, on the other hand, followed a rising export pattern since the beginning of the period under analysis, although it seems to have plateaued in 2012. Main products in these sectors include plastic tableware, kitchenware, and containers.

The Dominican Republic also relies on exports of electrical transformers and medical equipment. These products, classified in Table 3 under the electrical and miscellaneous (including instruments and appliances used in medical sciences) sectors, accounted for almost 30% of total export value in 2003-04 and 20% in 2012. In a close second place of traditional export engines is jewelry, which has a long history of being crafted for export.

The export basket reshuffling has helped the Dominican Republic develop comparative advantages in new sectors. Minerals, plastic products, and metals are examples of sectors that gained comparative advantage over the past decade (Table 3). The relatively high degree of product diversification of the export basket is reflected by the fact that the country displays comparative advantage in nine of the 16 sectors in Table 3. The country has gained international market share for the majority of its most important products, with the exception of T-shirts, ferroalloys, jewelry, and waste of precious metals (Figure 10).

Although non-SEZ exports have gained over the past decade, the dynamics in SEZs still drive Dominican export performance and changes in the composition of the export basket (Table 2). At the sector level, we find some heterogeneity in the importance of SEZ exports. Table 4 shows the sector composition of SEZ exports. The within-sector indicator measures SEZ exports as a share of total sector exports; for example, 60.7% of total foodstuff exports originated from firms operating inside SEZ in 2012. The across-sector indicator shows the share of each economic sector in total SEZ exports; for instance, foodstuff products represented 15.2% of total SEZ exports in 2012.

The decline in SEZ textile exports has resulted in an increase of the relative importance of foodstuff, chemicals, footwear, and other products (discussed more in details in section II.b). Foodstuff, clothing, electrical products, and medical devices accounted for 80% of total SEZ exports at the beginning of the decade. Ten years later, these sectors still account for 70%. The reduction is

the creation of a protocol in order to separate legitimate exports of scrap from those resulting from illegal activities, which helped reducing theft. Exports of ferronickel grew consistently until 2007; in 2008 they declined to a half of what it was in 2007 and almost disappeared in 2008-2009, as production in Falcondo was halted for three years.

16 In 2009, dipping international nickel prices and the high cost of energy forced Falcondo to temporarily cease operations in its northern Monseñor Nouel mine. Operations were partly resumed in 2010, and the mine operated at 50% capacity with self-produced energy. This explains the observed drop in metals exports between 2006-07 and 2010-11. Top executives said the company would need to invest hundreds of millions of dollars to restructure its energy matrix and enhance competitiveness to position itself to reopen in two to three years—if market conditions are favorable.

Table 4: Sectoral composition of merchandise exports originated in SEZs

	Sector	Average 2003-2004		Average 2006-2007		Average 2010-2011		2012	
		Within	Across	Within	Across	Within	Across	Within	Across
01-05	Animal	0.7	0.0	4.6	0.0	2.8	0.0	0.2	0.0
06-15	Vegetable	7.4	0.2	8.4	0.4	14.5	1.6	20.6	1.4
16-24	Food products	57.0	9.0	53.8	11.6	50.5	15.0	60.7	15.2
25-27	Minerals	0.1	0.0	0.1	0.0	2.4	0.1	0.0	0.0
27	Mineral Oils	3.6	0.0	41.6	0.1	3.3	0.1	0.3	0.0
28-38	Chemicals	55.5	1.3	47.2	1.5	55.6	4.2	76.6	10.0
39-40	Plastic / Rubber	58.3	1.3	67.7	3.4	66.2	5.8	58.4	4.4
41-43	Hides, Skins	83.5	0.6	88.2	0.7	75.8	0.7	69.6	0.5
44-49	Wood	84.7	2.4	83.2	3.8	73.6	3.3	29.5	0.7
50-63	Textiles, Clothing	99.3	38.4	99.3	29.3	97.8	23.9	97.4	24.9
64-67	Footwear	98.8	5.5	98.1	4.4	97.5	6.4	97.4	7.2
68-71	Stone / Glass	93.8	8.3	92.9	8.5	88.8	5.9	46.6	3.8
72-83	Metals	11.7	0.3	4.2	0.9	18.2	2.7	20.6	3.0
84-85	Mach/Elec	96.9	15.9	97.9	20.3	88.5	11.6	83.5	12.6
86-89	Transportation	84.2	0.1	9.7	0.0	16.9	0.1	2.7	0.0
90-97	Miscellaneous	98.2	16.8	98.1	15.1	97.2	18.7	92.3	16.5
Total			**100.0**		**100.0**		**100.0**		**100.0**

Note: This table shows the composition of exports from firms located in Dominican SEZs. Within-sectoral composition refers to SEZ firms' share of exports in total sectoral exports. The across-sectoral composition indicates the relative importance of each sector in overall SEZ exports. Source: Author's calculations using DGA data.

mostly due to the decrease in apparel from almost 40% to 25% of total SEZ exports. However, other activities, such as foodstuff products (mostly cigars) and chemicals (mainly pharmaceuticals), are starting to flourish, contributing to the diversification of SEZs.

The within-sector export composition shows the past decade's rise in non-SEZ exports. Mostly all exports of clothing, footwear, electrical, and medical equipment are assembled in SEZs: non-SEZ exports are important in vegetables, foodstuff, plastic and rubber, and stone and glass. Clearly, SEZ exporters are more likely than non-SEZ firms to produce higher value added products. It is important to note that SEZ firms produced 20.6% of all vegetables exported in 2012.

On the surface, the Dominican export basket seems quite diverse in terms of products, but only a handful of goods are really meaningful in terms of export value.[17] Table 5 presents the export shares of the top 10 products (six-digits HS codes) exported both inside and out-

17 High export concentration around very few products is a well-established empirical regularity across nearly all countries.

side SEZ in 2012. These 20 products (out of a total of more than 5,000, according to the international classification) accounted for 54% of total export value in 2012. Results indicate that the four most important non-SEZ products come from extractive industries: petroleum, ferronickel, gold, and copper. Conversely, manufactured products that require some level of industrial transformation typically come from SEZs: medicine instruments, cigars, electrical circuit breakers, and T-shirts. In terms of export value, cocoa and wheat flour are the only really meaningful agricultural products exported by firms outside SEZs.

The rich dynamism observed at the product level has not been matched with diversification in destination markets. In fact, the market composition of the Dominican export basket has hardly changed over the past decade. Table 6 presents the Dominican Republic's top 10 markets during the past decade. Because of its size, proximity, and preferential market-access policies, the US remains the most important destination, although its export share has plummeted from 87.2% at the beginning of the decade to 55% in 2012. This is somewhat surprising because the CAFTA-DR's objective was to ensure that signatory countries achieve better market access. For the most part, the sharp downward trend confirms the shift in the US apparel sector's source countries after the MFA phase-out.

The progressive decrease in US share has been offset primarily by an increase in exports to Haiti and, secondarily, to Europe and China. These four markets represented around 80% of total exports in 2012. The official value of exports to Haiti almost doubled between 2008 and 2012[18], reaching almost US$1 billion. However, the value of Dominican exports to Haiti is likely underestimated. Informal trade is widespread and, according to CEI-RD (2009), an estimated 80-90% of transactions are unregistered by customs at the border posts of Elías Piña, Pedernales, and Hato Viejo. Since the 2010 Haiti earthquake, exports soared, prompted by Haiti's urgent need for everything from garbanzo beans to gasoline. Box 1 discusses the composition and evolution of Dominican exports to Haiti. Another important surge occurs in exports to China, now the fourth most important destination of the country. Guatemala, Honduras, and Korea are also becoming important destinations, accounting for 1.2% to 1.9 % of exports in 2012. Exports to China and Korea are concentrated in mineral products (ferronickel, waste and/or scrap of tinned iron).

The Dominican Republic could deepen exports to China and Brazil by exploring sectors outside the extractive industries. In particular, pharmaceuticals, plastic products, and medical equipment seem well positioned for increased Dominican exports to these large emerging economies. Figure 11 presents the Dominican Republic's revealed comparative advantage in 2012 (y-axis) and each sector's import share in Brazil and China (two-digits HS codes). Only sectors with an import share above 1 percent are depicted. Sectors for which the Dominican Republic has a comparative advantage (located above the horizontal line) and for which the import share of Brazil or China are greater than 1 percent are labeled. The analysis suggests that iron and steel products, medical equipment, and plastic articles meet two key criteria—they are demanded by China and Brazil and, more important, they are products in which the Dominican Republic has a comparative advantage.

The concentration of Dominican exports in few markets is driven by SEZ firms, which send mostly all of their exports to the US. Market concentration of exports can be gauged by computing Herfindahl-Hirshchman indexes (HHI), or any other indicator of concentration.[19] Figure 12 presents the HHI for Dominican Republic in 2012, splitting SEZ firms from the rest of exporters, with comparisons to simlar countries. Results indicate that market con-

18 Dominican authorities have highlighted that in 2010 some changes in the way transactions with Haiti are registered by customs changed (to better record informal exports, among others). This may make figures before and after that year incomparable.

19 The HHI index is computed as the sum of squared shares of each market in total exports. A country with a perfectly diversified export portfolio will have an index close to zero; a country that exports only to one market will have a value of 1 (least diversified).

Table 5: Top 10 exported products in 2012

National Regimen			Special Economic Zones		
HS6	**Product**	**% of total**	**HS6**	**Product**	**% of total**
271012	Petroleum light oils and preparations	8.9	901890	Instruments and appliances used in medicine	6.5
720260	Ferronickel	5.8	240210	Cigars, cheroots and cigarillos	4.0
710812	Other unwrought forms of gold	4.3	853620	Automatic circuit breakers for a voltage	2.3
260300	Copper ores and concentrates.	3.2	610910	T-shirts, singlets and other vests of cotton	1.5
180100	Cocoa beans, whole or broken, raw or roasted	2.3	640399	Footwear	1.2
252329	Cement	2.3	300691	Pharmaceutical goods	1.2
220840	Rum and other spirits	2.2	520939	Woven fabrics of cotton	1.2
110100	Wheat or meslin flour	2.1	300610	Sterile surgical catgut	0.8
210390	Other sauces	1.8	521213	Woven fabrics of cotton , dyed, weighing not >200 g/m2	0.5
721410	Forged iron	1.5	711319	Articles of jewellery & parts thereof	0.5
Total		**34.4**			**19.4**

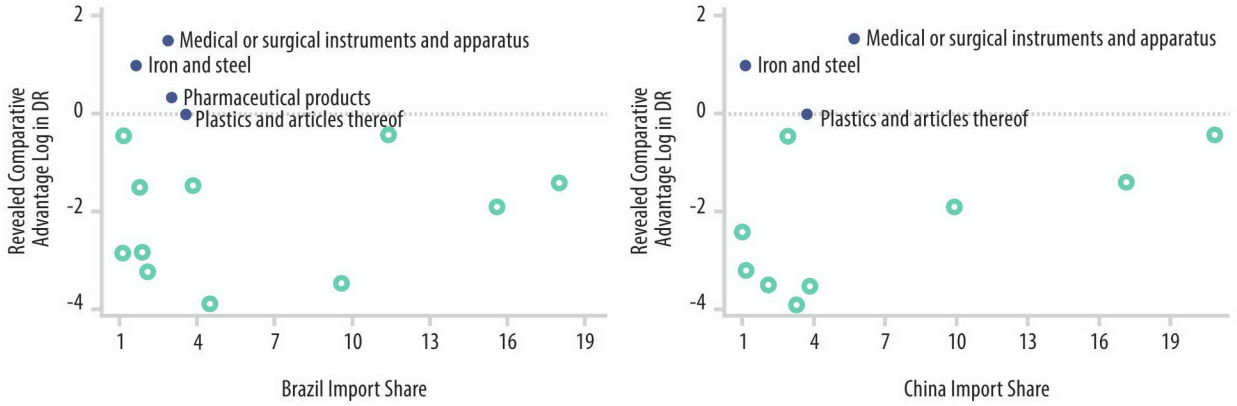
Note: This table shows the top 10 products (six-digits HS codes) in terms of export value for both firms operating both inside and outside SEZs in 2012.
Source: Authors' calculation using DGA data.

Table 6: Most important destinations

Average 2003-2004		Average 2006-2007		Average 2010-2011		2012	
Market	**Share**	**Market**	**Share**	**Market**	**Share**	**Market**	**Share**
United States	87.2	United States	69.8	United States	53.9	United States	55.0
Europe-27	5.3	Europe-27	11.2	Haiti	15.9	Haiti	14.4
Haiti	1.4	Haiti	6.4	Europe-27	10.4	Europe-27	7.0
Brazil	1.1	China	2.1	China	3.0	China	5.0
Canada	0.7	Korea	1.3	Nigeria	1.3	Guatemala	1.9
Cuba	0.4	Japan	0.9	Venezuela	1.0	Honduras	1.6
Honduras	0.4	Canada	0.7	Jamaica	0.9	Korea	1.2
Jamaica	0.4	Taiwan	0.7	Taiwan	0.9	Peru	1.0
Switzerland	0.3	Honduras	0.5	Honduras	0.9	Canada	0.9
Japan	0.3	Jamaica	0.5	Ecuador	0.9	Nigeria	0.9
	97.4		**94.2**		**89.1**		**88.9**

Note: This table shows the export shares by main destination in the Dominica Republic. Exports to Haiti take in consideration only official data. Unreported exports to Haiti are estimated to be as important as recorded exports. Sources: Authors' computations using DGA data.

Figure 11. Dominican Republic revealed comparative advantage and Brazil and China import shares (2012)



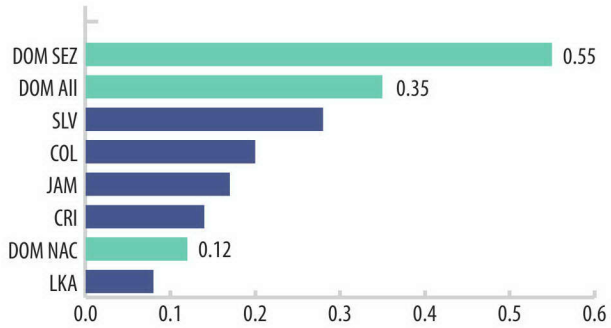
Source: Authors' calculations using COMTRADE data.

centration is only an issue for SEZ firms. In terms of market concentration, firms outside the zones are not very much different from similar firms in peer countries.

In the concentration of exports among served destinations, Dominican firms outside SEZs are much like exporters in similar countries. However, these firms do have a smaller product and destination mixes in export markets. Table 7 reports the median and the average of the number of products (six-digit HS codes), destinations, and products-destination combinations by exporters in the Dominican Republic and peer countries. For Dominican firms outside the SEZs in 2012, the median was one for both destinations and products—the lowest among these countries. Looking at averages, Dominican exporters reached six product-destination combinations, well below the 17.6 for Dominican SEZ firms and 10 for peer countries. The large difference between medians and averages tells us the distribution of the variable of interest (destination, markets, products-destination) differs greatly from a normal distribution. In fact, it closely resembles to a Pareto distribution, where very few big players determine the average value.

Given that Dominican firms outside SEZs are concentrated in agricultural products (Table 4), we now benchmark observed bilateral export relationships in the agricultural sector with respect to the predicted level generated by a theory-grounded gravity model. We use this framework to see how "natural" agricultural export relationships are and to identify untapped export opportunities at the market level for firms operating outside SEZs (Figure 8, Section 2). Figure 13 plots actual Dominican bilateral export relationships (y-axis) against their potential values (x-axis). The model is estimated for a set of 213 countries, but for presentation purposes we only show values pertinent to Dominican exports. The first panel (upper left corner) focuses on bilateral export relationships between the Dominican Republic and European countries (labeled by their individual ISO codes). If an observation is above (below) the 45-degree line, the observed export relationship is more (less) than what the gravity model

Figure 12. Export market concentration: Herfindahl-Hirshchman indexes (2012)



Source: Authors' calculations using COMTRADE data. The Dominican Republic Data is from the DGA.

Box 1: Dominican Exports to Haiti

The trade relationship between the Dominican Republic and its only neighboring country has always been intense, and it grew in an asymmetric way during the past decade. Dominican shipments to Haiti have increased from 3% of total exports at the beginning of the 2000s to around 16% in 2012, with Haiti becoming the second most important destination for Dominican exports.[20] The bilateral trade balance is positive for the Dominican Republic. On the other hand, Haitian exports to Dominican Republic have not increased substantially; as a result, imports from Haiti represented less than 6% of Dominican exports to Haiti in 2012. This trade structure has also created asymmetric macroeconomic interdependencies. Haitian imports from the Dominican Republic represent more than 30% of total imports (9.9% of Haitian GDP), while Dominican imports from Haiti are relatively insignificant compared to the size of the economy (0.1% of Dominican GDP). Not surprisingly, evaluating the trade potential of both countries with a gravity model yields simulations indicating Dominican exports to Haiti are near their potential and Haitian ones are well below potential (World Bank 2012).

Dominican exports to Haiti have boomed, rising 16-fold from the decade's beginning to 2012. All exported products showed gains, although increases were relatively smaller in food products and metals, the most important sectors in the early 2000s. Table B.2.1 shows the export values and shares by sector for this bilateral trade relationship.

Table B.2.1. Sectoral composition of Dominican exports to Haiti

Sector		2003-2004		2006-2007		2010-2011		2012	
		Value	share	Value	share	Value	share	Value	share
01-05	Animal	0.5	0.9	5.3	1.6	22.2	1.9	11.1	1.1
06-15	Vegetable	4.8	8.6	29.7	8.8	125.3	10.8	97.1	9.9
16-24	Food products	12.4	22.3	30.2	8.9	114.8	9.9	98.8	10.0
25-26	Minerals	2.3	4.1	8.8	2.6	50.1	4.3	63.7	6.5
27	Mineral Oils	1.9	3.4	3.9	1.2	19.2	1.7	13.4	1.4
28-38	Chemicals	4.3	7.7	12.6	3.7	55.0	4.7	46.8	4.8
39-40	Plastic / Rubber	3.2	5.8	17.2	5.1	76.3	6.6	76.0	7.7
41-43	Hides, Skins	0.0	0.0	0.1	0.0	1.7	0.2	0.7	0.1
44-49	Wood	3.2	5.8	11.4	3.4	20.8	1.8	38.5	3.9
50-63	Textiles, Clothing	6.7	11.9	182.4	53.8	559.0	48.2	410.4	41.6
64-67	Footwear	0.9	1.7	3.2	0.9	4.2	0.4	6.9	0.7
68-71	Stone / Glass	1.0	1.7	1.5	0.5	2.4	0.2	3.5	0.4
72-83	Metals	13.5	24.2	26.4	7.8	85.7	7.4	98.3	10.0
84-85	Mach/Elec	0.6	1.1	3.2	0.9	10.3	0.9	8.2	0.8
86-89	Transportation	0.2	0.3	1.7	0.5	5.9	0.5	4.5	0.5
90-97	Miscellaneous	0.4	0.6	1.8	0.5	6.8	0.6	8.1	0.8
Total		**55.8**	**100.0**	**339.3**	**100.0**	**1,159.7**	**100.0**	**985.9**	**100.0**

Source: Authors' calculations using DGA data..

20 For the elaboration of this box, we take into consideration data from DGA that differs from the Central Bank data.

Box 1: Dominican Exports to Haiti (cont.)

In the aftermath of the January 2010 earthquake in Haiti, SEZ firms fueled exports' rise of 79.8% in 2010 and 21.2% in 2011. Non-SEZ exports to Haiti were traditionally more important, but SEZ exports became predominant in 2010 and represented around 55% of total exports to Haiti in 2012. While SEZ exports are very concentrated on textile and footwear, non-SEZ exports are more diversified. In 2007-12, textiles, clothing, and footwear made up 86% of SEZ exports to Haiti, with vegetables and food products representing another 8%. Food products and vegetables are the most popular non-SEZ exports, but they represent only 25% of total exports. Metals (13%), minerals (10%), and plastic (9%) are also among the top export categories.

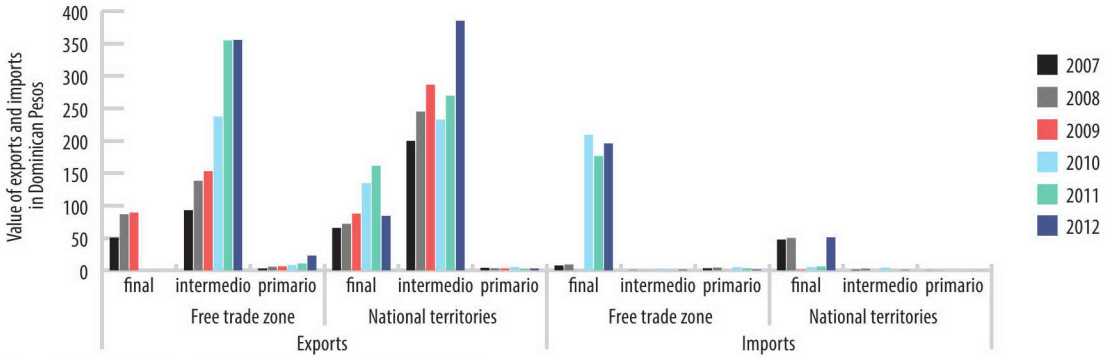
Recently, controversy erupted when Haiti temporarily banned eggs and chicken imports from the Dominican Republic. Interestingly these products are not at the top of bilateral exchanges in terms of value traded. According to official statistics, poultry products, a sub-category of food products, does not represent more than 10% of total Dominican exports. Nonetheless, this controversy momentarily deteriorated bilateral relations. It, was resolved in February 2014 by a high-level agreement reached in the framework of broader bilateral negotiations.

Textiles and clothing made the most important contribution to the increase in Dominican exports to Haiti between 2003 and 2012, accounting for more than 40% of aggregate export growth. Vegetables, food products, and metals are responsible for 9-10% of the increase. These sectors have similar weights (10%) in the current export basket to Haiti. Increases in export values for such sectors as plastic and rubber, minerals, and chemicals explain the remaining export growth.

The share of intermediate goods in SEZ exports to Haiti has been constantly increasing since 2007, reaching 95% of SEZ exports in 2012. This increase is very likely a consequence of the Haitian Hemispheric Opportunity through Partnership Encouragement (HOPE) Act, passed by the US Congress in 2006 and amended in 2008. It provides more flexible rules of origin than the CAFTA-DR in qualifying for duty-free entry into the US. One of the side effects might have been a diversion of intermediate Dominican textile products through Haiti, where they are processed to incorporate at least 50% of Haitian inputs, becoming eligible under HOPE. Final products are either directly exported to the US or sent back to the Dominican Republic to be finalized and re-exported to the US (see chapter II.b and the case of Grupo M, which operates its companies on a binational model throughout the Hispaniola Island).

An analysis using customs data requires an important caveat. Although formal trade has increased, the porous border between the two countries sharing the Hispaniola Island is characterized by a high level of informal trade that remains unrecorded and could invalidate some of the elements presented here.

Figure B.2.1. Types of the BEC-classified exports and imports to/from Haiti (2007-12)



Source: Authors' calculations using DGA data, according to BEC classification.

Table 7: Firm-level product and destination mix in exporting markets (latest year available)

	Median			Average		
	d	p	p-d	d	p	p-d
Nicaragua	1	2	3	2.5	6.9	9.2
Costa Rica	2	2	3	3.2	5.8	10.3
El Salvador	1	2	3	2.4	7.2	10.8
Guatemala	1	2	3	2.5	8.6	12.4
Colombia	1	2	3	2.9	5.0	9.4
The Dominican Republic	1	2	2	1.9	5.7	7.4
National Exports	**1**	**1**	**2**	**1.7**	**4.8**	**6.0**
Special Economic Zones	2	5	8	4.1	12.3	17.6

Note: This table shows the average and median number of products (p), destinations (d), and product-destination combinations (p-d) by firm. Data availability precludes making comparisons for the same year. Data for Nicaragua is 2011, for Costa Rica is 2007, El Salvador is 2009, Guatemala is 2010, Colombia is 2009, and the Dominican Republic is 2012. Sources: Authors' calculations using the Exporters Dynamics Database of the World Bank.

predicts and the exporter is said to be over-trading (under-trading) with its trading partner. If the observation is above (below) the band parallel to the 45-degree line, the exporter is said to be significantly over-trading (under-trading). Subsequent panels in the same figure examine Dominican bilateral exports with other CAFTA countries (second panel, upper right corner), with South American countries (third panel, bottom left corner), and with the so-called New Growth Poles (fourth panel, bottom right corner).

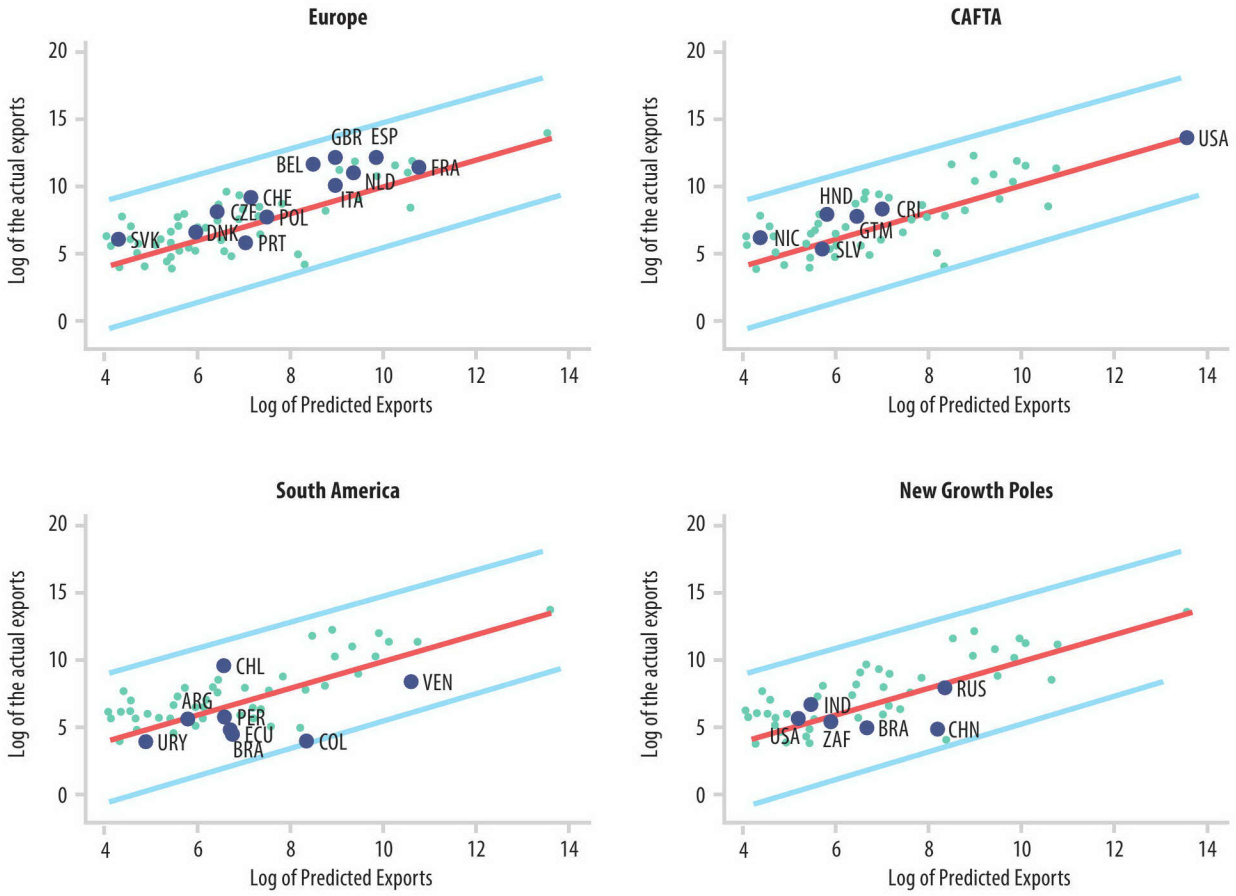
While Dominican agricultural exports to the US and Europe are roughly in line with the predictions of a gravity model of international trade, the country is trading below its potential with some large markets in South America and with China. In particular, agricultural exports to Colombia, Venezuela, Brazil, and China were well below benchmark in 2011. Helping agricultural exporters find and deepen export relationships in these markets is a pending policy objective. As protectionist pressures mount worldwide, the agenda of market diversification is especially challenging for small developing countries. A more thorough look at this issue is presented in Section II.c, which discussed the role of export promotion agencies in developing economies.

C. TWO-TIER EXPORT BASKET IN TERMS OF SOPHISTICATION AND QUALITY

The products countries produce, and how they produce them, matter for export-led growth. All else equal, goods that embody greater value-added in terms of ingenuity, skills, and technology fetch higher prices in world markets. Upgrading product quality, therefore, can be an important source of both export growth and economic growth. Moreover, a significant strand of research suggests countries that produce goods that are more sophisticated than the norm at their income levels tend to see higher rates of future economic growth.

An ongoing debate rages over whether export competitiveness is best achieved by an evolutionary process of upgrading—selling lower quality goods to regional markets and building capabilities before moving into more competitive, sophisticated global markets—or by leapfrogging immediately to sophisticated goods. Hausmann, Hwang and Rodrik (2006) argue that exporting more sophisticated products leads to faster growth because of the prospect of benefitting from greater knowledge spillovers of and technology transfers. A product largely produced

Figure 13. Benchmarking bilateral export relationships in Dominican agricultural products (HS 01-24) (2012)

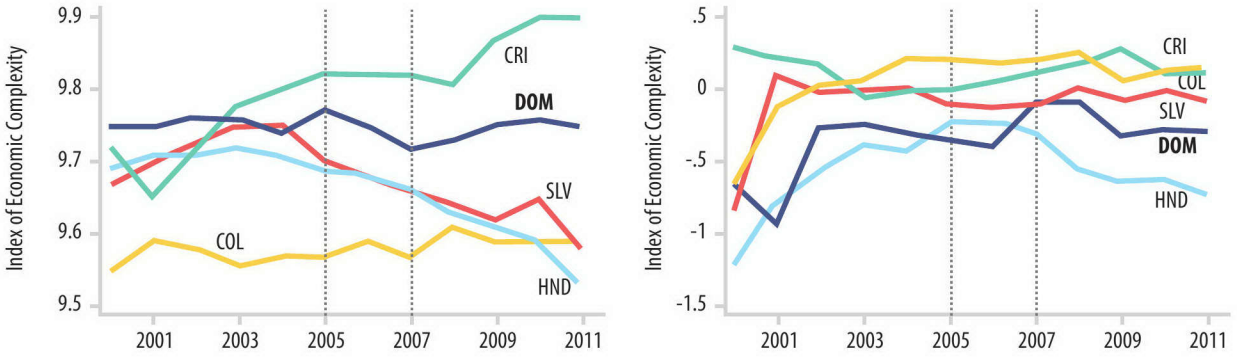


Source: Author's Calculations using COMTRADE data.

by rich countries—-say, an internal combustion engine—is revealed to be 'rich' and sophisticated (see Annex 5.3, *Export Sophistication and Complexity –Measurement and Caveats*). By contrast, low-income countries dominate coffee bean production worldwide, so that product is classified as having low sophistication. The sophistication of a country's export basket (denoted as 'EXPY') derives from the sophistication of the individual products in it (denoted as 'PRODY'). Hausmann, Hwang and Rodrik (2006) show that high-EXPY countries tend to have higher future growth rates, supporting the idea that countries 'become' what they export by converging to the income level implied by their export baskets. The authors subsequently developed a more comprehensive measure, called Economic Complexity, which also ranks countries in terms of the knowledge embedded in the set of products they export (Hausmann et al. 2012). This measure is also strongly correlated with economic growth.

The sophistication and complexity of the Dominican export basket is comparable to countries at a higher stage of development. Figure 14 presents the evolution of the export sophistication indicators as well as the economic complexity index for the Dominican Republic and some peer countries over the past decade (see Annex 5, section 3 for details on export sophistication and complexity measurements). Exports are more sophisticated in the Dominican Republic than in the peer countries—with the exception of Costa Rica. Elimination of the MFA temporarily reduced Dominican export sophistication,

Figure 14. The Dominican Republic: Export sophistication and complexity



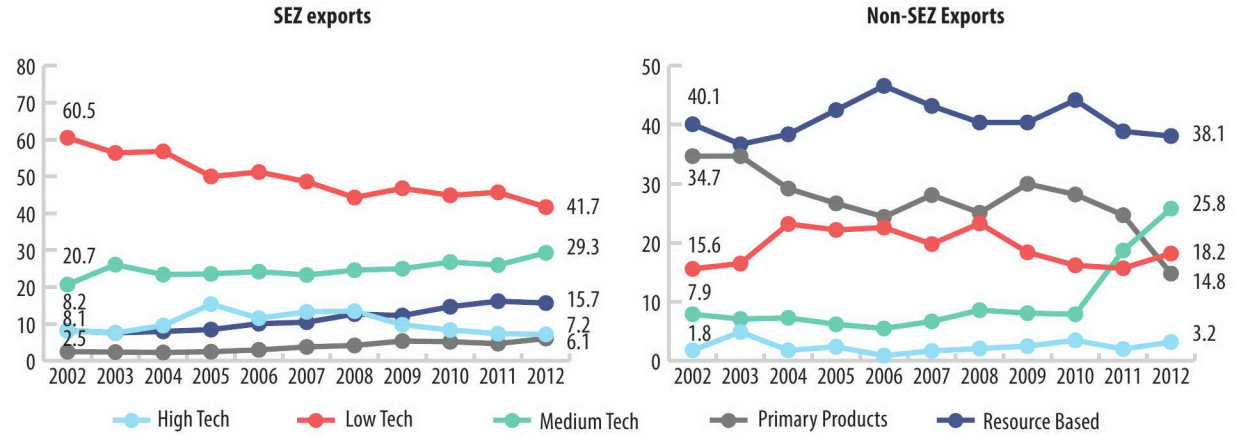
Note: Figure on the left shows the evolution of the Haussman, Hawand and Rodrick (2006) measure of sophistication of the export basket for the Dominican Republic, Colombia, Honduras, El Salvador, and Costa Rica. Figure on the right displays the evolution of the economic complexity index by the same authors for the same countries. Source: Authors calculations and information from (Hausmann et al. 2012).

but it bounced back to historical levels after the CAFTA-DR took effect in 2007. Turning to economic complexity, the Dominican Republic ranked 70th in the world in 2011; measured against the peer countries, it sits just below Costa Rica, Colombia, and El Salvador, suggesting that the content of exports is relatively less complex than in those countries. In terms of quality, the main products exported from the Dominican SEZs seem to be lagging other regional competitors, suggesting the country is not climbing the quality ladders as fast as other Central American nations (see Annex 3).

Firms operating inside SEZs tend to export goods with some level of technological transformation, whereas non-SEZ exporters focus on primary and resource-based products. The relatively good performance in terms of sophistication and ingenuity embedded in the overall Dominican export basket masks an important difference between the goods produced inside and outside SEZs. Figure 15 decomposes the export bundles in each regime across different technological levels following a classification proposed by Lall (2000). In 2012, 78.2% of SEZ exports had some level of technology, compared with only 32.1% for non-SEZ exports. A more detailed presentation of SEZ exports' technological content and the way SEZ companies are climbing the value ladder is in section II.b.

The agricultural sector provides a barometer of the relative quality of main Dominican products exported to the US, the country's largest trading partner. The agricultural sector is interesting for two reasons. First, it mostly operates outside tax incentive schemes, although 20% of vegetable exports come from firms in SEZ (Table 4). Second, it is less likely to attract FDI. These characteristics make agriculture a good reflection of the country's competitive strengths and weakness. To perform this analysis, we look at trade unit values. As explained above, the concept of sophistication fails to take into account differentiation within product groups. Clearly, a regular pineapple cannot command the price premium of a multi-certified organic pineapple. Similarly, undergarments as a whole may occupy the lowest position on the measure of "sophisticated products," but exporters in Sri Lanka command a huge price premium by producing the quality required by brands like Victoria's Secret (the price premium is large enough to justify shipping almost all production by air-freight). Goods in the same product category vary widely in unit values—the ratio of values to quantities shipped or nominal sales divided by quantity. There are many reasons for these differences, and some are not associated with quality or other differences in the intrinsic characteristics of the products (see Annex 5.4, *Relative Quality of Export Products—Measurement and Caveats*). Nevertheless, researchers have documented the link between differences

Figure 15. Technological Composition of Exports



Note: These figures show the evolution of the technological content of Dominican Republic's exports using the classification suggested by Lall (2000). Source: Authors' calculations using COMTRADE data.

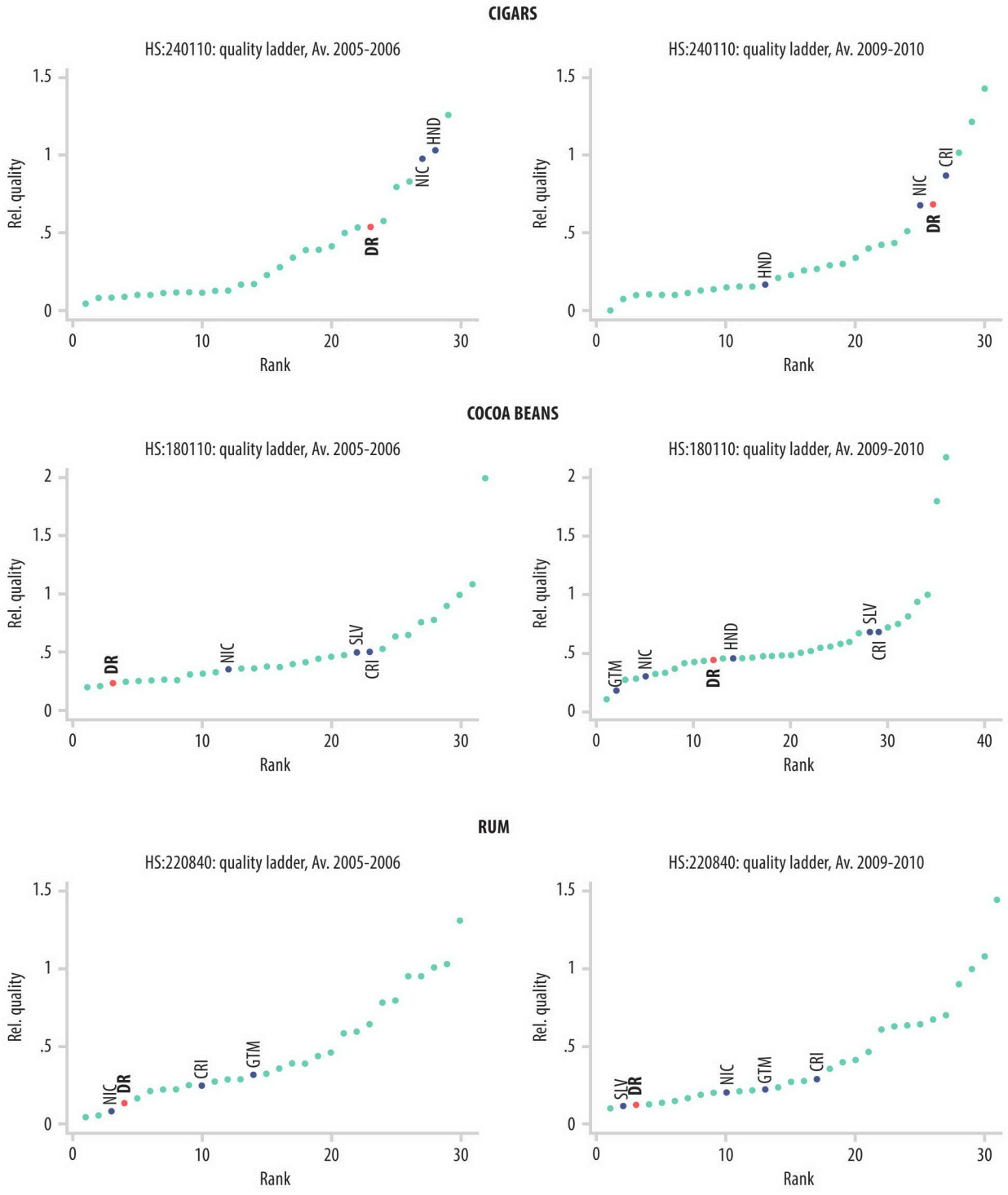
in unit values and differences in the intrinsic characteristics (for example, Manova and Zhang 2012). All in all, when supply is competitive, higher prices are generally associated with higher quality and greater product differentiation. The variance in the unit price of goods signals opportunities for countries to upgrade quality and grow faster. Moreover, exporters that charge higher prices tend to earn greater revenues, have larger sales, and enter more markets (Manova and Zhang 2012).

Despite some recent improvements in organic varieties, the revealed quality of Dominican agricultural products exported to the US is low compared to other regional competitors exporting the same product to the US. More important, the relative quality of the agricultural export basket appears to be decreasing over time; in other words, Dominican agricultural exports fetch lower prices than the same product exported by other countries. Figure 16 locates the top 3 Dominican agricultural exports to the US on the relevant quality ladders. These ladders show an array of relative unit values by source countries with six-digit HS codes, by size. Each point in the ladder is a different exporting country shipping the same product to the US. The lowest unit values are located at the left, indicating a low quality level of the product exported by that country in relation to the quality of the same product exported by other countries. To pick up any dynamics overtime in term of quality upgrading, we compare average quality ladders for 2005-06 and 2009-10.

The three most important Dominican agricultural exports to the US perform very differently in terms of their relative quality. Cigars are the most important export, one produced mostly within the SEZs. The analysis reveals high quality. The Dominican unit value is on par with cigars from Nicaragua and Costa Rica, and Dominican cigars have been climbing the quality ladder over the past five years. Cocoa beans are the second most important product. They also display a quality upgrading over time, although Dominican export of cocoa to the US are not of the best quality. A field visit to the main Dominican exporter revealed that the industry is actually quite competitive and all organic cacao is sold to the EU rather than to the US (Box 2). Rum, the third product in terms of export value, is at the bottom of the quality ladder.[21] Using our measure of relative unit value, Table 8 shows the percentile in the distribution for the top 10 agricultural products at two periods of time. These products encompass around 80% of total agricultural exports to the US. In addition to cigars and cocoa beans, other products that

21 Annex 3 presents the quality ladders for three key SEZ products: medical instruments, footwear, and jewelry. The results indicate their quality was relatively low in international markets, even though these products embedded more value added than the exports of non-SEZ firms.

Figure 16. US quality ladders for top 3 agricultural products



Source: Author's Calculations using CEPII data.

Table 8: Relative quality of top 10 agricultural products exported to the US (Centile in the quality distribution)

Product	Description	Av. 2005-06	Av. 2009-10
240210	Cigars	2	4
180100	Cocoa Beans	1	4
220840	Rum	2	1
110100	Wheat	1	4
240120	Tobacco (stemmed)	8	5
210390	Sauces	1	1
210690	Food preparation nec	2	2
220300	Beer	5	3
240110	Tobacco (no stemmed)	8	5
90121	Coffe	3	6
Simple Average		**3**	**3**

Note: This table shows the centile location in the distribution of relative unit value in each product exported by the Dominican Republic to the US.
Sources: Authors' calculations using CEPII data.

have increased their quality include wheat and coffee. The rest of products have just managed to maintain their relatively low level of quality. The average percentile for the top 10 agricultural products is three in both periods of time, indicating a general low level of quality for the country's agricultural products.

The lack of quality upgrading in the agricultural sector requires a more thoughtful analysis of the factors that restrain the Dominican farmer's ability to increase the embedded value added of products exported to the US. This issue goes beyond the 10 products analyzed in Table 8; the same behind-the-border factors may limit the ability of all agricultural products. If these constraints are too binding, they may inhibit exports altogether for small sectors. In section II.a of the next chapter, we investigate one important channel found in our field work that directly relates to quality: the inability of the Dominican Republic to comply with stringent SPS regulation in the US market.

D. A SURVIVAL ANALYSIS OF AGRICULTURAL EXPORTERS

Evaluating the capability of Dominican exporters to compete and survive in international markets is relevant for understanding trade competitiveness. Both successful entry into export markets and survival of export flows are important for countries to achieve fast export growth and diversification. Despite the benefits of healthy survival rates, some firm churning may also indicate the reallocation of factors to the most efficient economic use through a Schumpeterian "creative destruction." As a result of this tension, available research finds exporting to be an extremely hazardous activity, particularly in lower income countries (Besedes and Prusa, 2006; Brenton et al., 2010). From a policy perspective, it is important to determine whether a particular sector faces "abnormal" rates of survival and investigate whether these challenges are related, for example, to difficulties in specific markets or to specific behind-the-border issues that constrain export competitiveness.

Box 2: Commitment to Quality Cocoa--the Case of CONACADO

CONACADO is one of the biggest exporters of high-quality, organic cocoa in the Dominican Republic, delivering more than 14,000 tons per year to Europe and the United States. With the new high-tech lab opened in 2013, CONACADO will be able to create a cocoa quality map for the entire country. The company is an example of a successful Dominican venture that found its niche, becoming the first Dominican exporter of high-quality cocoa.

Humble beginnings

The Department of Commercialization within the Ministry of Agriculture initiated the idea to improve cocoa quality and organize the country's cocoa producers in 1985. The effort started with a project to improve the quality of the cocoa and its post-harvest management (e.g. drying the seeds), funded by the German government and conditioned on making the organization democratic, with profits going directly to the producers. In the beginning, the collective was organized informally in nine blocks, each with 15 producers. It was formally registered in 1988. The initial challenges were substantial: (i) how to efficiently organize small producers; (ii) how to make them realize that high-quality is essential for commercializing the product; (iii) how to convince producers used to traditional methods of cultivating cocoa to switch to more efficient solutions: (iv) how to develop human and intellectual capital.

Cocoa superpower

Nowadays, CONACADO is a democratic collective of small producers, most of whom own less than five hectares. It is organized in 8 blocks, with 160 associations of small producers and close to 9,000 affiliated producers. In the past, when producers were working on their own, they were forced to take the offer price for their cocoa and had limited possibilities to expand production. Within CONACADO, producers cultivate an area of around 27,000 hectares, and they receive at least 90 percent of the market price for their sales. In addition, they participate in the earnings of the collective. More important, they have contact with their clients. CONACADO produces two types of cocoa: Sanchez, which is exported to North America and mostly used for cocoa butter, and Hispaniola, which uses higher quality seeds that go through a controlled fermentation process at CONACADO for five to seven days. Hispaniola accounts for 80 percent of exported cocoa. Overall, 96 percent of the marketed cocoa is organic.

The collective seeks to educate farmers, provides technical assistance, and offers loans in advance of harvest, allowing blocks to invest in infrastructure. The collective's headquarters are located in the Santo Domingo region.

It's all about quality

Over the years, CONACADO obtained international certification that bolsters sales in developed markets. Certificates allow CONACADO to label its products as organic in Europe (EWG2092/91 since 1994), the US (NOP certificate since 2002), and Switzerland (Biosuisse certificate). The company is part of Hand-in-Hand, a fair-trade alliance through which it cooperates with Rapunzel, a German producer, and gets cocoa prices beyond the market benchmark. CONACADO has an internal department devoted to managing existing quality certifications and applying for new ones. Overall, the certifications yield around US$1.7 million a year, 30 percent of which is invested in social projects, such as school renovation. The remaining 70 percent is invested in raising crop productivity.

CONACADO has a system in place to ensure the quality at each stage of production—from seed-time to shipment. In addition, to control for the organic quality of its seeds, the company monitors each farm and producer at least once a year. In August 2013, CONACADO opened the Dominican Republic's first high-tech testing lab, featuring chemical, physical, and sensory analysis of cocoa. The lab will allow for better and more precise examination of cocoa quality to meet international standards of the niche market for high-quality cocoa. This lab, which cost of 21 million pesos, was financed by the government program for export promotion *(Programa de Fortalecimiento de las capacidades de exportaction agropecuaria, Ministerio de Economía, Planificación y Desarollo)* and the US Department of Agriculture. The Ministry of Agriculture and other private companies have also benefited from using these facilities.

Box 2: Commitment to Quality Cocoa--the Case of CONACADO (cont.)

Quantity does not mean quality

Over the years, CONACADO has expanded its production from few thousand tons in early 1990s through 8,000-10,000 in the 2000 to 14,000 in 2013. Although the company could produce 22,000 tons a year, it can only sell 14,000 due to various constraints, including the lack of infrastructure to properly process cocoa, inappropriate transport, farm maintenance, and availability of credit to farmers. This adds to costs and makes CONACADO sell part of its production as low quality cocoa at a low price. As for all Dominican exporters, unstable electricity supply forces the company to invest in generators, pushing up costs. The company spends around US$540,000 on energy every year. On average, CONACADO pays $US850 per each container shipped to Europe, lower than the average cost per container for the Dominican Republic ($1,040) and the Latin American and Caribbean region ($1,283).

What's next?

CONACADO has ambitious plans. Externally, the company is looking to tap new markets, such as Japan, and introduce products with more value-added. Internally, the collective has two goals. First, it will work to further improve its competitiveness abroad and raise its producers' productivity. Second, it will seek to conclude an internal reorganization initiated in 2010 that introduced a flat management structure. A CONACADO representative summed it up: "While we changed the way we operate, our vision and mission remain the same."

Dominican agricultural exports to the US have significantly higher survival rates when coming from SEZ companies rather than from non-SEZ companies. This section keeps the focus on the agriculture sector. Using firm-level data, it assesses the likelihood of an export spell (defined as a firm-product pair) surviving across our time span (2007-12). We employ the Kaplan-Meier function to estimate the survival rate of export spells in the agricultural sector.[22] Survival rates differ greatly across market destinations—i.e., it is not the same to survive a certain number of years exporting to the US and exporting to neighboring Haiti. We concentrate only on agricultural exports to the US, calculating the survival rates shown in. Figure 17. Since some agricultural production takes place in SEZs, we estimate survival functions separately for export spells coming from SEZ firms and non-SEZ firms. Results indicate that the probability of a firm-product export spell surviving the first year of operations is only 42% if it is originated in a firm outside an SEZ; inside an SEZ, the probability rises to 53% (in line with the findings in Molina et al., 2010). The difference in probabilities increases over time: The probability of being able to operate in the US market continuously for five years was of 21% for SEZ exporters and only 4.4% for non-SEZ firms.

In agricultural exports to the US, low survival rates are the norm rather than the exception for CAFTA-DR countries. In Table 9, we compare survival rates in the Dominican Republic and four other CAFTA-DR members. Dominican agricultural exporters are very similar to their peers in Guatemala. The two countries present very similar survival patterns across our sample period. Among the five countries, Nicaragua is the only one that differs significantly from the common pattern, with a one-year survival rate of just 34.8%.

22 The Kaplan–Meier estimator evaluates the survival function from life-time data. In medical research, it is often used to measure the fraction of patients living for a certain amount of time after treatment. In engineering, it can be used to measure the time until failure of machine parts. In economics, it can be used to measure the time an export relationship remains active. A plot of the Kaplan–Meier estimate of the survival function is a series of horizontal steps of declining magnitude which, given a large enough sample, approaches the true survival function fo the population. An important advantage of the Kaplan–Meier curve is that the method can take into account some types of censored data, particularly right-censoring, which occurs if export relationships outlive the sample period under analysis.

Overall, this analysis indicates that Dominican agricultural exporters have the low survival rates that are similar to other CAFTA-DR countries. The sector's first-year survival rates are also relatively constant over time, although lower than in other sectors, such as textiles and electronics. The main issue for agricultural exporters, therefore, seems to be their inability to increase the value added of their products, not the challenge of participating and surviving in international competition.

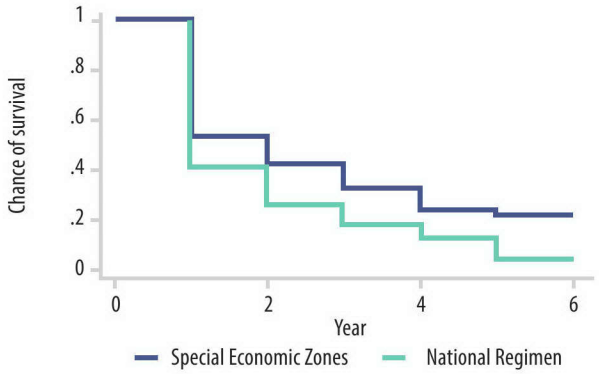
E. SUMMARY OF CHALLENGES AND POTENTIAL BOTTLENECKS

The recent history of the Dominican Republic is one of strong trade ties with the US. These economic linkages have been mainly expressed by means of preferential market access—specific benefits directed at the clothing sector in the early 1990s and, subsequently, the broader CAFTA-DR agreement. These changes in the nature of markets access privileges in the US, accompanied by a historical policy to actively use SEZs to attract foreign investors, led to a long-term shift in the engines of export growth in the past five years.

Responding to changes in the global economy and international investment, , the Dominican Republic has transformed itself from an economy dependent on resources and clothing production into a country with a more diversified export base. Minerals, metals, and such relatively sophisticated manufacturing products as medical devices, footwear, and pharmaceutical products have started to emerge. The 2010, the Haiti earthquake also impacted the Dominican export basket as shipment to its neighbor soared. Yet, the Dominican Republic underperforms similar countries in terms of trade openness and, more precisely, the share of exports per-capita.

This chapter reviewed Dominican exports along various dimensions that, together, give a fairly comprehensive picture of trade competitiveness. The analysis identifies three main challenges for export competitiveness in the Dominican Republic:

Figure 17. The Dominican Republic: Survival rate of agricultural export spells to the US (2007-12)



Note: This figure shows the survival function for agricultural exports to the US over 2007-08. An export spell is defined as a firm-product pair. We do not allow re-entry, so our sample contains export relationships that die only once in our sample period. The agricultural sector is defined at products in Chapters 01-24 of the harmonized classification. Source: Authors' calculations using DGA data.

a) **While survival rates for Dominican agricultural exports are not different from other CAFTA-DR countries, the perceived quality of certain products is lower.** The survival rates of Dominican agricultural exporters to the US are low but not different from other CAFTA-DR countries. At the same time, there seems to be a potential for enhancing quality. The three most important Dominican agricultural exports to the US perform very different in terms of relative quality. The quality of Dominican Cigars is high and has been improving since 2006—so it is now above cigars produced in Honduras and Nicaragua. Cocoa beans, the second most important product, also display quality upgrading over time, although the average quality of Dominican exports to the US are still well below those of Costa Rica and El Salvador. Finally, Dominican rum exported to the US is located at the bottom of the quality ladder. As discussed in section II.a, *The Dominican Republic's Trade Compliance Capacity in Fruits and Vegetables*, this lower quality may be leading to relatively high level of rejections of Dominican fruits and vegetables at the US border. However, it is worth noting that these findings may partly reflect the lower quality standards demanded in the US, rather than the quality of Dominican production itself, For instance, CONACADO,

Table 9: CAFTA countries: survival rate of agricultural export spells to the US

Time	The Dominican Repúblic	Guatemala	El Salvador	Costa Rica	Nicaragua
0	100.0	100.0	100.0	100.0	100.0
1	43.0	44.3	41.9	41.1	34.8
2	29.4	29.9	25.3	25.2	17.6
3	21.4	23.1	16.9	18.3	11.3
4	16.5	16.8	11.3	14.8	8.1
5	9.1	13.0	8.7	11.3	5.3
6	9.1	10.6	6.9	9.0	4.4

Note: This table shows the survival functions for agricultural exports to the US over 2007-08 for CAFTA countries. Firm-level export data for Honduras is not currently available. Sources: Authors' calculations using the Exporter Dynamics Database data.

the largest cocoa cooperative, sells most of the finest quality organic cocoa in Europe, with a lower quality variety going to the US.

b) **When looking at the sophistication and complexity of exported products, duality is observed: SEZs export products with a certain degree of transformation, whereas non-SEZ exporters focus on primary and resource-based products.** Overall, results indicate that Dominican exports are relatively more "sophisticated" than thoe of peer countries (with the exception of Costa Rica) and Dominican economic complexity (intrinsic transformation) is just below that of Costa Rica, Colombia, and El Salvador. At the same time, we cannot ignore the duality of the export market. Almost all exports of clothing, footwear, electrical, and medical equipment are assembled in SEZs, while non-SEZ exporters are important in vegetables, foodstuff, plastic and rubber, and stone and glass. These latter are less complex products in terms of technological content. The potential problem the Dominican Republic is facing is that SEZs may constitute "enclaves" that are relatively isolated from the rest of the economy, reducing the potential for generating positive externalities that benefit non-SEZ exporters and other domestic companies (backward and forward linkages, technology transfers, demonstration effects, etc.). Some of these issues are discussed in section II.a *Recent Export Performance and the Role of Special Economic Zones.*

c) **Since textile trade preferences ended, the Dominican Republic has been relatively successful in diversifying export products but not destination markets.** Over the past decade, minerals, metals, and relatively sophisticated manufacturing products started to emerge as the Dominican economy diversified away from resources and clothing production. Interestingly, it is outside the SEZs where we observe relatively high levels of dynamism, more competitive firms emerging, greater product and (to a lesser extent) sector diversification, and firms moving beyond local and traditional markets (growth of the extensive margin). Because of this dynamism, non-SEZ exporters have lower survival rates. In turn, the more sophisticated SEZ companies rely on expansion on the intensive margin, exporting more of the same products to the same markets (mainly the US and Haiti, with a combined share of around 70% of total exports in 2010-12). This could mean that the country is missing opportunities for diversification in SEZs. Preliminary findings suggest that trade with South American countries and the New Growth Poles is below potential. The Dominican Republic could deepen exports to China and Brazil by exploring sectors outside the extractive industries--in

particular, pharmaceuticals, plastic products, and medical equipment. Related to these findings, section II.c, *The institutional infrastructure supporting international trade*, discusses, among other issues, the role trade promotion agencies and other public and private institutions can play in fostering both market and product diversification.

In sum, this trade outcomes analysis identifies three main challenges for Dominican export competitiveness: (a) the revealed quality of Dominican agricultural products exported to the US is low compared to other regional competitors; (b) a two-tier export basket with firms operating inside SEZs having some level of technological transformation and non-SEZ exporters focusing on primary and resource-based products; and (c) diversity in products exported but not export markets, with SEZ firms relying on the US market for the majority of their exports. The Dominican Republic has untapped opportunities to increase exports to China, Brazil, Colombia, Ecuador, and Venezuela. The three main sections in the second part of this report explore these issues in more detail, trying to determine which constraints and bottlenecks to export competitiveness may be behind the observed trends in trade outcomes.

CHAPTER II
COMPETITIVENESS DIAGNOSTIC

A. THE DOMINICAN REPUBLIC'S TRADE COMPLIANCE CAPACITY IN FRUITS AND VEGETABLES.[23]

Increased market access for agricultural products might help reduce rural poverty in the Dominican Republic. While the rapid expansion of demand for unskilled labor in manufacturing and urban services has helped mitigate rural poverty, about one-half of the rural population still lives below the poverty line. Opportunities to access large-scale international markets for agricultural products can contribute to creating jobs in the rural areas and promoting shared prosperity. Historically strong economic ties and favorable CAFTA-DR trading rules give the Dominican Republic advantages of the US market. However, the exploitation of these opportunities depend on compliance with stringent sanitary and phytosanitary Standards (SPS) in the US market.

This chapter assesses the capacity of Dominican exporters to comply with US SPS measures in the fruits and vegetables sector, bringing in other CAFTA countries for benchmarking. The analysis yields five results. First, the Dominican Republic exports only half of the 40 fruits and vegetables granted market access by the US. Second, the country currently faces a countrywide import alert for raw agricultural products due to illegal pesticide residues, and all shipments are automatically detained by the US Food and Drug Administration, resulting in a 100% sampling process that increases the time and cost of getting products to the final consumer. Third, the Dominican Republic has a higher import refusal rate than neighboring countries in the U.S market. When all countries exporting to the US are taken into account, the Dominican Republic trade compliance performance is classified as poor. Fourth, in addition to problems with pesticides, a common refusal reason in other CAFTA-DR countries, the Dominican Republic has had problems with salmonella contamination. Fifth, import refusals are not a problem of a small number of exporters but rather a relatively widespread issue in the fruits and vegetable sector. Improving

23 This section has been prepared by Marie Agnes Jouanjean and José Daniel Reyes.

public services that support of export compliance in the agricultural sector may be critical to enhancing the ability of Dominican exporters to comply with US SPS regulations and reduce rejection rates at the border, increasing their capacity to meet trade potential.

1. An Overview of US Agricultural Market Access Policy

Market access refers to the ability of foreign producers to sell goods and services in a given country. Every country establishes its rules for allowing imports of agricultural products in the context of multilateral and preferential trade agreements. This section briefly describes the US market access policy for fruits and vegetables.[24] It discusses the specific Dominican Republic market access provisions and compares them to other CAFTA-DR countries. It also examines whether Dominican exporters are taking full advantage of their privileged access to the US market.

1.1 Rules for Exporting Fruits and Vegetables to the US

The U.S Department of Agriculture Animal and Plant Health Inspection Service (USDA-APHIS) is in charge of protecting US agriculture and plants against the entry of foreign pests and diseases. In this capacity, it regulates market access for fresh fruits and vegetables in the US and its territories. The US has adopted a positive-list approach to market access for fresh fruits and vegetables. Accordingly, USDA-APHIS either prohibits entry or requires implementation of various pest-risk mitigation strategies for products that can potentially contain pests or diseases that may affect domestic animals and plants. To gain access to the US market, a country needs to register in advance, and eligibility is regulated by the issuance of Foreign Quarantine Notices. Otherwise, exporting to the US is not allowed.[25] In other words, all products from all countries are prohibited entry into the US except if explicitly allowed through the registration process. This approach differs with the European negative-list approach, which allows all products to enter the market as long as they are not in a predetermined list. A country or exporter willing to export a new product to the US has to go through a pre-approval rulemaking process. The whole process of getting a product in the positive list could take from 18 month to three years.[26]

According to the World Trade Organization (WTO) SPS agreement, USDA-APHIS should determine the SPS measures that, while providing the necessary protection, present the least restrictive impact on trade. The US provides market access following a risk analysis. Once a potential exporting country submits a request for eligibility, the USDA-APHIS conducts a Pest Risk Analysis (PRA) to determine an Appropriate Level of Protection. This identifies whether any mitigation measures are necessary, applicable, and efficient enough to minimize the risk of any quarantine pests entering the US.[27],[28] If no mitigation measures are identified, the product will not be cleared for entry to the US. If an efficient mitigation procedure has been identified or if the PRA shows that no mitigation measure is necessary, USDA-APHIS initiates the regulatory administrative process and seeks public comments to determine whether to approve entry of the proposed commodity from the requested country. Some examples

24 Fruits and vegetables products are catalogued in the harmonized system classification in chapters 07 (edible vegetables), 08 (edible fruits & nuts), 20 (preparation of vegetables and fruits). For the purpose of this analysis, we only focused in these products.

25 Code of Federal Regulation, Title 7 Chapter III Animal and Plant Health Inspection Services, Department of Agriculture, Part 319 Foreign Quarantine Notices (7 CFR Parts 319).

26 Federal Register/Vol. 71, No. 81 / Thursday, April 26, 2006 / Proposed Rules.

27 A PRA is the technical tool used to identify appropriate phytosanitary measures. In preparing a PRA, a number of factors should be considered, including the category of the pest, the economic impact of the pest, the potential for establishment and spread of the pest, and the proposed uses of the plants or plant products. The pest risk management stage will determine whether appropriate phytosanitary measures to reduce the pest risk to an acceptable level are available, cost-effective, and feasible. If the pest risk is considered unacceptable and there are no measures available to mitigate the risk, then the import can be prohibited. If the pest risk is considered negligible, the import may be permitted with few if any phytosanitary measures.

28 A quarantine pest is one of potential economic importance and not yet present in the U.S. or present but not widely distributed and being officially controlled.

of mitigation measure are: (i) requiring a single phytosanitary treatment in the exporting country before the product is shipped or at port of entry if the necessary facilities are available (e.g. irradiation facilities for Indian mangoes); (ii) implementation of "systems approaches" combining various risk management measures; and (iii) voluntary or mandatory preclearance programs with the implementation of Cooperation Agreements. The objective of Cooperation Agreements is that USDA-APHIS agents perform a screening and treatment of products before shipment to ensure that exports meet the criteria of admission to the US market. Those programs require that the USDA-APHIS and the exporting country agree on a Cooperative Service Agreement, renewed every year, and on a trust-fund agreement (preclearance programs operate on the basis of full recovery of USDA-APHIS costs).

1.2 Dominican Republic's Market Access to the US

The Dominican Republic has been a long-time supplier of fruits and vegetables to the US and already has access to the US market for a large variety of products. Currently, the country is eligible to import 132 commodities in this sector (Table 10). These products are grouped in 40 HS codes at the six-digit level.[29] The US market access policy towards the Dominican Republic is similar to that in other CAFTA-DR countries, where the number of six-digit HS codes with access to the US market ranges from 42 (Guatemala) and 36 (Nicaragua). Under the CAFTA-DR agreement, almost all agricultural imports enter the US market duty free. For agricultural products the US deems sensitive (sugar, sugar-containing products, beef, peanuts, dairy products, tobacco, and cotton), US negotiators granted duty-free access in the form of country-specific preferential quotas.

Historically, the Dominican Republic has enjoyed access to the US market that has been better than other countries in Central America. The US market has been open for 40 Dominican commodities for the past 20 years. Other CAFTA-DR countries have progressively increased the number of products cleared for entry into the US over the same period. Annex 3 shows the products that have been granted market access to the US for CAFTA-DR countries over the past decade. Other CAFTA countries, such as Guatemala, benefited from the same kind of US export diversification programs in focusing on non-traditional agricultural exports.

1.3 Is the Dominican Republic Taking Full Advantage of its Access to the US Market?

The Dominican Republic has untapped opportunities to increase exports of fruits and vegetables to the US. Out of the 40 products for which access to the US is granted, the country only exported around half of them in 2012. Figure 18 shows the ratio of active products to approved products for all CAFTA-DR countries over the past decade, giving an indication of export performance along the extensive margin of trade. Low ratios are endemic across the region. The average ratio across the CAFTA-DR countries is 41.6%. Historically, the Dominican Republic and Guatemala are the countries with highest ratios, while Nicaragua and El Salvador are at the other end. Interestingly, Guatemala overtook the Dominican Republic as the country with largest share of active codes in 2005.

2. US Import Alerts and Border Rejection Analysis

Evaluating the ability of Dominican exporters to comply with stringent US SPS regulations provides a good indication of performance along the intensive margin of trade (i.e. SPS compliance along active product lines). The US Food and Drug Administration (FDA) enforces the Federal Food, Drug and Cosmetics Act as well as other laws designed to protect consumer health, welfare, and safety. To enter the US, fruits and vegetables not only need to be on the positive list but also must meet the same standards as domestic products—i.e., they must be

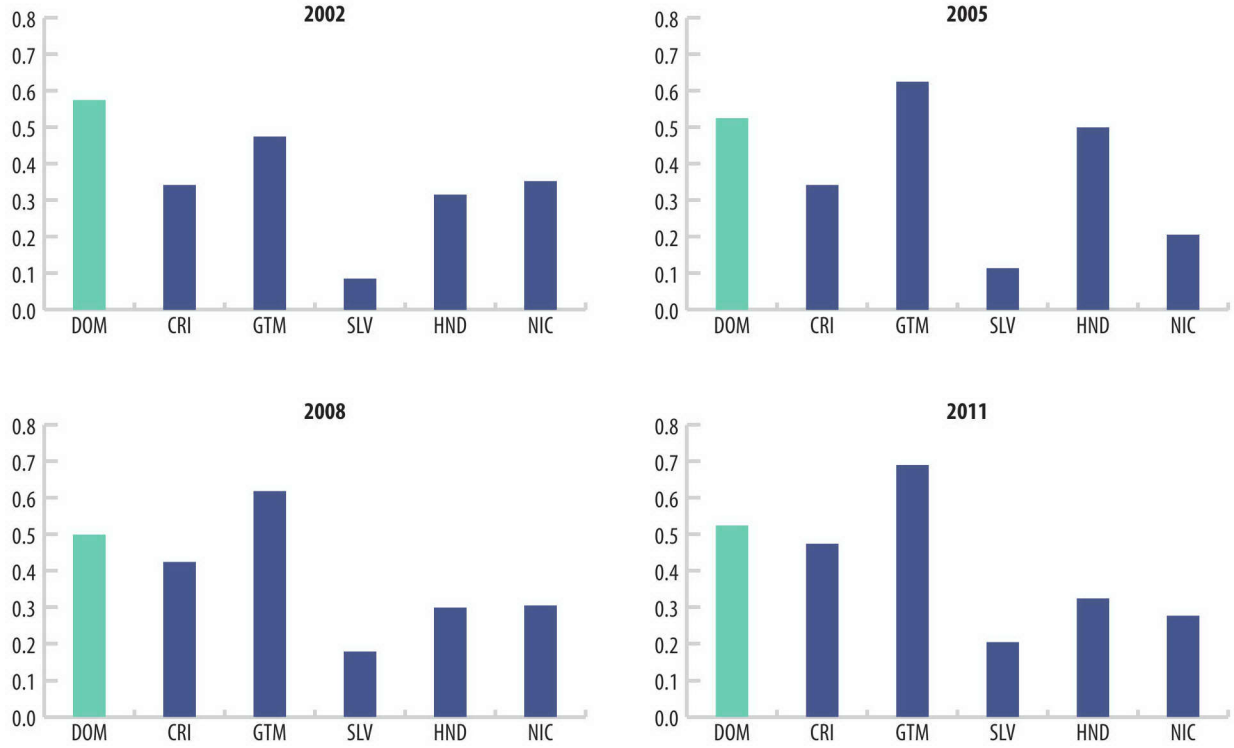
29 Given the higher level of granularity of the USDA-APHIS product descriptions with respect to six-digit HS codes, many APHIS products get mapped to the same six-digit HS code.

Table 10: List of approved commodities from the Dominican Republic

Allium spp.	Chrysanthemum greens	Leren	Potato
Aloe *	Cichorium spp.	Lettuce	Pummelo
Amaranth	Cilantro	Lily	Purslane
Annona spp.	Citrus	Lime (sour)	Queensland arrowroot
Arrowhead	Clusterbean	Litchi	Radish
Arrowroot	Coconut	Longan	Rhubarb
Artichoke, Jerusalem	Corn smut galls	Lotus root	Roselle
Artichoke, globe	Corn, green	Maguey *	Rosemary
Asparagus	Cornsalad	Malabar spinach	Rutabaga
Avocado	Cucurbit	Mango	Salsify
Bamboo shoot	Cyperus corm *	Mangosteen	Sapote
Banana	Dandelion greens *	Marjoram	Singhara nut *
Basil	Dasheen *	Matsutake *	Sorrel
Bat nut or devil pod	Dill	Mint	Spinach
Bay laurel	Durian	Mushroom	St. John's bread
Bean	Edible flowers *	Mustard greens	Strawberry
Beet	Eggplant	Okra	Sweet potato
Brassica spp.	False coriander	Orange, sour	Swiss chard
Bread Nut	Fennel	Orange, sweet	Tamarind *
Breadfruit	Fenugreek	Oregano	Tangelo
Burdock	Garlic *	Palm heart *	Tangerine/Clementine/ Mandarin
Cacao bean pod	Genip	Papaya	Tarragon
Cannonball fruit *	Ginger *	Parsley	Thyme
Carrot *	Goa bean	Parsnip	Tomato
Cassava	Grape	Pea	Topepo
Celeriac	Grapefruit	Peanut	Tropical kudzu
Celery	Guava	Pepper	Truffle *
Chamomile	Hyacinth bean	Peruvian carrot	Tuna (Prickly pear fruit)
Chervil	Indigo	Pigeon pea	Turnip
Chickpea	Jackfruit	Pineapple	Water chestnut*
Chinese amaranth	Jicama	Pinguin	Watercress
Chinese cabbage	Lambsquarter	Pokeweed greens	Yam
Chinese water chestnut	Lemon	Pomegranate*	Yard-long bean

Note: This table lists all approved products that can be exported to the US by Dominican producers. Asterisks indicate products authorized regardless the country of origin. The source of the information specifies what part of the plant is accepted for entry as well as the authorized port of entry. To reduce clutter in the table, we just present the name of the product. Source: Authors collection using the US Fruits and Vegetables Import Requirements (FAVIR) database (http://www.aphis.usda.gov/favir/).

Figure 18. Number of active HS codes as a share of total approved, by country and year



Note: These figures show the number of products (six-digit HS codes) that are exported to the US as a share of the total number of products that are authorized by the USDA.
Source: Author's calculations using information from FAVIR and Codes of Federal Regulation.

pure, wholesome, safe to eat, produced under sanitary conditions, and contain informative and truthful labeling in English.[30] In addition, exporters of various specific products must provide proof that they followed specific production processes—from good agricultural practices (GAP) for the control and management of microbial food safety to hazard analysis and critical control point (HACCP) standards for fish products.

The FDA inspects around 1% of all food import shipments at the port of entry (Buzby, et al. 2008). Whenever a country/product/firm is found repeatedly violating US regulations, however, the FDA issues alerts and implements procedures that result in a 100% sampling process. An import alert authorizes FDA inspectors to detain all shipments from companies included on the alert's red list—an automatic process known as Detention Without Physical Examination (DWPE). Once a firm becomes subject to DWPE, the FDA will detain all shipments for as long as the company remains on import alert, even after corrective actions have been put in place to bring products into compliance with FDA regulations. For each detained shipment, the firm must contact the FDA with evidence the shipment is now in compliance and request that it be allowed to proceed into the US. To stop the DWPE process, a formal petition must be submitted to FDA. This petition must clearly detail the corrective actions taken to ensure that the problems that caused the items to be placed on import alert have been eliminated and will not recur.[31]

30 http://www.fda.gov/ForIndustry/ImportProgram/ImportProgramOverview/default.htm.

31 Once problems have been corrected and the FDA has cleared at least five shipments have for entry into the U.S., a petition may be drafted showing the FDA documentation and evidence that the products are no longer at risk of being in violation of U.S. regulations. The review process can take several months before a final decision is reached. Until that decision, shipments will continue to be subject to a higher level of potential controls.

Table 11: Dominican Republic import alerts with Detention Without Physical Examination

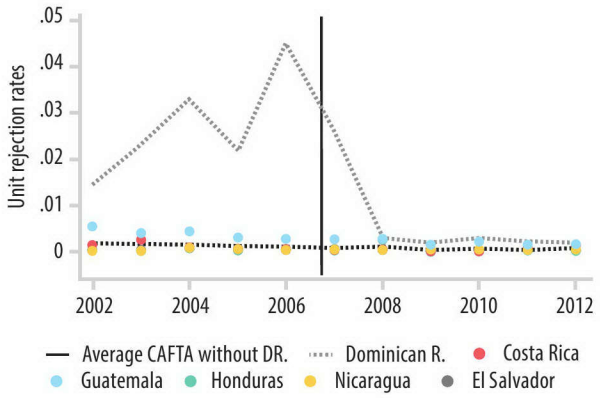
Import Alert Name
Cheese Due to Microbiological Contamination
Frozen Raw and Cooked Conchmeat
Seafood Products Due to the Presence of Salmonella
Tamarind Products (Fresh and/or Processed) from All Shippers from All Countries Due to Filth
Coconut Due to the Presence of Microbiological Contamination
Coumarin in Vanilla Products Extracts Flavorings Imitations
Guanabana (Soursop)
Guidance of Foods Containing Illegal and/or Undeclared Colors
Cosmetics Containing Illegal Colors
Black Hair Cream From The Dominican Republic
Skin Whitening Creams Containing Mercury
Unlicensed Botulinum Toxin
Unapproved New Drugs Promoted In The U.S
Manufacturers Of Low Acid Canned Foods And Acidified Foods
Raw Agricultural Products for Pesticides
Processed Foods for Pesticides
Raw Agricultural Products for Pesticides
Food Products Containing Sulfites
Raw Fresh Fruits And Vegetables Due To The Presence Of Pathogenic Contamination

Note: This table presents the current list of import alerts with DWPE affecting Dominican exports to the US. Source: Authors' collection using information from the FDA. The information was accessed in April 2, 2014 (http://www.accessdata.fda.gov/cms_ia/country_DO.html).

Currently, the Dominican Republic is under country-wide alerts with DWPE for all raw agricultural products due to illegal pesticide residues. Product-specific alerts with DWPE include tamarind products, coconuts, and guanabanas. A firm-specific alert with DWPE covers raw agricultural products shipped from M.S. Export C.X.A, a Dominican firm whose exports of fresh Indian long squash were found to be contaminated with salmonella. Table 11 lists the current US import alerts with DWPE for the Dominican Republic. Because the burden of proof is transferred to the exporter, these detentions add to exporters' cost of demonstrating compliance and the time it takes for products to reach the final consumers. According to Jouanjean (2012), these factors raise the average unit prices of exports to the US. Jouanjean and Le Vernoy (2010) shows that there is indeed a negative relationship between unit prices and reputation (refusals) on export markets. The fact that countries comply with stringent SPS regulation is related with products with higher quality (e.g. organic products) which tend to fetch higher prices.

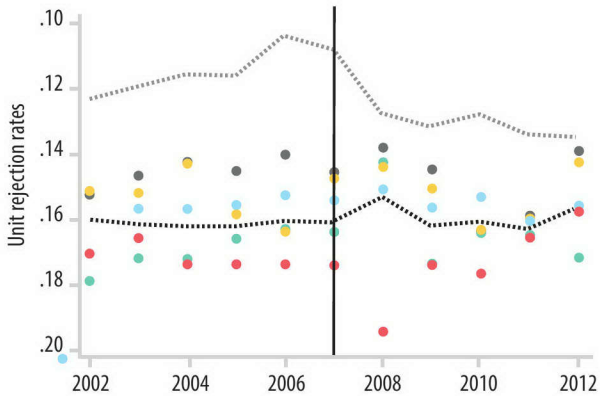
The FDA is also entitled to detain any regulated product that appears to be out of compliance, even if not under an import alert. The FDA district office will then issue a Notice of FDA Action specifying the nature of the violation. The owner or consignee is entitled to an informal

Figure 19. CAFTA-DR: Unit Rejection Rates



Note: This figures show the unit and relative rejection rates for fresh fruits and vegetables. Source: Authors' calculations using information from FDA Import Refusal Reports.

Figure 20. CAFTA-DR: Relative Rejection Rates



Note: This figures show the unit and relative rejection rates for fresh fruits and vegetables. Source: Authors' calculations using information from FDA Import Refusal Reports.

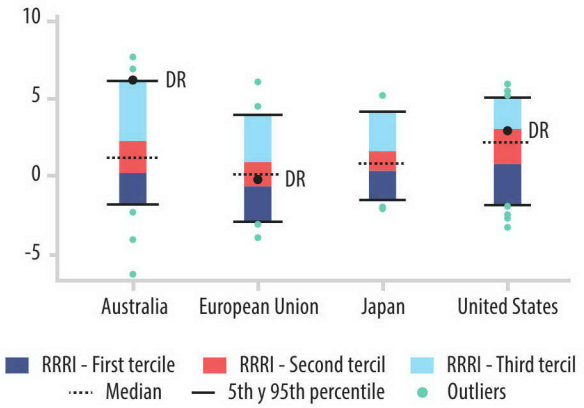
hearing to provide testimony regarding the admissibility of the product. If the owner fails to submit evidence that the product is in compliance or fails to submit a plan to bring the product into compliance, FDA will issue another Notice of FDA Action, refusing admission to the product. The product then has to be exported or destroyed within 90 days and this information gets automatically recorded in the FDA import-refusal database. The FDA provides access to this database online through their Import Refusal Report (IRR). For each rejected consignment, the report provides information about the manufacturer's name, country of origin, product code (according to FDA's own industry classifications), product description, refusal date, and the violation reason. We use the IRR to examine the pattern of import refusals from the Dominican Republic and other CAFTA-DR countries in the fruits and vegetables sector. We map FDA product codes to six-digit HS codes over the period 2002-12.[32] We use two metrics, proposed by UNIDO (2012), to analyze the importance of import refusals and to infer possible trade compliance issues. The first one is the Unit Rejection Rate (URR)—the number of rejections per US$ 1 million of exports. The second one is the Relative Rejection Rate (RRR)—the natural logarithm of the ratio of a country's share of total rejections to its share of total imports. For example, if the Dominican Republic share of rejections in the US is 5% and the share of Dominican export in total US imports is 5.7%, then the RRR is -13.1 [ln(0.05/0.057)].

Dominican exports of fruits and vegetables faced a higher rejection level at the US border than the same products from other CAFTA-DR countries. Figure 19 presents the URR, and Figure 20 shows the RRR. Although its level of SPS compliance improved after the CAFTA-DR agreement took effect in 2007 (blue vertical line), the Dominican Republic is still above the regional average. The Dominican Republic underperforms every CAFTA-DR country in both measures.

When compared with all countries exporting to the US, the Dominican Republic is catalogued as a poor compliance performer. Figure 21 shows the Dominican Republic's RRR in the Big Four international markets: Australia, Europe, Japan, and the US. This figure divides the RRR into three equal groups to create a tercile distribution. Countries in the highest tercile, labeled "high," have a relatively poor compliance performance. Those in the middle tercile are labeled "medium," and best performers in the bottom tercile are labeled "low." The source of this analysis is UNIDO (2012). In addition to the poor performance in

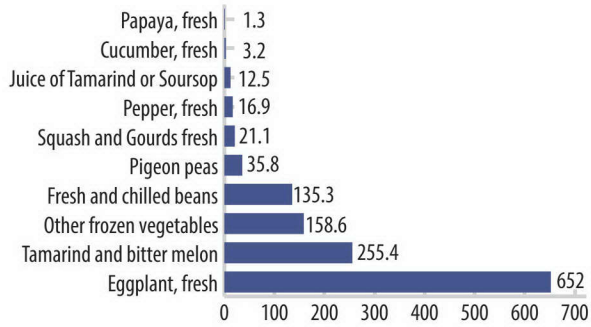
32 This analysis covers 2002-12. It extends the data used in Jouanjean (2012) and Jouanjean et al (2012).

Figure 21. Relative Rejections Rates in the Big Four international markets



Source: Trade Standards Compliance Footprint, UNIDO (2012).

Figure 22. Top 10 refused products URR (2002-12)

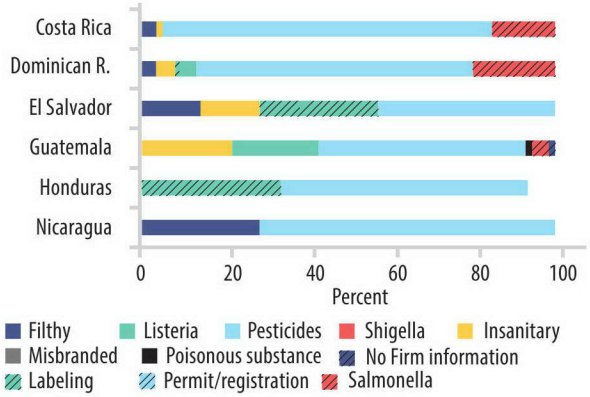


Note: Each product has the following associated HS code: other frozen vegetables: 071080; fresh or chilled beans: 070820; eggplant: 070930; papaya: 080720; squash and gourds: 070990; pepper: 070960; tamarind and bitter melon: 081090; and cucumber: 070700. Source: Authors' calculations using information from FDA Import Refusal Reports.

the US market, Dominican exports to Australia also faced high refusal rates, but in Europe they seem to perform around the median. UNIDO data does not report refusal of Dominican exports in Japan, most likely because there are very few Dominican shipments to that country.

Rejections of Dominican products are mainly due to problems with the use of pesticides. The products that face the highest rate of rejection at the US border are eggplants, tamarind, bitter melon, frozen vegetables, and chilled beans (Figure 22). These products have historically been subject to high levels of scrutiny by US border agencies, mainly due to problems with application of pesticides.[33] Historically, the heavy use of chemicals, including pesticides, came as a response to the US program in the 1970s for the development assistance to agricultural diversification in the Dominican Republic. It brought new production technologies and new demands for aesthetic and grade qualities. The use of pesticides was not controlled, and a large number of them were introduced

Figure 23. Reasons for rejections (2002-12)



Source: Authors' calculations using information from FDA Import Refusal Reports.

into the country's production system over time. However, many of these pesticides are banned by the US Environmental Protection Agency (EPA). As early as in 1987, more than 12% of the Dominican shipments tested by the FDA were in violation of the pesticicide standards (Murray and Hoppin, 1992). The issue was particularly important for two products for which the Dominican Republic was the largest exporter to the US—eggplants and snow peas. This led in 1987-88 to the issuance of a countrywide alert for pesticide residues and a DWPE. Moreover, the over-use of pesticides led to emergency quarantines on five vegetables. The combination of both issues resulted in trade disruption and in a reduction of areas under cultivation in

33 According to FDA alert 99-05, consignment detention was due to (i) residues of a pesticide specifically banned for that product; (ii) residues of a pesticide not registered for that product; (iii) pesticide residue levels that exceed the maximum residue level allowed for that pesticide; (iv) failure by an exporter under an FDA detention warning to provide evidence that the products to be exported are compliant by submitting a pesticide test certificate from a national laboratory within the required 10-day period.

Table 12: Number of Dominican exporters with border refusals

Year period	Number of Exporters to the US	Number of Exporters with refusals	% of Firms with refusals
2002 - 2004	373	66	17.7
2005 - 2007	804	124	15.4
2008 - 2010	541	78	14.4
2011 - 2012	439	36	8.2

Note: This table counts the total number of Dominican exporters in the fruits and vegetables sector and the number of firms facing refusals at the US border.
Source: Authors collection using information from the FDA Import Refusal Reports and firm-level export information from the Dominican Republic Customs Agency.

the Dominican Republic. As a consequence, the Dominican Republic, which was in the 1980s among the leading providers to the US market for snow peas, eggplant, cantaloupe, and some other fruits and vegetables, lost its place to the benefit of other regional competitors, such as Guatemala.

Salmonella contamination is the second main reason for rejection. Dominican exporters also have had problems with permits or registrations as well as with some shipments determined to be insanitary or filthy. Problems with pesticides residues are common in CAFTA-DR countries (Figure 23). However, rejections due to salmonella contamination are specific to the Dominican Republic and, to a lesser extent, to Costa Rica and Guatemala.

The Dominican Republic's compliance difficulties with US SPS measures for fruits and vegetables is a sector-wide problem, not an issue specific to a small number of exporters. By merging the import refusal information with firm-level export information, Table 12 shows that 36 exporters saw their shipments refused at the US border between 2011 and 2012. They represented 8.2% of the total number of exporters to the US in the fruits and vegetables sector. While the fraction of firms with compliance problems is still considered high, the share has decreased from 17.7 % in 2002-04. Reasons for the high level of refusal are twofold. First, Dominican firms keep using forbidden pesticides for the treatment of their fruits and vegetables. Second, a path dependency leads to more import refusals in this sector. Since the Dominican Republic has had problems with pesticides in the past, US border agencies always assume that Dominican shipments are not compliant, and the probability of being inspected and rejected increases (Jouanjean et al, 2012).

The Dominican Republic is not the only country in the CAFTA-DR region with a history of trade compliances challenges in the US market. Honduras and, in particular, Guatemala have had problems with pesticides residues. In the early 1990s, 27.3% of non-traditional Guatemalan agricultural shipments were detained at the US border due to pesticide residues. Many initiatives of Integrated Pest Management (IPM), supported by the US Agency for International Development (USAID), have tried to address this issue. The program reduced the occurrence of refusals for Guatemala to a small extent. (Murray, 1994). Nonetheless, the Guatemalan snow peas chain survived the pesticides and pest outbreak crises, regaining its 1991 pre-crisis export volume in 2002. Few studies look at the pesticides residue issue in the Dominican Republic. However, according to FTAA (2004), the National Integrated Pest Management (IPM) Program for Pesticide Violations and Residue, implemented by the State Secretariat for Agriculture (Secretaría de Estado de Agricultura - SEA), in 1989 was unsuccessful because of changes in directives and a lack of capacity to fulfil its responsibilities due to insufficient funds, among other factors. This situation and the inability to address SPS concerns are highly detrimental to the country's relative competitive position.

3. Institutions and Policy Options to Enhance SPS Compliance in the Dominican Republic

This section looks at the existing public and private SPS related institutions[34] and initiatives to better understand what is currently happening in terms of SPS capacity building in the Dominican Republic.

In 2005, Dominican public and private institutions created the National Committee for the Application of Sanitary and Phytosanitary Measures (CNMSF-DR). The committee brings together public and private institutions and organisations relating to SPS regulations in the Dominican Republic: on the public side, the Ministries of Agriculture, Public Health, Commerce and Industry, Foreign Affairs, and Environment Centre for Export and Investment; one the private side, the JAD (Dominican Agribusiness Board) and CODOPESCA (The Dominican Council of Fisheries and Aquaculture). The committee's objective is to provide advice on the creation and implementation of SPS-related public programs and regulations and to promote public-private interaction and coordination to comply with SPS standards. To pursue this objective, it participates in international SPS institutions and WTO committees, disseminates Dominican laws and policies regarding SPS, participates in trade negotiations, and coordinates its work with official and private national institutions related to and/or interested in SPS matters (CNMSF, 2005). Since 2005, the committee has produced training materials on SPS measures and formed a delegation that participated in the WTO SPS committee meetings (IDB, 2012).

According to the WTO (2010), the Dominican Republic lacks of institutional capacity to comply with the WTO SPS agreement requirements. Moreover, it seems that the country still lacks SPS infrastructure, and exporters have to rely on US laboratories. Third-party certification is even more important. Many US supermarkets, rather than relying on brokers importing products in bulk, directly import from foreign exporters and require third-party certification from laboratories with internationally recognized quality control systems, such as Primus Labs[35] or NSF Davis Fresh Technologies[36].

In November 2010, the European Commission (SANCO, 2010) conducted an analysis to evaluate controls of pesticides in food of plant origin intended for export to the EU. The analysis mentioned progress, particularly in following up with increased traceability to the producer on consignments refused entry in the EU. However, the field evaluation still highlighted the poor coverage of official supervision of small growers exporting to the EU, with little adoption of good agricultural practices (GAP). A monitoring program for pesticides residues seemed to be considered, but it had no plans for official sampling of pesticide residue due to the lack of analytical capability.

Three laboratories operate in the Dominican Republic. The Ministry of Agriculture Central Veterinary Laboratory (LAVECEN), a laboratory run by JAD (Junta Agroempresarial Dominicana), and IIBI laboratory (Institute for Innovation in Biotechnology and Industry, governed by an Advisory Council presided over by the Ministry of Higher Science and Technological Education). LAVECEN was restructured in 2008 with the intention of becoming the National Reference Laboratory for analysis under the monitoring plan for agrochemicals and veterinary residues in food. The JAD laboratory, which has been testing for pesticide residue since the FDA DWPE alert in 1992, invested in new facilities with GC-MS to be operational in 2011. The EU considered the facilities adequate. However, it pointed out that those pesticide residue laboratories were not evaluated

34 Existing public SPS-related institutions and initiatives are: The Offices of Plant and Animal Health of the Ministry of Agriculture (SEA); the Food and Beverages Risk Control Department and the Contact Point of the Codex Alimentarius of the Ministry of Public Health and Social Assistance (SESPAS); Department of Foreign Trade and Trade Agreements Administration (DICOEX); General Bureau of Standards and Quality Systems (DIGENOR) of the Ministry of Industry and Trade (SEIC); Dominican Secretariat Environment and Natural Resources (SEMARENA); Department of Food Safety within the SEA serving as a permanent link between the SEA, the SESPAS, the SEMARENA and the SEIC; Department of Environmental Standards of the Ministry of Environment and Natural Resources. Private sector institutions are: Dominican Agribusiness Board (JAD) and CODOPESCA (The Dominican Council of Fisheries and Aquaculture).

35 http://www.primuslabs.com/.
36 http://www.nsf.org/.

according to internationally recognized quality assurance systems and were not accredited to ISO 17025. In 2011, the USAID reported on Dominican SPS capacity building activities, acknowledging significant improvements in the quality infrastructure. However, the report emphasized that more efforts should be made toward developing pesticide residue monitoring tools and regulations. It also highlighted a lack of institutional capabilities and infrastructure for plant health surveillance systems.

Overall, various initiatives support Dominican compliance with SPS regulations. The two most important initiatives were assistance programs to support implementation of regional trade agreements—the first with the US within CAFTA-DR negotiations since 2006[37] and the second within the EPAs negotiations with the EU since 2013.[38] The USDA/USAID PAPA program (2005-11) aimed at improving public-sector SPS infrastructure (systems and personnel) and harmonizing agricultural statistics (production and prices) in CAFTA-DR member countries. It mainly focused on meat, poultry and dairy, although some technical assistance was offered in such areas as container inspection, maximum residue levels training, and laboratory diagnostics.

These initiatives seem to have been relatively successful because the number of detentions and refusals of Dominican products was 10 times lower in 2010 than at the beginning of the decade. The USAID reports that detentions of fresh produce exported to the United States decreased from over 4,000 in 2007 to less than 500 in 2010. It is not clear which products were considered and whether detention is equivalent to a refused consignment. A reduction of detention might be the consequence of an increased access to laboratories certification, allowing firms to get off the DWPE list. Our own refusals database shows a tenfold reduction in refusals from 514 with a total export value US$80.8 million in 2002-07 to 54 with a value of 84.2 million in 2008-10. However, in spite of the improvements supported by the USDA/USAID program, the Dominican Republic still lags other CAFTA countries in compliance.

3.1 Policy options to enhance SPS compliance

Consistency and transparency along the value chain builds competitive advantage and "client loyalty" from importers because it reduces the risk of trade disruptions due to erratic and irregular quality. By reducing risks, it also allows for investment in value chain development, upgrading, and value addition. A sustainable agricultural value chain requires supporting regulatory and non-regulatory measures, such as good agricultural practices, post-harvest handling and treatment, good manufacturing practices, and a Hazard Analysis and Critical Control Point (HACCP) system. The implementation of such measures requires both public and private capacities as well as strong institutional coordination to promote a business environment conducive to increasing the competitiveness of agricultural exporters in international markets. In the following, we suggest various policy options that could improve the Dominican Republic's SPS compliance for fresh fruits and vegetables.

Institutions and regulations

- **Build capacity in institutions charged with plant pest and animal health surveillance, inspection, and sanitary standards.** Such institutions keep track of pests and diseases present in the country and develop early warning systems. They can organize vaccination campaigns and support the dissemination of knowledge about risk assessment, mitigation methodologies and technologies, good agricultural practices, and integrated pest-management techniques that reduce reliance on pesticides. Some of these efforts have been recently undertaken by CEI-RD, an institution that has been promoting the certification of agrarian companies, which has motivated a noticeable decline in export refusals at the US and EU borders between 2012 and 2013.

37 USDA/USAID PAPA (Participating Agency Program Agreement), Initiative for improved and harmonized Agricultural statistics and Sanitary-Phytosanitary regulatory infrastructure in Central America (2005–2011).
38 The Institutional Support Program for Regional Integration (ISPRI) and the 10th EDF Program titled "Support to the Forum of Caribbean States in the implementation of the commitments undertaken under the Economic Partnership Agreement (EPA)."

- **Strengthen the capability and reliability of infrastructure for the control of SPS.** Possible actions could focus on laboratory infrastructure and application of the principles of internationally recognized quality assurance techniques (such as ISO 17025), operations and analytical testing capabilities, and facilities such as inspections warehouses located at entry points (terrestrial borders, ports, or airports).

- **Adopt International Standards.** Dominican institutions would benefit from participation in SPS standard-setting institutions and the WTO SPS committee. Adopting national standards in line with international norms reduces importers' information asymmetry.

- **Update the regulation on pesticides.** Preventing the entry and use of banned products in export markets will reduce the risk of unintended inter-crop contamination. This could involve compiling a list of banned pesticides and establishing regulations for maximum residue levels.

Coordination entities

- **Support producer and exporter associations with careful identification of the value chain governance structure.** Potential support strategies as well as the costs and SPS risks in the value chain vary according to the type of stakeholders involved. For instance, exporters can supply raw materials from smallholders' production sold on the spot market, from cooperatives, through contract farming, or full vertically integrated production. In the US market, exporters can sell products in bulk or sell directly to supermarkets. Such structures should be studied to find the proper scale of action, the relevant costs, and potential winners and losers.[39]

  Exporters' and producers' associations are essential to the consistency of the value chain. Latin America provides many examples of exporters' associations playing a key role in the survival and upgrading of fresh fruits and vegetables exports. The Peruvian Commission for Export Promotion (PROMPEX) and the Guatemala Exporters Association (AGEXPORT) have been essential in promoting of good agricultural practices in their countries. Such associations are help ensure the transmission of information both ways, linking producers and importers. They provide information to producers on quality requirements and promote quality products on export markets. They are also essential for setting up public-private partnerships and in supporting the development of regulations. A strong producer and exporter association is also an essential tool for the rapid reaction to a pest or food security outbreak, reducing the potential impact on the country's reputation overseas.

- **Coordinate stakeholders through public-private partnerships.** Building consistency in the value chain requires the commitment and participation of all stakeholders—from regulatory and government agencies to farmers, producers, food business operators, and intermediaries. This requires effective information exchange, collaboration, and cooperation among these entities to ensure that they have access to the necessary knowledge, skills, and capacities. Public-private partnerships are a way to coordinate action. In resource-scarce countries, public-private partnerships can also be a way to alleviate the capacity constraints.

  Various examples of food-safety outbreaks demonstrate that one careless exporter can disrupt markets. Joint action and coherence of all stakeholders in the supply chain is a tool to prevent free-rider behavior.

39 Governance of the value chain is one reason for Guatemala's difficulties in managing its pesticides residues related import refusals in the US. Snow peas exporters, for instance, still rely heavily on products supplied from the spot market, where supply chains and agricultural practices are suspect. The problem is two-sided: Supporting the integration of the production could help ensure tractability and reduce the costs of capacity building in good agricultural practices. However, integration can be detrimental to marginal smallholders who rely on the spot market. In such circumstances, supporting cooperatives and producer groups could decrease the burden of the logistic and management costs of third-party certification. However, this is not a panacea. In a weak institutional environment, producers' incentives to fulfil their contract obligations fade when market prices are more advantageous.

In Peru, for instance, the public and private sectors collaborated to implement important programs for standards harmonization that have proven to be the basis for success in exporting high quality fruits and vegetables. In Guatemala, joint public-private institutions have been created to support the monitoring of producers and exporter for compliance with SPS measures. However, success of a public-private partnership requires a range of conditions, such as governance and transparency, ownership and trust, common interest, alignment of expectations, and strong leadership.

Targeted interventions to build public and private capacity

- **Carefully focus support to private certification schemes.** Various donors' experience in supporting certification schemes showed the importance of adapting to the the market channel and demand. Many projects, either from donors or NGOs, have supported the certification of smallholders groups for various private voluntary standards (PVS). However, research shows that most producers gain little price premium from certification. Therefore, producers often have few incentives to maintain their certification status once the external support ends (De Battisti et al., 2009; Supervie and Vagneron, 2013). Finally, the fact that producers are certified does not ensure access to a business relationship with an exporter or a supermarket chain.

  The US market is still very heterogeneous in terms of quality requirements and private certifications. In the US, each and every retail company has its own food-safety standards that usually focus more on good manufacturing practices (GMP—transformation and elaboration level) and less on good agricultural practices (GAP—production at the farm). They usually rely on third-party certification. Although many fruits and vegetables exporters sell directly to supermarket chains, many products are still sold in bulk through brokers. Therefore, greater efficiency calls for careful evaluation of the needs of the supply chain and adoption of a demand-driven approach to the provision of quality certifications (linking to potential suppliers before the intervention).

B. THE ROLE OF FREE TRADE ZONES IN THE DOMINICAN REPUBLIC: ADJUSTING TO A NEW ERA OF COMPETITION[40]

The Dominican Republic has been recognized as a global pioneer of free trade zones, generically known as special economic zones (SEZs). With a program ongoing for more than 40 years, the country is home to world-class zones and industrial parks that attract quality investment in manufacturing or outsourced business-processing services. SEZs have encouraged a shift away from commodities, with the manufacturing sector growing from about 18% of GDP in the 1970s to 27% by the 2000s. As discussed in part I, *Trade Outcomes Analysis*, the SEZs went through a period of sharp decline over the past decade, although they were able to recover some of their dynamism after 2009.

The future of Dominican free zones will depend on how the accumulated strengths are leveraged to face a new era of competitiveness built on fundamentals rather than transient policy distortions. The private sector played a key role in creating and managing SEzs, and organizing itself to engage in policy discussions with the government. Sustainable SEZ development requires competitiveness grounded on fundamentals: trained and productive workers, reform of the business climate and high-quality infrastructure. This will gain importance with the upcoming deadline to align SEZ incentives with the WTO Agreement on Subsidies and Countervailing Measures (SCM). Furthermore, linkages with the domestic economy are difficult to forge without incentives to source inputs locally, which limitsthe possibility for learning and upgrading within the zones and beyond.

This section begins discussing the recent economic achievements and policy decisions in SEZs. It then as-

40 This section was prepared by Lotta Moberg and Swarnim Wagle.

Box 3: What are Free Zones?

Free zones or special economic zones (SEZs) are geographical areas where the rules of business differ from the rest of the country. They usually offer a more attractive environment for local and foreign businesses by: (i) alleviating constraints related to accessing industrial land, quality utilities, and infrastructure; (ii) providing a special customs regime that facilitates duty-free import of inputs; (iii) helping set up and license companies through streamlined regulatory procedures; and (iv) often providing an attractive fiscal regime with reduced taxes and labor regulations. Zones vary in scope from industrial parks and export processing zones to wide area SEZs and free ports.

In the Dominican Republic, locating in SEZs opens the door to a variety of duty-free mechanisms and fiscal exemptions, including:[41]

- Full corporate tax exemptions;
- Full exemption from local VAT (ITBIS) or tax on assets;
- Exemption from any import tax, tariffs, and export taxes;
- Exemptions are granted for 15 years—20 years if the company is located near the border—but the period can be extended by the National Free Zones Council, the free-zone regulator.

The main aim of most free zones and SEZs is to augment foreign earnings and create jobs by facilitating trade and attracting foreign direct investment. Many zones also play a dynamic role by helping to generate knowledge spillovers, pilot economic reforms, and foster development of lagging regions. From about 175 in less than 50 countries in the mid-1980s, free zones have grown to more than 3,500 in about 130 countries. This proliferation suggests something powerful in the idea of resorting to "second best" means of relaxing constraints when the ideal solution of undertaking wider national reforms is not possible for political or financial reasons. The performance record, however, is uneven. While some zones have played a transformative role, especially in East Asia in the 1980s and the 1990s, many fail to live up to initial promises and some end up being wasteful misadventures.

Source: Farole and Akinci, eds. (2011); Authors.

sesses what the compliance with WTO SCM means for future economic policy, partly drawing on what other countries have done in recent years. Finally, it looks forward to what the possible evolution of the Dominican SEZ model could be, including a discussion of a few pending challenges. We make three broad conclusions—all that in the context of compliance with the phasing out of subsidies contingent to export performance (Box 6), to be implemented by WTO countries in 2015. First, the Dominican Republic is likely to declare most of the sectors currently producing in SEZs to be "strategic." This may be a pragmatic approach to prevent rapid changes in the SEZ sectors. However, targeting strategic sectors also risks locking in the prevailing system of discriminatory policies that has helped create a dual economy. Second, regardless of benefits and exemptions, Dominican SEZ exporters will be able to remain competitive in the global context in the medium and long term only by climbing up the value chain and increasing quality and productivity. Finally, the progressive homogenization of the benefits enjoyed by companies inside and outside SEZs would help leveling the playing field, reducing distortions.

1. From Textile-led Exports to Relative Diversification: Recent Developments in SEZs

1.1 The Decline of the Textile Industry and Recent Changes in the Policy Landscape

41 Chapter 7 of Law 8-90.

Table 13: Relative decline of the SEZ apparel industry, 1992-2012

	No. of firms	No. of employees	Exports (real US$ million in 2010 value)	Share in Free Zone exports (%)
1992	272	100,437		
1994	301	115,440		
1996	284	107,867	2,437.70	56.4
1998	293	135,634	3,142.10	57.3
2000	275	141,945	3,235.90	53.6
2002	262	118,652	2,699.50	51.6
2004	281	131,978	2,448.10	45.3
2006	198	79,365	1,876.00	37.1
2008	143	49,735	1,180.60	26.8
2010	120	41,882	983.9	23.3
2012	111	40,666	1,213.90	25.6

Source: CNZFE. Note: Data from CNZFE slightly differs from the DGA data we use in the first chapter. This might be explained by the fact that SEZ sales to the domestic market are computed as exports by CNZFE but not by DGA, resulting in the lower level of exports reported by DGA.

In the Dominican Republic's free zones, the most prominent change over the past decade has been the relative decline of the textile industry. Since peaking in 1993, the number of textile firms has been on a steady decline (Table 13). The number of people employed in the sector fell sharply from more than 141,000 in 2000 to less than 41,000 in 2012. The fall of the Dominican textile industry is discussed in detail in section I.b *Changes in Sector Specialization and Excessive Market Concentration*. With quotas abolished at the end of the Multi-Fiber Arrangement (MFA) and the Agreement on Textiles and Clothing (ATC) in 2004 (Waglé, 2005), newly unrestrained Asian competitors had a particularly negative impact on Dominican companies specializing in labor-intensive production, especially sewing. Major buyers in North America now found it profitable to outsource sewing to China rather than the Dominican Republic and other Latin American countries.

The fate of most textile companies after the end of the ATC primarily depended on their place in the international value chain. Companies producing for their own brand, such as *Hanes and Gildan* in clothing, have remained and kept investing in the Dominican Republic; many manufacturers that specialized in sewing have disappeared since 2003. An American brand that needs a manufacturer to design and make clothes for their specific niche would demand several rounds of samples to determine its range of products. In this regard, an Asian firm is at a disadvantage, located a two weeks' shipping distance from the final destination on the eastern coast of the US. Distribution centers, all of which were previously located in the US, are also opening in the Dominican Republic.

The Dominican Republic is competitive in just-in-time production, lean manufacturing, and full-package solutions. While both Dominican and Asian exporters are increasingly offering full-package solutions (Gereffi et al. 2006), the Dominican Republic's location gives it an edge over Asian competitors. *Grupo M*, one of the largest Dominican clothes manufacturers in SEZs, exemplifies this comparative advantage. The company designs, cuts, sews, decorates, and launders clothes. It has also diversified into new product lines, such as synthetics. *Grupo M* has reduced its Dominican workforce from 14,000 to 3,600 in

the past decade, but it has added 7,000 employees in Haiti, where it has outsourced labor-intensive sewing. Besides *Grupo M*, few companies have outsourced their labor-intensive stages of production to Haiti, despite the apparent benefits in investing across the border (Box 1 in Part I).

In response to the textile industry's shrinking, the Dominican government initiated regulatory changes. In the midst of the adjustments required by CAFTA-DR implementation (Box 4), a 2007 law proclaimed textiles, clothing, shoe, and skin manufacturing a national priority. All companies in these industries were granted the same benefits as SEZ companies, regardless of their location or target market. The aim was to help companies in these industries absorb the newly unemployed textile workers from SEZs. In addition, the government offered subsidized loans to 32 qualifying SEZ textile companies in 2008. The move was widely criticized for creating unfair competition. Only half of the companies that received the loans are still in operation.

The government also moved to contain the general decline of free zones. Between 2004 and 2007, SEZ employment fell from 190,000 to 128,000. In an attempt to incentivize all free zone companies to keep their workers, the state offered a temporary subsidy for each worker of 30% of the Dominican minimum wage (around $50 per month) between 2007 and 2008. The policy may have stemmed the pace of mass layoffs, but it provided only temporary relief. In 2008, the SEZs lost only 3,500 jobs. However, as the effects of the wage subsidy abated and combined with the impact of the global financial crisis, the decline continued with further job losses of 11,500 in 2009.

Requirements placed on SEZ companies' proportion of domestic sale versus export have also been adjusted. Previously, a free zone company had to export at least 80% of its production.[42] In 2011, those restrictions were lifted, and SEZ companies can sell everything they produce on the domestic market. However, SEZ companies must pay import tariffs on domestic sales at the rate that applies to other WTO members selling to the domestic market.[43] They must also comply with a 3.5% tax on gross domestic sales and the national 18% VAT.[44] These taxes roughly offset the advantage that SEZ companies have by not paying corporate income taxes. Companies and officials alike seem to agree that domestic producers are at a disadvantage compared to SEZ companies when selling in the domestic market. Yet, the previous 20% limit does not seem to have been binding. According to a Central Bank survey (2014: 23), less than 2% of SEZ goods were sold in the domestic market in 2011. Another 10% went to other SEZ companies, while 88% was exported directly. The data suggest that most SEZ firms are unlikely to start selling in the domestic market, since many of them are mainly export oriented.

1.2 Relative Diversification and Recent Rebound in the SEZs

Diversification of economic activities undergirds the recent SEZ rebound. Figure 24: Overall growth in the SEZs indicates SEZs have experienced a recovery in terms of exports and employment after 2009. The number of jobs in the zones has increased from 113,000 in 2009 to 134,000 in 2012, and exports have also significantly increased. The number of firms stands at an all-time high of 584, while the yearly value of export per SEZ employee has risen to $35,300 in 2012, up from $28,500 (in real USD) in 2004. As of 2012, 41% of the companies were of American Origin, and 35% had Dominican ownership, with the remaining distributed in small shares around the globe. The revival in activity can only be partly attributed to a tepid resurgence of the textile industry. Because other sectors have grown too, the SEZs are increasingly diversified into new sectors (Figure 25).[45] One is the growth of high-technology industries, as defined by the OECD[46] to include medical

42 Id.: Article 17.

43 Law 139-11, Article 11, available at http://www.suprema.gov.do/documentos/PDF/novedades/Novedad_Ley_No_139-11.pdf.

44 Law 253-12, Article 31, available at http://www.dgii.gov.do/legislacion/leyesTributarias/Documents/253-12.pdf.

45 For the discussion on diversification of exports and DR's comparative advantage see part I.

46 OECD: "ISIC Rev. 3, Technology Intensity Definition: Classification

Box 4: CAFTA-DR and Free Zones

During the textile downturn in 2007, the Dominican Repubic joined the Central America Free Trade Agreement (CAFTA) between the US and five Central American countries. The Dominican Republic was already part of the Caribbean Basin Initiative (CBI) and the Caribbean Basin Trade Partnership Act (CBTPA), and the CAFTA-DR basically helped consolidating existing preferences (see Molina et al, 2010). Before the agreement, close to 80% of Dominican exports entered the US duty-free; now, free access has been extended to most products (except for some agriculture products restrained by quotas—for example, sugar). In addition, CAFTA-DR requires reciprocity in the exchange of tariff concessions, while the CBI was a unilateral preferential program, implying increased competition from member countries, including the US.

Overall, CAFTA-DR made permanent trade preferences that had to be re-negotiated under previous agreements, ending uncertainty and restoring some advantages. In particular, the rules of origin were made more flexible, but it is unclear to what extent these changes provide an advantage over Asian competitors not bound by the so-called "yarn-forward" rule, which requires the use of yarn and fabric sourced only from FTA partners. Before 2007, the Dominican producers had to buy most of their inputs from the US to enjoy duty-free access to the US in apparel. Exporters can now source inputs from other CAFTA-DR members. In the case of woven apparel, this practice, known as "cumulation," also applies to Mexico, with inputs sourced from that country qualifying for duty-free access in the US. This provision is expected to integrate production in the region and help US companies with investments in Mexico. However, it remains unclear the extent to which these provisions negate the advantages of Asian competitors, who pay higher tariffs on their exports to the US but can use inputs in an unfettered manner from the cheapest source anywhere in the world. In other words, these competitors from other regions not yet party to a US free trade agreement enjoy a cost advantage over CAFTA-DR members because the "yarn-forward" rule of origin does not apply to them. It is also worth noting that the US has a product-specific safeguard that it can use to impose tariffs on textile items when it determines imports have surged.

While it is often claimed that SEZ companies enjoy an advantage over domestic firms in the domestic market, other CAFTA-DR countries may face lower total costs than both SEZ and non-SEZ companies. This is because they are largely exempted from tariffs that SEZ companies must pay when selling in the Dominican market. However, it is unclear how much this matters across industries. Honduran cigars may, for instance, have a slight cost advantage over Dominican ones now that tariffs have declined. Yet, Dominican shops and hotels sell Dominican cigars, not Honduran. This suggests other border costs, hurdles, and delays could still render competing foreign goods in the CAFTA area unprofitable.

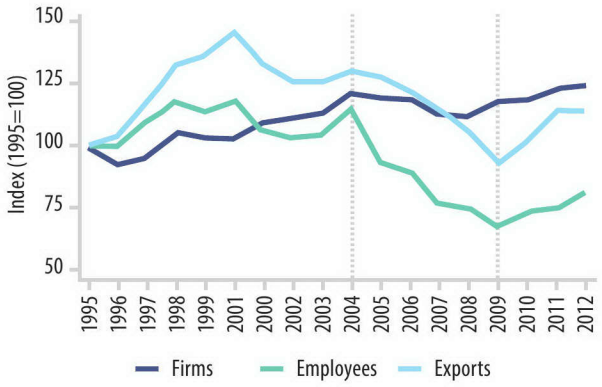
equipment and pharmaceuticals, products with certain complexity.[47] By 2012, there were 25 SEZ medical equipment companies, with almost 18,000 employees, a significant increase from the 6,650 employees of 1996. Medical equipment is mainly exported to the US, where Dominican products must meet the criteria of the FDA. This requires a skilled and well-trained workforce and management. Only two Dominican companies currently produce medicines, but the pharmaceutical industry is expected to growth. The sector employed 1,254 people in 2012 in the country as a whole, rising from only 504 people in 2010. Medicines made in the Dominican Republic are primarily exported to other Latin American countries.

In addition, some more traditional activities are upgrading and adding value by vertically integrating

of manufacturing industries into categories based on R&D intensities", OECD Directorate for Science, Technology and Industry, Economic Analysis and Statistics Division, 7 July, 2011, available at http://www.oecd.org/sti/ind/48350231.pdf

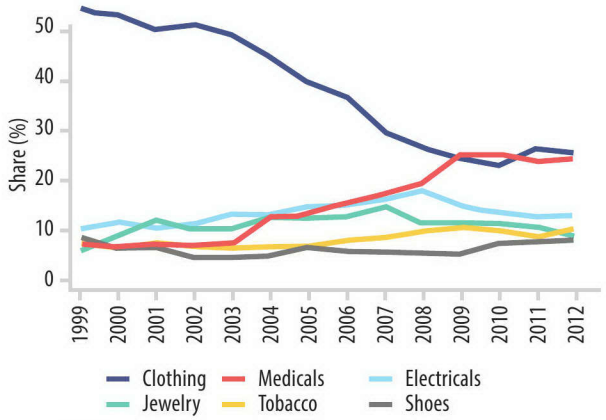
47 See The Observatory of Economic Complexity: http://atlas.media.mit.edu/. See also Figure 14.

Figure 24. Overall growth in the SEZs



Source: CNZFE.

Figure 25. Free zone exports by industry



Source: CNZFE.

new production processes. In shoemaking, primarily leather cutting and sewing once took place in the Dominican Republic. Now, the country makes finished shoes, some of the for well-known global brands like *Timberland* and *Jeff Bains*. At one time, clothing was predominantly shipped to the US in boxes. Now, Dominican apparel producers are increasingly making finished clothes and lingerie, on hangers with the price tag on, that can be shipped directly to American stores. Since early-stage integration is often energy intensive and expensive, Dominican textile manufacturers have tended to import yarn. Some textile manufacturers have, however, invested in their own mills and can import raw cotton, primarily from the US. Some lingerie manufacturers work both with synthetics and with molding plastic details. As a result, as with many shoe manufacturers, the only pre-manufactured components they import are metal parts.

The service sector now includes the highest number of SEZ firms. It also accounts for the fourth largest share of employment after textiles, tobacco, and medical equipment and pharmaceuticals. According to a Central Bank survey (2014), around 17% of service exports are telecommunications (primarily call centers), followed by security services, information and IT, back-office functions, accounting services, distribution, and warehousing.

Diversification has brought a surge in the number of special free zones. Single companies can form special free zones (*zonas francas especiales*) if they cannot locate in an industrial park for such reasons as the need to be close to a particular natural resource. Much chemical manufacturing take place in special free zones. Call centers can often obtain special zone status by claiming that they need to be in the city to access an English-speaking pool of labor. Some agriculture businesses are also in special free zones. As these industries have grown, so has the number of special free zones, doubling to reach 140 between 2007 and 2012. However, continuation of his trend is uncertain because a 2012 law suspended the creation of new special free zones, allowing currently operating special free zones to remain.[48] The suspension can be understood as a way to limit fiscal leakages derived from exemption.

2. Diverse Pathways to WTO Compliance

Under the WTO Agreement on Subsidies and Countervailing Measures (SCM), granting special benefits to companies for exporting is prohibited. By December 2015, all WTO members, except countries the United

48 Article 36, Law 253-12, 2012. "Ley 253-12 sobre el Fortalecimiento de la Capacidad Recaudatoria del Estado para la Sostenibilidad Fiscal y el Desarrollo Sostenible. G. O. No. 10697 del 13 de Noviembre de 2012," available at http://www.dgii.gov.do/legislacion/leyesTributarias/Documents/253-12.pdf.

Box 5: The History of Medical Device Manufacturing in the Dominican Republic

The growth of medical device manufacturing in the Dominican Republic SEZs is intimately tied to Puerto Rico. In 1976, the US gave significant tax incentives to American companies to locate in Puerto Rico, which until the mid-1980s made the American territory the largest offshore manufacturer of both medical devices and pharmaceutical drugs used in the US. The 1983 Caribbean Basin Initiative (CBI) gave fiscal incentives for companies to invest in other CBI countries. By then, labor costs were also higher in Puerto Rico than most Latin American countries.

Between 1987 and 1990, some medical devices companies based in Puerto Rico, including Baxter Healthcare, Eli Lilly, Johnson & Johnson, and Abbott Hospitals, started operations in the Dominican Republic, based on the "twin plants" concept. The labor intensive and simpler assembly work took place in the Dominican Republic and the more complex and capital intensive plastic molding was performed in Puerto Rico. Much production at the time was in intravenous sets for administering solutions into patients' veins.

It was soon clear that the Dominicans could perform increasingly complex manufacturing processes. Baxter was among the first to set up a stand-alone Dominican plant in 1994, with both plastic molding and packaging done in the country. Several companies soon followed their example. Between 1996 and 2000, Puerto Rico gradually phased out the fiscal incentives that it had relied on, prompting medical- equipment production to move to Latin American countries, such as the Dominican Republic, Costa Rica, and Mexico.

Today, complex medical equipment is made in the Dominican Republic, including biopsy needles, blood-therapy products, drainage products, and surgical sutures. Plastic molding, metal grinding, and sterilization all take place in the Dominican Republic. Not only workers are hired locally, but so are managers and executives. Because of the growing skill base and capital investments in the country, the Dominican Republic is likely to remain important for medical-equipment manufacturing.

Source: US General Accounting Office, June 1993, Puerto Rico and the Section 936 Tax Credit, GAO/GGD-93-109; CNZFE; the Authors.

Nations officially recognizes as least developed countries (LDCs) and countries with a Gross National Product (GNP) per capita of less than $1,000, must comply with the SCM (Box 6). The deadline applies to the Dominican Republic.

With a view to ultimate compliance, developing countries have been reforming their SEZ provisions by following one among a few possible strategies. One option is to comply and remove the subsidies that come in the form of tax exemptions—a de facto tax increase. It is a politically difficult approach because it can mean reneging on a country's compact with foreign investors, and it can have a negative effect on the country' attractiveness to future investors.

A second option is to grant non-SEZ firms the same fiscal benefits offered to SEZ companies, removing the special status of exporters. This may create a level playing field but at a tremendous fiscal cost in countries like the Dominican Republic that are already struggling to increase their tax bases. The value of Dominican tax breaks offered to SEZ companies is estimated at US$540 million for 2014, or approximately 0.9% of GDP (the top sector in terms of tax expenditure, holding 25% of the total).[49] The country is unlikely to follow this path because it could endanger the sustainability of public finances.

49 *"Gastos Tributarios en República Dominicana. Estimación para el Presupuesto General del Estado del año 2014". Comisión Interinstitucional Coordinada por la Dirección General de Política y Legislación Tributaria del Ministerio de Hacienda, Septiembre 2013.*

Box 6: WTO Compliance and SEZs

Article 3.1(a) of the SCM Agreement prohibits "subsidies contingent, in law or in fact, [. . .] upon export performance." SEZ fiscal incentives qualify as subsidies conditioned on export performance because most SEZ statutes require companies to export most or all of their products as a condition for receiving the statutory incentives. Thus, all WTO members that maintain SEZs with fiscal incentives and de jure or de facto export requirements are in prima facie breach of their WTO obligations.

Article 27 of the SCM Agreement, however, grants certain developing nations an exemption from Article 3.1(a)'s prohibition on export subsidies. Annex VII states that the countries must either be recognized by the United Nations as a least developed country (LDC) or have a Gross National Product (GNP) per capita of less than $1,000. When a non-LDC's Gross National Income (GNI) per capita surpasses the $1,000 threshold for three consecutive years, it "graduates" from the list.

Even when a developing country neither held LDC status nor had GNI per capita of less than $1,000, as is the case of the Dominican Republic, the WTO Committee on Subsidies and Countervailing Measures (SCM Committee) often granted ad hoc extensions to SEZs. In 2007, the SCM Committee decided to phase out its practice of granting extensions and set a final deadline of December 31, 2015, for making SEZ statutes in these countries WTO compliant. Some developing countries subject to the 2015 deadline have tried unsuccessfully to reform their SEZ statutes. Others have succeeded in enacting SEZ reforms, but whether they have fully complied with Article 3.1(a) remains unclear.

Source: Waters (2013).

A third option is to condition SEZ fiscal incentives on standards of corporate social responsibility (CSR). It has been argued, mainly by Waters (2013), that conditioning fiscal incentives on issues like labor standards, workers' unions, and ethical business practices could provide countries a novel way of branding their competitiveness while also complying with the WTO. It is unclear whether any developing countries would go this route.

Finally, a fourth option is attractive to a government that wants to promote exports, preserve tax revenues, and protect domestic producers from competition, and has been adopted by a number of developing countries. Because the WTO does not prohibit subsidies to companies per se, a government can give special fiscal benefits to designated strategic sectors or regions, rather than to the country's exporters. Targeting strategic sectors is probably closest in spirit to a modern best practice in SEZs, with an emphasis on quality infrastructure and a sound business environment, not fiscal incentives. As Farole (2013) and Waters (2013) show, countries are gradually moving toward incentives available horizontally to all companies in select industries or regions:

- **China** abolished preferential tax rates for SEZs in 2008. It extended all incentives that were available to foreign investors in the SEZs to domestic investors, lowering tax rates from 33% to 25%. China also shifted to a model where subsidies were primarily provided to specific industries and regions, especially in the interior. To forewarn investors and give legal certainty, the government announced its intentions to remove preferential incentives for FDI as early as 2000.

- **Vietnam** removed its export-contingent incentives in 2007, the year it acceded to the WTO, with a four-year phase-in period. Its SEZ regime was integrated with industrial zones that targeted domestic investments. Taxes were reduced from 28% to 25%. Vietnam also introduced new incentives for high-technology sectors and economically lagging regions. To avoid reneging on initial promises to foreign investors, Vietnam al-

lowed existing investors to maintain incentives until they were originally intended to expire.

- **Mauritius** previously had tax-free zones, while the domestic income taxes had a top rate of 25% for corporate and 30% for personal income. In July 2007, a flat tax of 15% was introduced for all firms and individuals. All sector-specific exemptions were removed with a three-year phase-in period.

- **Costa Rica** decided in 2010 that income tax exemptions for SEZ companies would expire on December 31, 2015. It established a new category of "processing companies" that do not need to satisfy any export requirements. Costa Rica also shifted incentives to regions outside the main metropolitan area. It established a new 10% fiscal credit for new processing companies that reinvest their earnings. In addition, Costa Rica only pledged fiscal incentives for firms that invested at least $10 million and employed at least 100 workers.

- **El Salvador**, like Costa Rica, seeks to condition its incentives either on location in backward regions or on a minimum investment of $500,000 and a job-creation requirement of 50 permanent jobs per business. The country will also extend the period of real estate tax exemptions for companies that double their initial investment after their first year of operation.

- **Panama** eliminated fiscal incentives selectively. It removed the income tax exemption for manufacturing but allowed tax-free importation of production equipment.

The Dominican Republic has taken a few tentative steps towards this fourth approach, but this may not be sufficient to comply with WTO norms. The government selects specific sectors as eligible for benefits currently enjoyed by SEZ companies. A few tentative steps have already been taken towards a strategic sector-based model. In 2007, textile, shoe, and leather companies all obtained SEZ-equivalent benefits because they were singled out as "strategic," eligible for benefits regardless of their location (inside or outside SEZs) or export performance. Abolishing the minimum export requirement for SEZ companies has been another important step. However, since the current legal framework in the DR still favors exports over domestic sales, this is unlikely to be sufficient for the Dominican Republic to comply with WTO rules. Should the Dominican Republic continue introducing changes in the legal framework to fully opt for an "strategic sector" approach, it would be important to engage in multi-stakeholder discussions for the definition of strategic sectors, in order to prevent a generalization of exemptions that would result in an important fiscal cost.

3. Looking Forward: End of the SEZ Model as We Know It?

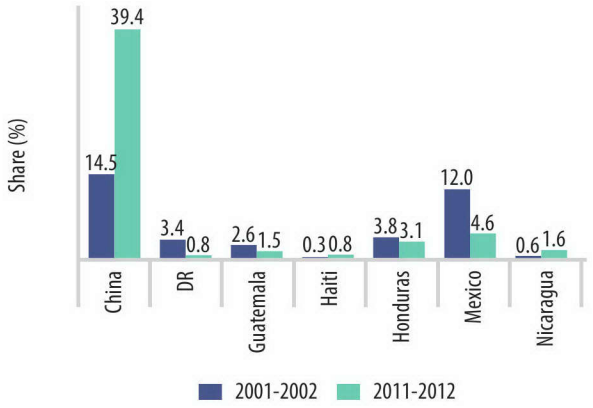
The reform from export targeting to sector targeting looks more radical on paper than it may turn out in practice. TheDominican Republic may finally opt for selecting its export industries—today's SEZ beneficiaries—as strategic. For many firms, fiscal incentives may therefore not change much with new reforms. The Dominican Republic's small domestic market implies a clear divide between the export and non-export sectors. Most SEZ industries do not have their equivalent producers outside the zones that serve the domestic market (discussed in section I.c *Two-Tier Export Basket in terms of Sophistication and Quality*. In terms of demand, no large domestic buyers exist for medical device equipment or components for electronic devices. The Dominican market is only marginal for SEZ companies producing clothing and shoes. Cigar manufacturers sell to the domestic market, but no cigar producers are outside SEZs, so granting all cigar manufacturers SEZ benefits would result in much change. In addition, tobacco producers are in practice already exempted from paying tariffs when selling in the domestic market.

The strategic sector approach is likely to mimic the current SEZ regime. Most companies that enjoy SEZ benefits would become strategic sectors and keep their

benefits while continuing to export. This would allow the government to keep assisting the country's exporters. Many industries that currently do not exist in the Dominican Republic are also likely to be christened strategic. If a company offers to invest in car production, for example, that company would likely obtain tax and tariff benefits by virtue of representing a new industry. Besides granting benefits to strategic sectors, the Dominican Republic is likely to adjust its area-specific tax benefits regime currently in place along the lagging region along the Haitian border. On the other hand, it is worth noting that continuing to grant benefits to multiple sectors could constitute a missed opportunity to define a clear strategy of export-led growth, which would require much more selectivity. More importantly, under this approach tax expenditures would be likely to increase, should all industries represented in SEZs be granted with a "strategic sector treatment". To prevent a potentially serious problem for public finances, some compensatory measures, such as a progressive and/or partial phasing out on corporate tax exemptions for companies that have been established in SEZs for more than fifteen years.

The definition of "strategic sectors" would not affect in principle activity in existing special economic zones. Strategic companies will still need to locate within SEZs to access eased transactions and complementary services. Meanwhile, non-strategic industries are unlikely to be allowed to locate in SEZs. Out of the 53 free zones, 35 are private, and already present a high degree of occupancy. In contrast to public zones, they generally offer much more to companies than fiscal benefits, attracting firms with a variety of services. The Dominican Republic electricity grid is unreliable, which prompts businesses to buy their own generators. SEZ developers can invest in large generators to offer companies a reliable energy supply. SEZs also house their own security arrangements and customs offices, which saves companies time and money when dealing with customs. In addition, several private zones have their own fire department, clinics, and training centers. SEZs also generate agglomeration economies, with many textile companies, for instance, located in close proximity.

Figure 26. Apparel export to the US



Source: UN Comtrade. Note 1: Apparel includes SITC Division 84. Note 2: Shares based on importer records average between 2001-02 and 2011-12.

Producers of plastic details for medical devices or electronics locate near these industries. Packaging companies and warehouses are also located in the same zones as many of their customers. SEZs thus benefit companies in ways beyond the government's fiscal benefits. Since private free zone managers are unlikely to experience much change with the SEZ reforms, we do not expect much change in their business models either.

Apart from the needed changes in legal framework, we highlight next three sets of broad challenges that the SEZs are likely to face going forward.

Challenge 1: International competition

The Dominican Republic can no longer compete just on low wages. The intensity of Asian competition in the textile industry confirms that competitiveness built only on low costs is not sustainable. In higher-valued goods, the Dominican Republic's main competitors are from within the Latin American region. Many of them have export-promotion schemes similar to those in the Dominican Republic. They also share the Dominican comparative advantage in full-package textile production. At its height in the 1990s, the Dominican Republic had a US market share in clothing of around 5%. This share dropped to 3.4% in 2001-02 before plummeting to 0.8% in 2011-12. Mexico,

Honduras, El Salvador, and Guatemala all exported more clothing to the US in 2012 (Figure 25). Since 2011, even Haiti has taken over the DR in clothing exports to the US,[50] benefiting from the HOPE Act of 2006 which is designed to promote Haitian garment industry (Hamlin 2011).

The medical equipment and pharmaceutical industry holds promise for the Dominican Republic, but other countries in the region are also doing their best to attract new investment. The global growth of the medical equipment industry is estimated at 7% annually between 2010 and 2015, and the US constitutes half the world demand.[51] In 2011, the US imported 32% of its medical equipment, and the market is set to continue to grow. [52]Between 2003 and 201, the Dominican Republic increased its electro-medical apparatus exports from US$474,000 to US$690,000.[53] During the same period, however, Costa Rica increased exports of these products from US$467,000 to US$996,000, and Mexico went from US$2.2 million to US$4.7 million. For the Dominican Republic, it suggests that multinational medical equipment companies have other attractive places to choose when locating in Latin America.

Dominican exporters are increasingly looking at adding more value to export products. The Dominican strength in the future could lie with relatively skilled technicians, specialists, and managers who oversee and develop operations at a lower cost than high-wage countries but with greater sophistication than in low-wage countries (China, Vietnam, etc.). To remain competitive, Dominican exporters need to continue to climb the value chain and increase their quality and productivity. They would need to rely increasingly on product and process innovations to distinguish their exports as niche, high-value goods whose demand is more responsive to changes in quality than in price. The cases of Conacado (see Box 2) and Grupo M provide examples of value enhancing activities that some top Dominican companies of different sectors have been undertaking, and could be inspirational for others. As discussed in Annex 6. Dominican Exporters—Results from the Enterprise Survey however, Dominican entrepreneurs perceive the lack of adequate workforce as a constraint to operations, which could eventually make it difficult to climb up the value added ladder.

Challenge 2: Limited linkages and spillovers to the rest of the economy

To foster inclusive growth, backward linkages between SEZ companies and domestic firms need to be enhanced. A lack of linkages between its SEZ companies and the rest of the economy has been a long-term problem for the Dominican Republic (Kaplinsky, 1993; Willmore, 1995; Sánchez-Ancochea 2006; Burgaud and Farole, 2011). At present, SEZ companies are buying a disappointingly low share of raw materials in the domestic market (Sánchez-Ancochea 2012). In 2011, only around 7% of prime materials purchased by SEZ companies came from the domestic market outside free zones, while 81% of prime materials were imported (Central Bank 2014:20). Competition from other CAFTA-DR members only partly explains this. Because Dominican companies are exempt from import tariffs on materials for goods that they sell to SEZ companies, the playing field between them and other CAFTA-DR members is even. Domestic companies must obtain a permit as an exporter to sell to SEZ firms, which some claim imposes burdensome bureaucratic procedures. However, several companies doubt this is an obstacle for exporting. In interviews, most SEZ company representatives say that the main reason they do not buy more locally is the lack of domestic suppliers that meet the quality and standards of their foreign counterparts. Some also stressed that the training and education of Dominican producers are inadequate and that the poor delivery record of Dominican suppliers leads to high storage costs. The Export Promotion Agency could have a role in overcoming info asymmetries, as well as providing with capacity building on the supply side.

50 Trade statistics from UN Comtrade: http://wits.worldbank.org/wits.
51 http://www.reportlinker.com/ci02249/Medical-Devices.html.
52 This is not least so due to the new US healthcare law. See http://www.prnewswire.com/news-releases/the-medical-device-market-usa-152980685.html.
53 http://www.trademap.org/tradestat/Country_SelProduct_TS.aspx.

Box 7: Are Dominican SEZs Less Connected to Domestic Economy?

Existing research on Dominican foreign investment often characterizes SEZs as "enclaves" that are relatively isolated, reducing the potential for positive externalities and spillovers in the rest of the economy (knowledge transfers, forward and backward linkages, etc.). When looking at specific industries within FTZs, for example, Senderowitsch and Tsikata (2010:28) conclude that only SEZ food production enterprises have relatively strong backward linkages to local suppliers. Textile and other manufacturing seem to have weaker than expected backward and forward linkages, something more typical in such sectors as mining, construction, and utilities. According to Manzano et al. (2013), one reason for the observed lack of linkages owes to the fact that most SEZ industries during the past two decades relied on *maquiladoras*, requiring low-skilled labor and exporting products of low value-added. Recently, SEZs started to export higher value-added products such as medical equipment and pharmaceuticals, but these sectors import most of their inputs and have built few supply arrangements with domestic suppliers (Sánchez-Ancochea, 2012). Schrank (2003) provides an interesting interpretation of the dual economy in the Dominican Republic: Industrialization through export succeeded in East Asia not only because of the presence of FDI but also because governments exhibited coherent efforts to take advantage of the destination market while adapting to requirements of the destination market (e.g. by devaluating domestic currency) and educating the domestic workforce. According to the author, this model failed in the Dominican Republic because of the system of patrimonial rule that prevails in the country. In Costa Rica, by contrast, selective-targeting of FDI in certain sectors (telecommunications) coupled with investments in education and health resulted in higher competitiveness, greater linkages, and a rise in the value-added of the export basket (Sánchez-Ancochea, 2006).

The lack of existing data to measure externalities forces researchers to rely mainly on anecdotal evidence in discussing the absence of backward linkages and other spillovers from foreign-owned companies and SEZs in the Dominican Republic. In this box we attempt to proxy the backward and forward linkages of the Dominican FDI companies (defined as those with a percentage of foreign ownership above 10% of social capital) by using World Bank-IFC Enterprise Surveys.[54] The Dominican survey sample consists of only 57 observations; hence, the results should be interpreted with caution.

How strong are the backward linkages between the FTZs and domestic economy? The surveyed Dominican FDI enterprises (some of which are located in FTZs) import almost 70 percent of their inputs, compared to 49 percent in the Caribbean, 58 percent in Central America, 43 percent in South America and Mexico, 54 percent in East Asia Pacific, and 52 percent in Europe and Central Asia (see Annex 6, Table 18). Dominican companies buy an unusually small share of their inputs from local suppliers, suggesting backward linkages may be particularly low compared to other regions. This seems to be confirmed by data from national sources; according to the DR Central Bank, around 81 percent of the companies in free trade zones obtain their inputs abroad, 12 percent buy from other SEZ companies, and only 7 percent use suppliers outside SEZs.

On the other hand, forward linkages (imperfectly proxied by the percentage of indirect exports to sales) seem to be much larger in the in the Dominican Republic (13.8%) than in the Caribbean (6.6%), Central America (7.5%) and South America and Mexico (2.97%). Alternatively, the Dominican Republic's high ratio of indirect exports to sales may be the result of companies moving to the SEZs and selling part of their output to another SEZ entity (a trend described in this section). Differences in the ratio of direct exports to sales (16%), a possible proxy of vertical (market-oriented) FDI, are not statistically significant between the Dominican Republic and Latin America and the Caribbean (Table 18). If we add up the Dominican Republic's direct and indirect exports, the remaining 70% are sales in the local market—a share similar to other Caribbean and Central American countries, higher than in East Asia (58%), and lower than in South America and Mexico (83%). That means that Dominican Republic and the Caribbean have a relatively balanced mix of FDI motivations, whereas FDI companies in South America are mainly "market seeking" (or horizontal, meaning they mainly serve the domestic market) and those on East Asia are mainly "export oriented" (or vertical). One caveat we have to acknowledge is that the World Bank Enterprise Survey does not allow us to distinguish between FDI companies inside and outside SEZs. As a result, this rough approximation of forward and backward linkages would be valid for overall FDI companies in the Dominican Republic, but there may be differences between the two regimes.

54 For data and metadata, please access http://www.enterprisesurveys.org/.

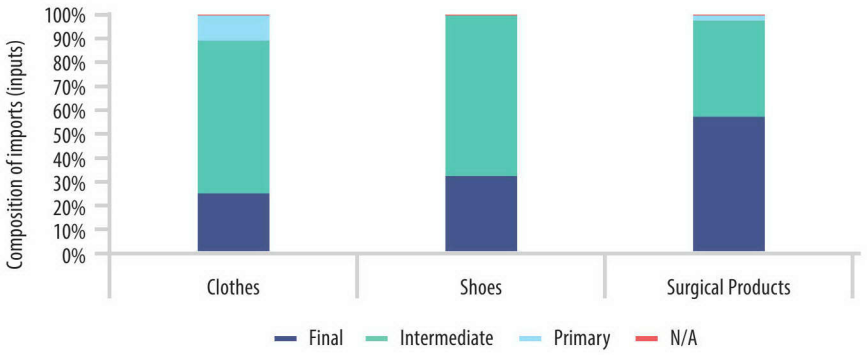
Box 7: Are Dominican SEZs Less Connected to Domestic Economy? (cont.)

As an alternative approach, we have also drawn from customs data to try to proxy backward linkages as well as to better understand the nature of the production processes in Dominican SEZs. Looking at the customs database, we observe that 70% of the registered firms both import and export, indicating that SEZ companies obtain part of their inputs abroad. For example, the value of clothing imports covers the 51.5% of the value of exports in firms that both import and export. The share is 41.2% in shoes and 39.8% in surgical products. If we take into account that value adding activities take place mostly in SEZs, this would mean that the value of the SEZ inputs acquired in the domestic market would be relatively small, sustaining the intuition backward linkages are limited.

When we further disaggregate imports according to broad economic categories (BEC),[55] we can distinguish between final, intermediate, and primary products. A clothing export company's average composition of imports is 65% in intermediate products, 10% in primary products, and around 25% in final products (figure below). It is not surprising that they have to acquire primary products abroad, given that the Dominican Republic does not produce cotton. In the case of surgical products, the share of final products over total imports is close to 60%, whereas imports of primary products are below 2%. This could indicate that the Dominican Republic enters the value chain of surgical products relatively late, mainly assembling already finished pieces. By contrast, the role of clothing and shoe firms established in Dominican SEZs would be more transformational within the global value chain for those products.

These results are tentative. More research is needed on questions about the intensity of backward and forward linkages in the Dominican Republic, the value added generated by the SEZs, and the Dominican SEZs positioning in global value chains. But, overall, these preliminary findings would tend to confirm the relative weakness of backward linkages in the Dominican Republic, compared to other countries in Latin America and other regions in the world. It could be argued that this is due to the fact that the Dominican Republic present similar ratios of foreign inputs to those in other small islands; however, with a population of around 10 million and rich natural resources, the Dominican Republic should not be in principle constrained by size to develop scale economies that would allow efficient production of local inputs at reasonable quality and cost, which could feed into the production processes of foreign companies in special economic zones.

Figure B.7.1. Import breakdown of major exports in SEZs (2007-12)



Sources: Authors' calculations using DGA data.

55 http://unstats.un.org/UNSD/cr/registry/regcst.asp?Cl=10&Lg=1.

The lack of linkages between SEZ and non-SEZ firms can be explained in part by domestic companies moving into the zones once they become SEZ suppliers. They can do so because sales to SEZ companies count as exports. It is also practical for a firm to locate near its SEZ customers. The Central Bank (2014: 20) reports that around 12% of prime materials in SEZ production come from other SEZ companies. Previously, all SEZ companies were foreign-owned; now, Dominican firms constitute around 36%. The increasing number of Dominican SEZ companies shows that domestic producers are indeed taking advantage of SEZ benefits. Thus, in this context, and as Dominican suppliers move to SEZs, it is not surprising that we do not observe stronger backward linkages.. Nevertheless, it is worth noticing that, as we discuss and prove in Box 7, foreign owned companies in the Dominican Republic buy a significantly lower proportion of their inputs abroad, if we compare with other countries in Latin America or other regions in the world. This would in principle imply that Dominican companies (at least outside SEZs) would have less chances to learn from the more sophisticated foreign companies, and benefit from knowledge spillovers and other externalities.

In the absence of complementary initiatives, linkages and spillovers to the rest of the economy are likely to remain weak as the country moves to the new "strategic sector" scheme. As exporters who enjoy fiscal benefits become increasingly sophisticated, the gap between the quality that strategic companies demand of their suppliers and what domestic producers and suppliers offer will likely widen. The Dominican Republic could try to promote backward linkages between foreign-owned SEZ companies and local suppliers by introducing incentives aimed at attracting foreign investors to those sectors that rely more on domestic inputs (metals, machinery and other manufacturing). A more demanding but more rewarding alternative would be to use policies aimed at enhancing the capacity and capabilities of domestic producers, so they can become reliable suppliers for foreign subsidiaries established in SEZs.

Challenge 3: Transition to a new SEZ scheme

Should the Dominican Republic finally opt for a "strategic sectors" approach to comply with WTO rules, policies will likely be open to changes and may become increasingly vulnerable to pressures from the business community. New sectors will need to be listed as strategic while old ones may be removed. This flexibility could encourage interested companies and industry organizations to try to influence the political process. Companies will have an incentive to lobby policymakers to be included among strategic sectors. The main argument is likely to be preserving employment. As a country that relies heavily on exports, the Dominican Republic will always be vulnerable to fluctuations in international demand and competition from foreign suppliers. While exporters can become dominant job creators, they can also cut jobs quickly as part of a transition to higher value-added production or as a response to lower-cost competition. Such adaptation is inevitable for the Dominican Republic to stay competitive. There is a risk, however, that such changes will be stymied by policies providing incentives in the long run. Policies that favor job creation must take into account the need to upgrade efficiency; if not, they risk achieving fragile development outcomes at a high fiscal cost and will not provide the right incentives to foster long-run job creation.

In the medium term, a more suitable way forward for the Dominican Republic would be to aim for a combination of nationwide "horizontal" export promotion policies with enhanced selectivity in defining just a couple of strategic sectors. In this sense, as discussed in section II.c., the empowerment of export promotion agencies (EPA) would be desirable; they are able to bring efficient support to the export processes of all Dominican, regardless of their legal regime. This could be combined with a progressive reduction in the number of strategic sectors granted fiscal benefits that takes place in the framework of a consensus national strategy for export promotion, where a couple of "champion sectors" are selected. These champions would ideally be dynamic and young sectors in the Dominican Republic, with relatively sophis-

ticated production processes, notable value added, and large potential to become growth engines in the future. Nonetheless, as it has been noticed by authorities, the elimination of benefits beyond exports subsidies (such as, among others, corporate tax exemptions) would need to be carefully considered, since it may have negative implications in terms of attraction of foreign direct investment (as other neighboring countries continue to offer fiscal benefits). Any decisions in this area should be based in a solid technical assessment, and a cost benefit analysis of special economic zones.

In the long run, nacting export-promotion policies that are "horizontal" in nature may help the government avoid the distortions created by vested interests in existing discriminatory fiscal policies. Mauritius exemplifies how a country can transition from a dualistic economy with SEZs to a dynamic "duty-free island" (Rodrik, 1999; Baissac, 2011). This was achieved by segmenting the labor market, removing tariffs, and harmonizing at 15% corporate taxes for both SEZ and national regime companies. However, it is worth noting that this process in Mauritius took strong political leadership and a competent bureaucracy to manage the pressures from different stakeholders.[56]

C. THE INSTITUTIONAL INFRASTRUCTURE SUPPORTING INTERNATIONAL TRADE[57]

As suggested in section I.b, the Dominican Republic might be missing export opportunities in emerging markets; this section discusses the role of public agencies in supporting exporters. Deepening regional integration and taking full advantage of preferential market access policies are important to export success; so are targeted supply-driven policies in the form of institutional support to help firms diversify into new markets, start exporting, or maintain a commercial relationship. The Dominican Republic could deepen exports to China and Brazil by exploring sectors outside the extractive industries—in particular, pharmaceuticals, plastic products, and medical equipment. This type of policy could be delivered through an institutionally empowered export promotion agency (EPA), and this section will discuss how the Dominican institutional structure supporting international trade might help foster both market and product diversification. The first sub-section highlights how the current institutional architecture in the Dominican Republic seems to present some overlaps. The second subsection looks at some international experiences in discussing the role export promotion agencies and other public and private institutions in promoting market and product diversification.

This section concludes that the Dominican Republic seems to lack an overarching national strategy for trade competitiveness, export promotion and orientation, and investment attraction. It could benefit from having a strengthened EPA. International practices point to the advantages of a unified, strong EPA that addresses significant information shortages and assists companies in exploring new markets. Second, EPAs improve their effectiveness when they offer bundled services and tailored approaches. Third, the Dominican Republic needs to clarify the role of the different institutions dealing with foreign trade policy and support, as well as to try to better balance the EPA budget so that payroll is not a burden limiting resources available to support export promotion activities.

1. Institutional Architecture in the Dominican Republic: A Dual Structure

The Ministry of Industry and Trade (MIT) is the leading entity in charge of formulating and implementing trade policies.[58] Legally, its role is to (i) formulate and

56 Baissac (2011) explains that S. Ramgoolam, the first prime minister of independent Mauritius, initially had little support from his ranks in labor and business, but he won them over gradually by arguing that the new policies would ultimately benefit all Mauritians. In tandem with the political art of persuasion, the country significantly strengthened the capacities of the Ministry of Commerce and Industry in terms of staff size and expertise, often with the help of international donors. This included, for example, new cells to protect exporters through project evaluation, monitoring, investment promotion, export marketing, project funding, and insurance.

57 This section has been prepared by Rafael van der Borght and Aleksandra Iwulska.

58 Created in 1966 by the law 290-66, the Ministry of Industry and Trade is the public entity in charge of formulating and implementing industrial, trade, and mining policies.

execute trade policies aimed at steadily increasing the presence of domestic goods and services in international markets; (ii) to manage the implementation of free trade agreements (FTAs) and assist the private sector to make the most of FTAs. The MIT's current organizational structure includes two entities directly dealing with trade, headed by a vice-minister for international trade and a vice-minister for free-zones and special regimes. The Directorate for International Trade (DICOEX) executes trade policies in the framework of political decisions made by vice-ministers. Traditionally, DICOEX has focused mostly on administrating and implementing trade agreements, especially from a legal perspective, to ensure full compliance with international obligations arising from FTAs. It is worth noticing that a new draft law aiming at reestructuring the Ministry of Industry and Trade is, as of July 2014, under discussion at the Congress.

Export promotion activities and, more generally, trade policies are scattered around different entities. A myriad of commissions and public entities, not always circumscribed to the MIT, are directly or indirectly dealing with trade-related issues. Some institutions have been established to manage very specific cross-sectorial issues—for example, the Regulatory Commission on Unfair Competition and Safeguards Measures and commission on the Application of Sanitarian and Phyto-Sanitarian Measures. Other institutions have a direct role in defining industrial policy—i.e., the National Council of Free Trade Zones (CNZFE). Other ministries are also involved in trade policies; for example, the Ministry of Foreign Affairs is in charge of looking for new FTA opportunities and leading the negotiations. The Ministry of Economics, Planning and Development (MEPyD), with its newly created vice-minister for competitiveness and the National Council of Competitiveness (CNC), participates too in the formulation and implementation of trade-related policies. Even when the current institutional architecture takes into account the need for cross-sectorial coordination to comprehensively approach trade-related issues, the multiplicity of actors and interlocutors could to some extent hamper the consistency of trade policies (Figure 27).

Originally, CEI-RD was created to consolidate some attributions and become the main agency for promoting exports promotion and attracting investment. Created in 2003,[59] CEI-RD absorbed the previously existing exports promotion center (CEDOPEX) and added attracting investment to the main objective of "promoting and boosting Dominican exports and investment to stimulate the competitive insertion of the country in the global economy.[60] Gathering private and public actors, CEI-RD aims at offering services ranging from participation in export promotion activities (i.e. commercial missions, commercial exhibitions), to detection of new market opportunities or assistance to implement quality norms[61].

So far, CEI-RD has mainly focused its assistance on incentives established by Law 84-99[62] and assistance in taking advantage of FTAs and preferential trade schemes. In particular, as the entity in charge of validating certificates of origin, it helps exporters obtain such certificates. In the region, other agencies undertake both promoting exports and attracting investment: CEPROBOL in Bolivia, FIDE in Honduras, JTI in Jamaica, PROMEXICO in Mexico, VCE/DNPE in Panama, REDIEX in Paraguay, and APEX in Brazil. Some agencies are responsible for only export promotion: PROCHILE in Chile, PROCOMER in Costa Rica, EXPORTA in El Salvadorian, and DPC/ME in Guatemala. Still others are also have a tourism mandate, such as Peru's PROMPERU and Colombia's PROEXPORT.

Although CEI-RD offers a comprehensive set of services to exporters and investors, its actions are complemented by CNZFE for companies located in SEZs. CNZFE is the official public entity in charge of managing SEZs. Comprising public and private actors, it has a dou-

59 Law 98-03, which created CEI-RD, acknowledged dispersion and overlaps in public resources devoted to these tasks and aimed at integrating them in a central body.
60 Article 6, Law 98-03.
61 For a comprehensive presentation of services offered by CEI-RD, see the institution web page: www.cei-rd.gov.do.
62 Law 84-99 on "exports reactivation and promotion" establishes the regime of (i) temporal admission for asset completion, (ii) simplified compensation of customs duties, and (iii) reintegration of taxes and customs duties. CEI-RD handles the official authorization for these three mechanisms.

ble mission: (i) regulate the Law 8-90 on the establishment and functioning of SEZs and (ii) design an integrated policy for promoting free zones, attracting new companies, and developing existing SEZs.[63] Even if legally integrated,[64] the relationship between CNZFE and CEI-RD may in practice become relatively complicated, given that both institutions have similar objectives. For example, both CNZFE and CEI-RD have been participating in international exhibitions with the aim of attracting foreign ivestors. At the same time, CEI-RD is assisting SEZ companies as well as domestic companies in their export processes, while CNZFE is not involved in export promotion. This dual institutional framework, which seems to present some overlaps, reflects the dual structure of the economy and the two-tiered export basket highlighted in the Trade Outcomes Analysis. The MIT has separate vice ministers dealing with exporters in the national regime and in the SEZs, which could to certain extent complicate the coordination between CEI-RD and CNZFE.

In addition, companies located near the border with Haiti (the "border zone") benefit from special treatment, granted independently of the destination of trade (domestic market or exports). This special regime is not administrated by the CNZFE but by the Council of Coordination of the Development Border Special Zone, a part of the MIT. Under this regime, companies located in provinces bordering Haiti are granted full exemption on internal taxes (including local VAT) and customs taxes. In addition, they are granted a 50% reduction on any tax, rate, or contribution established or to be established. As we write this report, the modification of this regime is under consideration due to its apparently modest effectiveness in attracting new firms to the border zone and the revenue losses it implies.[65]

This duality in public export promotion agencies is mirrored in private-sector organizations. While the Dominican Association of Exporters (ADOEXPO) gathers established domestic and SEZ export companies, ADOZONA only represents companies located in SEZ or operating free-zone parks. According to World Bank conversations with various actors, ADOEXPO has over the past few years been especially active in supporting and promoting exporters through exhibitions and commercial missions. Meanwhile, ADOZONA focuses on defending the interests of SEZs when engaging in policy dialogue with other public and private institutions. ADOZONA represents SEZ employers when negotiating SEZ minimum wages.[66] Finally, it is worth noting that some members of ADOZONA also participate in ADOEXPO, which seems to facilitate the discussion of policies on both sides. Both entities are represented at the board of directors of CEI-RD and CNZFE.

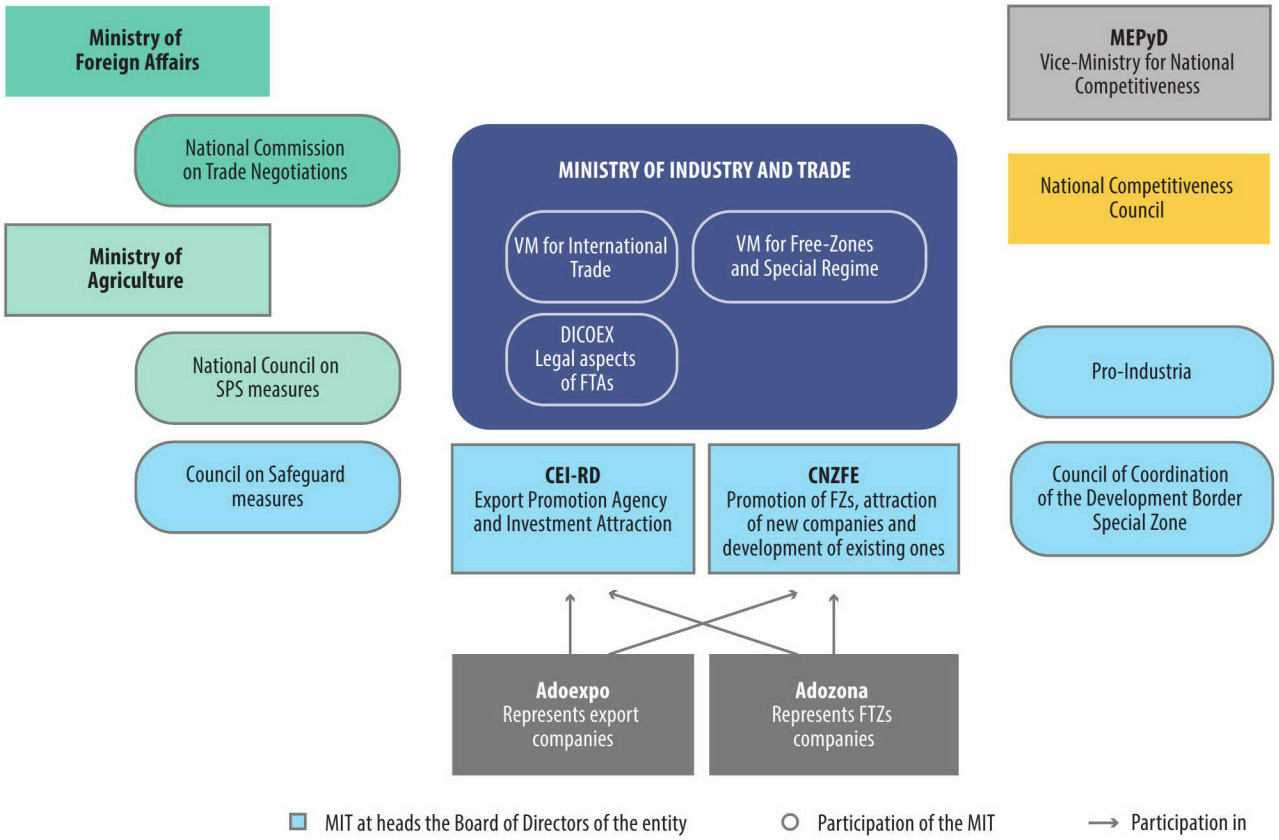
The incentives offered to attract foreign multinationals seem to vary widely. The task of attracting FDI is informally delimited—the CEI-RD focuses in the non-tradable sector and the CNZFE usually concentrates on manufacturing companies. At the same time, the incentives offered to foreign investors may vary widely depending on the bargaining power of the multinationals and the Dominican officials conducting negotiations. For instance, the president directly negotiated the agreement with Barrick Gold, while other deals have gone through the Ministry of Foreign Affairs, CEI-RD, or CNZFE. If the institutional channels in this area not be clearly defined, companies could suspect unequal treatment.

In this context of multiple actors and blurry attributions, the Dominican Republic should try to establish an overarching national strategy on trade competitiveness, export promotion and orientation, and investment attraction. There have already been a se-

63 Article 19, Law 8-90.
64 The executive director of the CEI-RD is on the CNZFE board of directors and vice versa. CEI-RD also promotes free zones and regularly refers CNZFE to foreign companies.
65 For 2014, revenues losses associated with Law 28-01 are estimated at US$24.7 million, according to the Ministry of Finance; see http://www.dgii.gov.do/publicaciones/estudios/Documents/GastoTributario2014.pdf.

66 SEZ minimum wages are established following the same model as the domestic market—a tripartite commission meeting on a bi-annual basis. They were set at RD$7,222 for 2013, compared with RD$11,292 for big domestic companies and RD$6,880 for small domestic companies.

Figure 27. Institutional architecture supporting trade policies in the Dominican Republic



Source: Author's Elaboration.

ries of coordination / prioritization efforts, which would need to be consolidated and added to the abovementioned strategy.

First, it is worth mentioning that the Ministry of Industry and Trade's Institutional Strategic Plan for 2013-17[67] seems to grant the Vice Ministry for International Trade responsibility over policies aimed at achieving the "rise in Dominican exports" and developing "productive sectors able to take advantage of trade agreements." The role of CEI-RD is barely mentioned, limited mainly to implementation aspects.

Second, the MIT launched a program called *"en ruta al 2015"* in early 2014, with certain sense of urgency. It seeks to reinforce Dominican competitiveness to mitigate the impact on local industry of the elimination of tariffs on manufacturing products under CAFTA-DR.[68] In order to fulfil the roadmap foreseen in *"en ruta al 2015"*, enhanced coordination DICOEX and CEI-RD could be needed.

In addition, President Medina has highlighted three priorities for 2013-16: (i) creating a ventanilla única to ease the registering process for investors (already established); (ii) replacing the National Housing Bank (NHB) with a new National Bank for Export Development to facilitate financing, and (iii) modifying the diplomatic service to add commercial agents abroad.

67 Available at http://www.seic.gov.do/transparencia/plan-estratégico/planificación-estratégica.aspx.

68 In the framework of the CAFTA-DR, 97% of the products will enter the Dominican Republic free of customs duties by 2015. This include nearly all industrial products and will be key for the Dominican industrial sector.

The Dominican Republic should look beyond measures already under implementation. The formulation of a consensus national strategy dealing with trade competitiveness, export promotion and orientation, investment attraction, productivity enhancement and innovation, would help align existing and future strategic plans, improving inter-institutional coordination and, ultimately, reducing the fragmentation of activities and achieving a more efficient outcome.

In addition, a stronger and institutionally empowered EPA could help foster Dominican exports. Research on the effectiveness of EPAs presents inconclusive findings. Lederman et al. (2009), for example, shows that EPAs positively affect exports but finds strong diminishing returns in the resources devoted to export promotion. In the Dominican Republic, authorities admit there is no clear selection criterion for strategic sectors when granting companies financial or technical support. Efforts are general and do not always consider the type of FDI, or the industries more likely to be engines for growth and employment. This is likely to result in a suboptimal use of existing resources. The next section offers as more in-depth discussion of the organization, scope, and resources of CEI-RD, the EPA in the Dominican Republic, comparing it with regional peers and trying to improve its efficiency by drawing on the lessons of international best practices.

2. An Institutionally Empowered Export Promotion Agency: A Tool to Foster Competitiveness

The mandate of LAC export promotion agencies (EPA) has changed significantly over the past four decades due to global trends; however, research on their effectiveness has been limited and produced mixed outcomes. Several studies conducted in early 1990s showed that EPAs had no significant impact on export performance in developing countries (Belloc and Maio, 2011).[69] Low effectiveness has been partly attributed to uncertainty related to disbursement procedures and delays. In the past decade, studies of EPAs in developing countries have been more positive. For instance, Alvarez (2004) investigated Chilean companies and showed that export-promotion programs were positively correlated with export performance.[70] Similarly, Volpe Martincus (2010) demonstrated a positive and significant impact of EPA activities on exports in LAC.

How does CEI-RD compare with other EPAs in LAC

Like most agencies in the region, CEI-RD is a public institution with a private-public board of directors, a best practice in the developing and developed world. CEI-RD is managed by an executive director nominated by the Dominican president, a common practice in LAC; the exceptions are Bolivia, Ecuador, Honduras, and Jamaica, where executive directors are selected through a public competition, and Costa Rica, where the board of directors makes the selection. CEI-RD has a board of directors composed by a mix of private and public officials,[71]a common practice in LAC and developed world. In fact, research suggests that exports increase with the share of board seats held by the private sector (Lederman et al 2009).

CEI-RD has nine representatives abroad and 49 representatives in embassies in charge of commercial issues. CEI-RD has its headquarters in Santo Domingo, regional offices in Santiago de los Caballeros, San Pedro de Macoris, and Puerto Plata, and 36 offices distributed around the world.[72] CEI-RD does not have as many foreign offices as

69 Belloc and Maio (2011) quote several studies; for instance, Hogan (1991), Keesing and Singer (1991), and Low (1982).

70 Following Belloc and Maio (2011), several management studies confirmed a positive contribution of export promoting activities on company export performance. Authors refer to Gentrurk and Kotabe (2001), Alvarez (2004), and Lages and Montgomery (2005).

71 Public representation spans from the MIT to the General Customs Directorate. Other public sector members are: Ministry of Foreign Affairs, Ministry of Economy, Planning and Development, Ministry of Finance, Ministry of Agriculture, Proindustria, Consejo Nacional de Competividad, and Consejo Nacioal de Zonas Francas de Exportacion. The private sector is represented by Consejo Nacional de Empresas Privadas (CONEP), CODOPyME, Cámara de Comerio y Produccion de Santiago, Cámara de Comercio y Producción de Santo Domingo, ADOEXPO, ADOZONA, Asociacion de Inversion de Empresas Extranjeras, and Junta Agroempresarial Dominicana (JAD).

72 The 36 offices abroad are: 14 LAC countries (Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Uruguay, Peru, Mexico, Trinidad and Tobago), three in North

such large economies as Brazil, Chile, Mexico, or Peru (more than 50) but is in the upper band of the Central American countries (from 30 to 50) and above its Caribbean counterparts (less than 15 offices). Nonetheless, the majority of Dominican diplomats and representatives abroad devote only part of their time to export-promotion activities. For this reason, President Medina in 2013 made a priority of modifying the diplomatic service to add the role of the commercial agent, specialized in supporting foreign trade. Research suggests that regional EPAs have a greater impact on export flows than national embassies and consulates (Volpe Martinicus, 2010; Belloc and Maio 2011), although results are not conclusive (Lederman et al, 2009).

America (US, Canada, Puerto Rico), 12 in Europe (Portugal, Switzerland, Austria, Holland, Czech Republic, Germany, Belgium, Spain, France, the UK, Ireland, Sweden), one in Africa (Egypt), four in Asia (South Korea, Taiwan, Malaysia, India) and two in the Middle East (United Arab Emirates, Israel).

According to international evidence, EPAs make greater impact when they address significant information shortages, and they are mostly successful in increasing the number of destination countries. Support for these conclusions comes from Argentina, Costa Rica, Chile, Colombia, Peru and Uruguay (Volpe Martincus 2010). In fact, the higher the trade barriers, the more effective EPAs are (Lederman et al 2009). Evidence from firm-level data in Peru—a country that like the Dominican Republic has diversified product offerings faster than destination markets—suggests that companies supported by Peru's PROMPEX had an export growth rate 17 percent higher than unsupported firms. Among supported firms, the number of destination countries was 8 percent higher, while number of products rose 10 percent. Similarly, evidence from Uruguayan firm-level data suggests that companies that used URUGUAY XXI had 10 percent more destination countries, although supported companies continued having problems entering OECD markets. In Argentina and Colombia, the activities of EXPORTAR were also positively correlated with the number of products exported. In Costa Rica, export assistance had an impact only on companies that were already exporting heterogeneous goods and helped mainly by increasing the number of destination countries.

Research suggests that EPAs help most when exporters are inexperienced and small. Evidence from Chile suggests that export-promotion activities were most beneficial for companies with lower exports per country or exports per product. A study of Argentinian exporters assisted by EXPORTAR implies that only SMEs benefit from export promotion activities--in particular, companies assisted for the first time. Studies from developed countries seem to confirm that.[73] On the other hand, Lederman et al (2009) find that firm size had no impact on exports, suggesting that any potential targeting scheme should be based on evaluation of the particular country's sector priorities. Detailed information on the profile of CEI-RD-supported companies could not be found.[74]

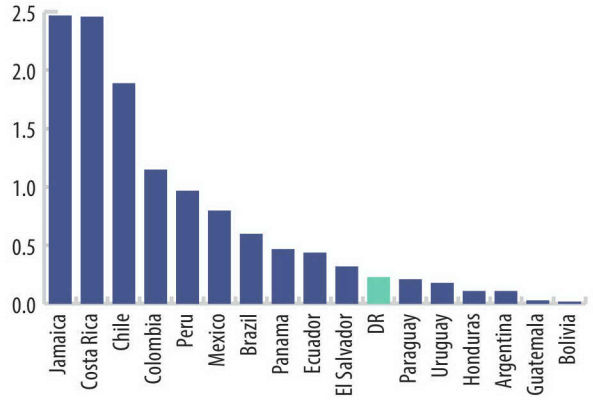
EPAs can also target their actions by the type of good exported. Volpe Martincus (2010) finds that EPAs abroad and diplomatic foreign missions have larger impact along extensive margins in heterogeneous goods[75] (75 percent of sectors for heterogeneous goods with positive impact) and the greatest impact was observed in textiles, yarns, fabrics, and related products. At the same time, foreign diplomatic missions have a positive effect on promoting homogeneous goods and commodities—among others, textile fibers, scrap metal, and non-monetary gold. Along these lines, CEI-RD could try to locate export-promotion offices in markets that import heterogeneous Dominican products (medical instruments, clothing), while diplomatic missions would continue to be the main representation in markets importing homogeneous goods (metal scrap, gold).

73 Francis and Collins-Dodd (2004) studied 183 Canadian high-tech SMEs and concluded that companies that export sporadically and actively benefit more from export assistance than established exporters. Similarly, Belloc and Maio (2011) as well as Volpe Martincus (2010) confirm that export-assistance programs were successful with companies that were not previously exporting. For example, the evidence from Australian Trade Commission (2002) indicates that 74 percent of companies that used export assistance succeeded, whereas the success rate stood at 16 percent for non-users. Mexico's experience suggests that companies find EPAs most relevant when they are in the initial stages of export activities (Belloc and Maio 2011).

74 According to data from CEI-RD officials, the institution supported 1,461 companies in 2012 and 1,261 in 2013, but no information was available on the size or nature of the firms.

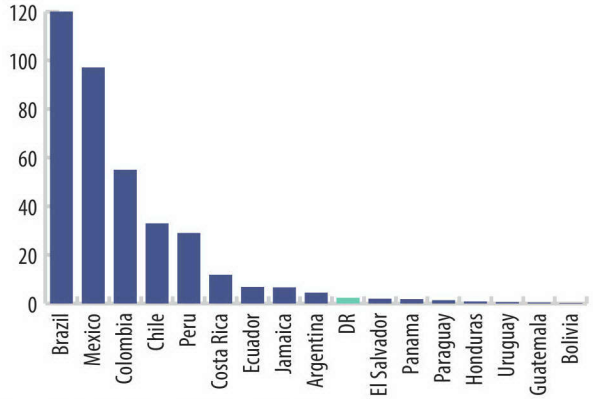
75 Homogeneous goods denote goods for which prices are set on an organized exchange--e.g. commodities. Heterogeneous goods have no reference price and the exchange of information is organized by agents.

Figure 28. EPA budgets per capita in LAC (in US$)



Source: Volpe Martincus (2010) and CEI-RD.

Figure 29. EPA budgets in LAC (in millions of US$)



Source: Volpe Martincus (2010) and CEI-RD.

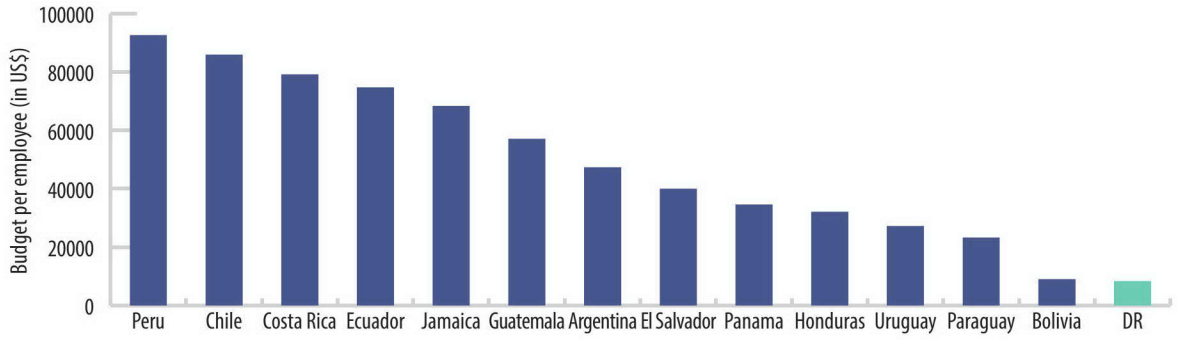
CEI-RD has offered products lines similar to other agencies in the region, but it has recently begun considering more innovative and tailored approaches. The services can be grouped in the following categories: (i) country image building (promotion of the Dominican export offering, receiving 3.7% of total budget); (ii) export support services (one-stop shop for exporters, technical assistance, specialized consulting services, ensuring the correct application of norms relating to export and investment promotion, and validation of certificates of origin, receiving 19.3% of total budget); (iii) marketing (trade fairs and missions, network of representatives abroad); (iv) market intelligence (product profiles and markets, legal and economic information). In recent months, CEI-RD has also been developing a more pro-active approach in the agricultural sector. For example, it directly contacts agricultural exporters whose containers were consistently rejected because they do not meet SPS requirements and offers them tailored support. Some LAC countries also offer additional services, such as formation of consortia of exporting SMEs in similar sector (Argentina) or assistance with product placements on international markets (Colombia) (Volpe Martincus 2010).

International research suggests that EPAs are able to improve their effectiveness when they offer bundled services and tailored approaches. Based on Colombian firm-level data, Volpe Martincus (2010) finds that a strategy combining counseling, assistance with trade agenda, and trade fairs and shows has greater effects on potential exporters than employing just one or two of the elements. Similarly, Kotabe (2001) finds that export assistance itself improved companies' profitability but failed to increase sales volume, suggesting that export promotion needs to be complemented with other supportive activities.[76] Trade shows seem to be relevant for developed markets but not so much for developing ones.[77] Since EPAs are more efficient when trade barriers are high, tailored market intelligence can benefit exporters. For instance, Mexico's experience suggests that companies find EPAs most relevant when providing information on foreign markets and financial assistance to SMEs (Belloc and Maio 2011). Seringhaus and Botschen (1991) confirm that helping companies plan their international engagement in a tailored way yields better results. In a similar fashion, Kotabe (2001) finds that programs succeed if they address specific needs and help companies overcome particular obstacles.

76 Kotabe works on a sample of US Midwestern states. For more, see Belloc and Maio (2011).

77 Evidence from the US shows that government-sponsored trade shows had a positive and significant effect on exports, while trade missions did not (Belloc and Maio 2011). Alvarez (2004) investigates Chilean exporters and finds that trade shows and missions do not have a significant impact on the probability to export but exporter committees do.

Figure 30. EPA budgets per employee (in US$)



Source: Volpe Martincus (2010) and CEI-RD.

CEI-RD has a budget slightly below the regional average, but the payroll burden leaves it with scarce resources compared to other EPAs in LAC. The CEI-RD budget of US$2.4 million was below the regional median and ranked ninth among 16 countries sampled (Figure 25). When population is taken into account, the budget per capita of CEI-RD of US$0.23 is below the regional median of US$0.4 (Figure 24). Finally, CEI-RD seems to have a significant payroll burden. Its ratio of EPA budget per its employee is the lowest among sampled countries. In 2013, the institution devoted 53.4% of its budget to payroll and employed 285 people, higher than the regional median (97) and similar to Brazil (214) and Colombia (281). Remuneration of CEI-RD employees is fixed and, although some EPAs such as PROEXPORT in Colombia offer a performance-based bonus, research has not found conclusive evidence that bonuses have an impact on employee performance. It is worth noting that we are comparing budgets with the caveat that attributions and legal mandates differ across agencies. For instance, Colombia's PROEXPORT only performs export-promotion duties, while CEI-RD is responsible for export and investment promotion.

CEI-RD's budget is entirely funded by the government, making it similar to other LAC countries, with exception of Mexico and Jamaica. Some EPAs in LAC are also funded from specific taxes; for instance, Peru's PROMPERU partly finances its tourism programs with tax receipts on airline tickets. EPAs in developed countries have larger budgets and reply on copayments from companies. Although research on how additional EPA resources impact export performance is not conclusive, Lederman et al (2009) studied 88 EPAs worldwide and found a significant positive impact of EPAs' overall budget on promotion activities on exports.[78] The authors estimate that a 10% increase in an EPA's budget for promoting exports can lead to a 0.6% increase of exports. However, increasing the resources of EPAs needs to be done with care because there are diminishing marginal returns. In addition, extra funds tend to have a larger impact on heterogeneous goods than on homogeneous goods.

Finally, a program aimed at fostering a strong EPA, with any public intervention, must be accompanied by a monitoring and evaluation program for export-promotion activities. The CEI-RD compiles an annual accounting of its activities undertaken and the

78 Export promotion is understood as all services offered by EPAs—from marketing to tailored advice. For instance, Danish Trade Council (DTC) reports indicate that an additional US$1 spent on DTC services leads to an additional US$217 in foreign sales (Belloc and Maio 2011). The US study finds that a US$1 increase in manufacturing promotion could lead to additional US$432 of manufacturing exports (Volpe Martincus 2010). On the other hand, another US study by Bernard and Jensen (2004) found export promotion expenditures had no impact on companies' probability of exporting.

number of companies accompanied; however, it would be desirable to go further and establish a well-defined monitoring and evaluation program. Nevertheless, it is worth acknowledging that EPAs in LAC and the developed world rarely measure the effectiveness of their programs and focus on input indicators, such as number of firms using each service or the number of responses to requests for support. Output indicators mostly consist of satisfaction surveys that have usually very low response rates and may be inflated because companies have an incentive to rate EPAs higher, hoping for more funds in the future. It is also worth noting that communication and reporting is an important aspect of the export-promotion activities. For instance, interviews with managers of Australian small businesses revealed that low efficiency of export-promotion programs can stem from lack of awareness about such programs.

Some countries in the region try to do more to monitor and evaluate EPA results. Chile's EPA, supported by the IDB, introduced a Balance Scorecard to map how each department is fulfilling its objective. Volpe Martincus (2010) propose two statistical methods to improve the quality of measuring EPAs' impact on exporters: (i) *difference-in-difference*, which assesses over time the differences between companies that used the service and ones that did not; and (ii) matching, which pairs a company that received support from EPA with a similar company that has been not assisted, then compares the outcomes.

To summarize, the Dominican Republic faces further liberalization of key sectors of the economy in 2015 in the context of DR-CAFTA implementation and WTO compliance, increasing the need to enhance trade competitiveness. With a year to go, the country seems to lack an overarching national strategy for trade competitiveness, export promotion and orientation, and investment attraction, and support to productivity and innovation. More precisely, the two-tier export basket in terms of sophistication and quality highlighted in the first chapter is mirrored in the country's institutional structure, which includes different and separate entities dealing with trade-related issues depending on the legal regime of the company or the nature of the issue. In the case of export-promotion activities, for example, at least three institutions are currently assuming this role, with overlaps. The Ministry of Industry and Trade's DICOEX is in charge of a program to help producers take full advantage of existing free trade agreements, something also done by the CNZFE. CEI-RD is trying to increase the competitiveness of Dominican exporters (generally outside SEZs but also inside) by offering tailored support, at the same time that promotes the attraction of investment outside SEZs. Meanwhile, CNZFE focuses its effors in attracting multinationals to SEZs. This structure implies the need for a high degree of coordination to avoid overlaps and may result in significant transaction costs that, in the end, hamper policy design and implementation.

Other institutional arrangements exist throughout the region and have proven to be efficient in certain cases. An empowered EPA—both in terms of legal mandate and funds for export promotion—might be a relevant option in the Dominican Republic. The CEI-RD could fulfill this role, but public support for exporters must be thoughtfully designed because experiences in developing countries have been uneven. Drawing from a review of regional and international best practices, authorities might consider the following principles when designing public programs to promote exports. First, EPAs make a greater impact when they address significant information shortages and are mostly successful in increasing the number of destination countries. In fact, the higher the trade barriers, the more effective EPAs. Second, EPAs improve their effectiveness when they offer bundled services and tailored approaches. This can include supporting the formation of consortia of exporting SMEs in similar sectors, partly financing their management during the first years or helping SMEs place their products on international markets, including searching for foreign buyers. Actually, CEI-RD is moving towards a more tailored and pro-active approach with its recent support brought to agricultural exporters to help comply with SPS norms.

Having a strengthened (and unified) EPA for promoting exports and attracting investment could result in a much more effective use of public resources devoted to these activities in the Dominican Republic. The EPA would work both inside and outside SEZs, with well-defined programs and targeting specific sectors and/or destination markets. To converge into this model EPA, it will be necessary to clarify the role of the various institutions dealing with export promotion and better balance the EPA budget so payroll does not represent a burden that limits available resources for export-promotion activities.

More immediately, the relevant actors in the Dominican Republic would need to agree on a strategy for foreign trade competitiveness. To pave the way towards that eventual better empowered EPA, as it has been discussed in subsection c. 1, *Institutional Architecture in the Dominican Republic: A Dual Structure*, relevant public and private sector bodies shout start aligning strategic plans, establishing standards and procedures for attracting investment (avoiding arbitrary benefits and unequal treatment), and coordinating export promotion efforts, as well as other resources (such as information or access to financing). The idea would be to make a set of well-coordinated *horizontal* policies and tools available for actors both inside and outside free trade zones. It would be equally important to explicitly support in that strategy the definition of public policies supporting productivity improvements and innovation. Related to this, there could be certain space for the specification of *vertical* policies focused in key sectors, probably those that are more likely to generate positive externalities for the rest of the economy (technology transfer, learning by doing, forward and backward linkages, etc.).

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ANNEXES

ANNEX 1: COMPARISON BETWEEN DOMINICAN CUSTOMS REGISTRIES AND COMTRADE DATA

Figure 31: Total annual export value from firm-level data as a share of mirror COMTRADE total value (%)

Year	All products	No Oil Products
2007	83	88
2008	87	95
2009	106	106
2010	113	111
2011	104	104
2012	105	98

Source: Author's calculations using DGA data and COMTRADE.

ANNEX 2: THE MARGINS OF TRADE AND THEIR CONTRIBUTION TO EXPORT GROWTH—DECOMPOSING THE EXTENSIVE MARGIN IN THE NATIONAL REGIME OF THE DOMINICAN REPUBLIC

Export growth is computed using the so-called "mid-point growth rate" (Davis and Haltiwanger, 1992; as applied to firm-level exports by Bricongne et al., 2011 and Reyes and Taglioni, 2012). A main advantage of this methodology is that it allows estimating growth rates associated with newly created or destroyed flows. Other methodologies that use normal growth rates are unable to do so; for this reason, they rely on probabilistic methodologies to quantify the impact of determinants of exports at the extensive margin.

Mid-point growth rates are computed as follows. For a firm *i* exporting a value *x* to a country *c* of product k at year *t*, the mid-point growth rate is defined as:

$$g_{ickt} = \frac{x_{ickt} - x_{ick(t-1)}}{\frac{1}{2}\left(x_{ickt} + x_{ick(t-1)}\right)}$$

This growth rate measure is symmetric around zero, and it lies in the closed interval [-2,2] with exits (entries) corresponding to the left (right) endpoint. Similarly, the weight attributed to each flow gickt is given by the relative share of the flow in total exports (the exports of the whole population of a country's firms):

$$s_{ickt} = \frac{x_{ickt} + x_{ick(t-1)}}{\left(\sum_c \sum_i \sum_k x_{ickt} + x \sum_c \sum_i \sum_k x_{ick(t-1)}\right)}$$

Finally, the year-on-year growth rate of the total export value is given by summing each individual flow g_{ickt} weighted by s_{ickt}:

$$G_t = \sum_c \sum_i \sum_k s_{ickt} * g_{ickt}$$

The G measure is monotonically related to the conventional growth rate measure (g_{rt}), and it represents a good approximation of the latter for small growth rates. Both growth measures are linked by the following identity:

$$G_t \approx \frac{2gr_t}{(2 - gr_t)}$$

At the aggregate level, the index well approximates the standard measures of growth rate.

In the Dominican Republic, non-SEZ exporters show high dynamism in terms of the entry and exit of firms, products, and markets. To provide more precise and detailed information on the patterns emerging from the decomposition of export growth for firms outside SEZs, Table 14 reports actual contribution to overall year-to-year export growth in 2010-12 and each margin of trade. Within each margin, we further report the composition of entries and exits. The data have been computed using the so-called "mid-point growth rate" and correcting for the bias induced by the partial-year effect in the entry of new export relationships. The table reads as follows: In each column, we report the contribution of each margin (in percentages) to the year-to-year annual growth rate. For example, looking at annual growth between 2009 and 2010 (first data column), the first row reports that changes within established export relationships (firm-product-destination) contributed a net 75.8% to total export growth. This number is the difference between increments of total export growth within export relationships (169.8%) and reductions within those relationships (94.1%). Subsequent rows replicate this analysis for the different dimension of the extensive margin. The first dimension is the contribution of firm churning. The decline in export growth due

Table 14: Complete decomposition of export growth along the margins of trade Non-SEZ Exports (% of observed export growth)

		2010	2011	2012
Intensive Margin		**75.8**	**29.9**	**6.7**
	Intensive Positive	169.8	160.5	208.1
	Intensive Negative	-94.1	-130.6	-201.4
Extensive Margin		**24.2**	**70.1**	**93.3**
Net Firms		**13.4**	**17.3**	**44.0**
	Firm Entry	50.2	25.2	68.5
	Firm Exit	-36.8	-7.8	-24.5
Net Country		**2.5**	**38.2**	**2.7**
	Country Entry	15.7	56.2	35.8
	Country Exit	-13.3	-18.0	-33.0
Net Products		**8.4**	**14.6**	**46.6**
	Product Entry	24.9	70.7	261.7
	Product Exit	-16.5	-56.1	-215.1

Note: This table decomposes annual export growth into changes in established export relationship (intensive margin) and changes in new export relationships (extensive margin). The extensive margin is divided into three mutually exclusive categories: (i) export growth due to new firms entering (exiting) exporting markets; (ii) export growth due to established exporters entering (exiting) into (from) new market; and (iii) export growth due to established exporters adding (dropping) a product into an existing market. Growth rates are computed from data in US dollars. Source: Authors' calculations based on DGA data.

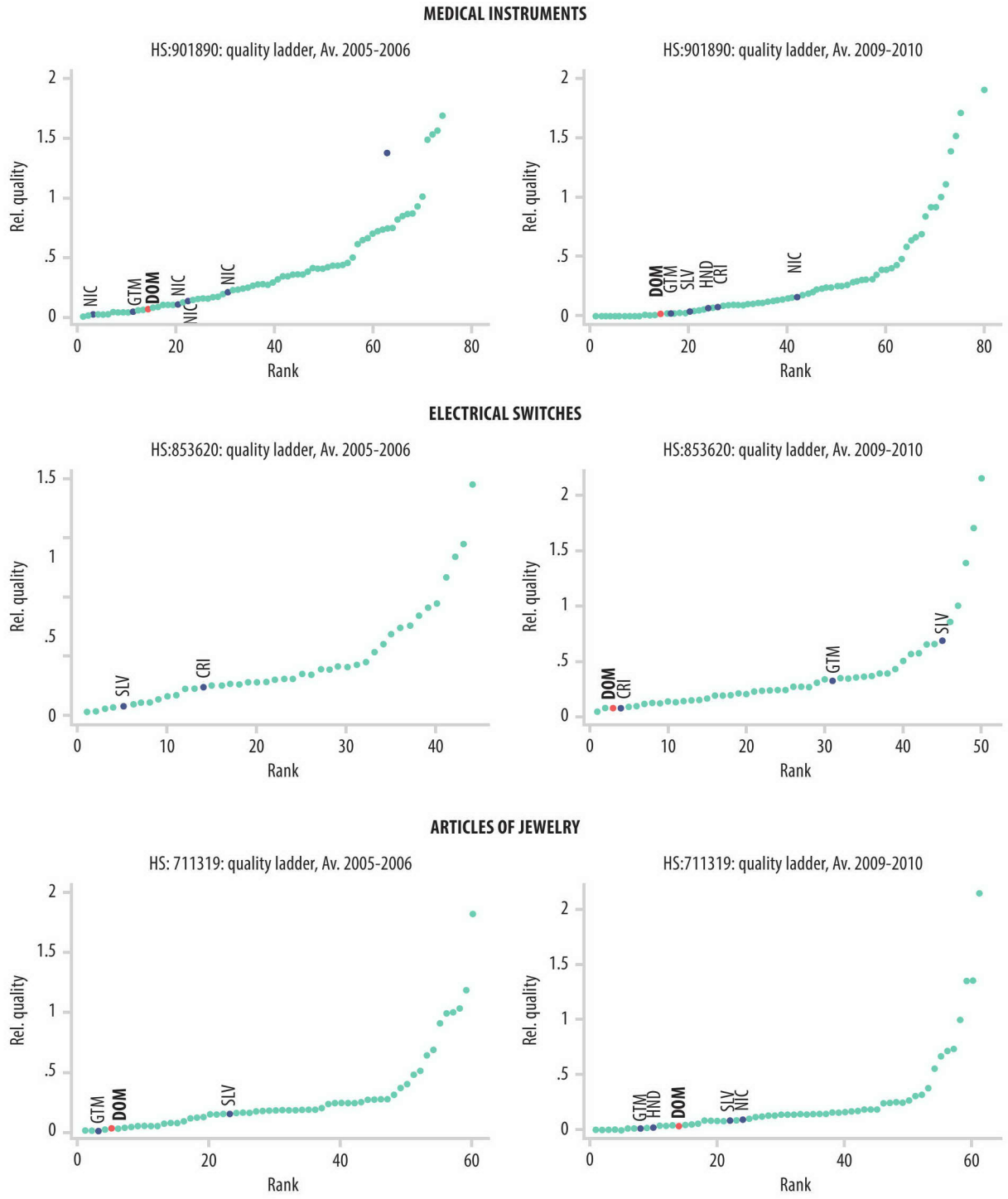
to the exit of firms from exporting represented 36.8% of overall export value and the gain due to entry was equal to 50.2%—so the net contribution of firm churning was 13.4%. The decision of existing exporters to enter new foreign markets (country entry) or to exit those markets (country exit) contributed 2.6% to total export growth. In this case, entry into new markets brought 15.7% export growth, partly offset by exits that accounted for a loss of 13.3% of export growth. Next, we look at the decision of existing exporters to expand their product range in markets they already serve (product entry) or to reduce their offerings (product exit). The net contribution of product churning is 8.4% of export growth. The sum of the net contribution of firm, country, and product extensive margin gives the overall extensive margin.[79] In the case, we find it accounts for 24.2% of total growth in export value.[80]

79 This decomposition involves a hierarchy along the different dimensions of the extensive margin. That is to say, country entry and exit is contingent on a firm already being an exporter, and product entry and exit is contingent on a firm already being an exporter serving the same market. In this way, we prevent double counting of new export relationships. We keep this pecking order throughout the report.

80 Note that the contributions along the intensive and extensive margins sum to 100.

ANNEX 3: QUALITY LADDERS FOR MAIN PRODUCTS EXPORTED FROM SEZS

Figure 32. Quality ladders for Top 3 manufactured products



Source: Authors' calculations using CEPII data.

ANNEX 4: NEW ACCESS TO THE US FOR CAFTA COUNTRIES

CAFTA country	Product	Year of entry of new product	CAFTA country	Product	Year of entry of new product
The Dominican Republic	--	--	Costa Rica	Brassica spp.	2001
Guatemala	Rhubarb	1998		Papaya	2001
	Papaya	2001		Rambutan	2003
	Rambutan	2003		Pepper	2006
	Lotus root	2003		Tomato	2006
	Tomato	2006	Nicaragua	Green bean	1997
	Pepper	2006		Mung bean	1997
El Salvador	Bean, garden	1995		Faba bean	1997
	Eggplant	1997		Radicchio	1997
	Brassica spp.	1998		Eggplant	1997
	Papaya	2001		Parsley	1998
	Lotus root	2003		Brassica spp.	1998
	Rambutan	2003		Papaya	2001
	Loroco	2003		Yam bean	2003
	Yam bean	2003		Yard-long bean	2003
	Parsley	2003		Rambutan	2003
	Pepper	2006		Lotus root	2003
	Tomato	2006		Loroco	2003
	Cichorium spp.	2006		Tomato	2006
				Pepper	2006

Note: This table lists all products that have been granted access to the US from CAFTA-DR countries over the last 20 years.
Source: Authors collection using the US Fruits and Vegetables Import Requirements (FAVIR) database (http://www.aphis.usda.gov/favir/).

ANNEX 5: TECHNICAL APPENDIX TO PART I, TRADE OUTCOMES ANALYSIS

1. Measuring Extensive Margin Correcting for Partial-Year Effect

International trade research finds that exporters start small and grow very rapidly in their first year in foreign markets (for example, Eaton, Eslava, Kugler and Tybout (2008) for Colombian exporters, Lawless (2009) for Irish exporters, Buono and Fadinger (2012) for French exporters, Molina, Bussolo and Iacovone (2010) for the Dominican Republic, and Cebeci, Fernandes, Freund, and Pierola (2012) for a cross-country analysis). This "stylized" fact is established by collapsing all export transaction at the firm level in a given calendar year. Bernard, Massari, Reyes, and Taglioni (2014) show that these findings are largely explained by the fact that exporters enter the market throughout the year and only part of the first year sales are recorded in the calendar year of entry. Two otherwise identical firms that enter the same market in different months, one in January and one in December, will report dramatically different annual sales for the first calendar year of operations. This partial-year effect in annual data leads to downwardly biased observations of the level of activity upon entry and the following year. Using Peruvian export data, the authors find that the partial-year bias is substantially high: the average level of first-year export of new exporters is understated by 65%, and the average growth rate between the first and second year of exporting is overstated by 112%. As a consequence, the use of annual data largely understates the contribution of the extensive margin in annual export growth. We correct for partial-year effects by collapsing total export value at the firm-product-destination level by year of operation of the firm. Therefore, a firm that enters a market in December would receive the value of exports between December and November of the following year as its first-year export value.

2. Benchmarking Bilateral Export Relationships Using a Gravity Model of Trade

We use a theory-grounded gravity model to evaluate the Dominican Republic's pair-wise export relationships with their trading partners. The gravity model has been extensively used in international trade due to its intuitive empirical and theoretical appeal. Anderson and van Wincoop (2003), Feenstra (2004), and Baldwin and Taglioni (2006), among others, present exhaustive reviews of research on the gravity equation as applied to international trade. Our specification of the gravity model follows the micro-founded model of Helpman, Melitz, and Rubinsten (2008). Specifically, we regress 2006-12 bilateral exports among 213 countries on the following bilateral characteristics: distance, contiguity, common language, colony, common colonial power, as well as log of GDP, and log of GDP per capita. The model incorporates three main components: First, a measure of remoteness is computed by summing distances weighted by the share of GDP of the destination in world GDP. This is to take note of the fact that relative distances matter greatly, alongside absolute distances. Second, we control for zero trade flows with the use of the Heckman sample selection correction method. When observations with non-existent bilateral trade are dropped, as OLS does, our dependent variable is not really measuring bilateral trade but one contingent on a relationship existing. Therefore, an important variable left out of the model is the probability of being included in the sample; i.e., having a non-zero trade flow. To the extent that the probability of selection is correlated with GDP or distance, this has the potential to bias OLS estimates. Third, we control for firm heterogeneity without using firm-level data by recognizing the fact that the features of marginal exporters can be inferred from the export destinations reached. With these steps, the gravity results are better grounded on modern trade theory.

3. Export Sophistication and Complexity – Measurement and Caveats

Calculating export sophistication (EXPY) is a two-stage process. The first stage involves measuring the income level associated with each product in the world (PRODY). The PRODY of a particular product is the GDP per capita of the typical country that exports it, calculated by weighting the GDP per capita of all countries exporting the good. The weight given to each country is based on revealed comparative advantage. The PRODY for a single product is calculated by weighting the GDP per capita of all countries exporting that product. Therefore, a product that typically makes up a large percentage of a poor country's export basket will have stronger weights towards poor countries' GDP per capita. This will be less the case for a product that makes up a small percentage of a poor country's exports but is a significant component of many rich countries' export baskets.

The second stage is to measure the income associated with a country's export basket as a whole (EXPY). The EXPY is calculated by weighting these PRODY of each product by the share that each good contributes to total exports. For example, if butter makes up 15% of a country's exports, its PRODY will be given a weight of 0.15. Countries whose export baskets are made up of "rich-country goods" will have a higher EXPY, while export baskets made up of "poor-country goods" will have a lower EXPY.

$$PRODY_k = \sum_j \frac{\left(\frac{x_{jk}}{X_j}\right)}{\sum_j \frac{x_{jk}}{X_j}} Y_j \quad and \quad EXPY_i = \sum_k \left(\frac{x_{ik}}{X_i}\right) PRODY_k$$

The concepts of PRODY and EXPY are, however, not free of criticism. The PRODY of some products are counter-intuitively high, suggesting sophistication in products merely because rich countries produce them. Bacon and ham, for example, have a higher PRODY than internal combustion engines. Further, the quality of products varies—cars from Country X may not be the same quality as cars from Country Y (even if they all have an identical code at the HS six-digit level). When product quality is not taken into account, EXPY overestimates the importance of sophisticated products from low-income countries. Xu (2007) shows that once products at the HS six–digit level are further divided by relative unit values, the structure of China's exports is consistent with its level of development. This has led authors like Lederman and Maloney (2012) to point out that how a country produces an export matters more than what it produces. Seemingly high-tech products like computers can be produced in low-tech ways and vice-versa.

The fragmentation of production poses another problem. While the final export of a sophisticated product might be from a low-income country, its contribution might have just been in the final assembly of high-value intermediate inputs made elsewhere. One should not, therefore, lose sight of the entire value chain and explore which stage of production creates and captures the greatest value. If computers are deemed not to be sophisticated because the final assembled package is exported from a low-income country, the innards could be highly skill-intensive, possibly imported from richer countries. Koopman et al. (2008) estimate the foreign content in China's exports to be about 50% overall and 80% percent in sophisticated products like electronic devices. In the well-known example of the iPod, an overwhelming share of the final assembled value of an iPod exported from China is captured by the creators of intellectual property, not in the form of wages earned by the assemblers.

More recently, Hausmann, Hidalgo et al (2011) have improved on this measure by moving away from the reliance of PRODY and EXPY on the income levels of countries. Under the new approach—the Product Complexity Index—complexity is not a function of countries' incomes; instead, it is calculated through an iterative process based on the countries' network of relationships and the products they export. Specifically, under this new approach the complexity of a country's export basked is a function of two concepts: (i) the diversity of products it produces (i.e. the number of distinct products that it makes); and (ii) the ubiquity of those products (i.e. how many other countries

make that product). It is generally observed that a county that can produce a complex product that few other countries are able to produce will also produce a wide range of non-complex products; the opposite is rare. Thus, a product made by only a few countries that also produce a wide range of other products is relatively complex. In contrast, a product that is produced by most countries, including those that produce few other products, is less complex.

4. Relative Quality of Export Products—Measurement and Caveats

Goods in the same product category vary widely in quality, a fact proxied by unit values (the ratio of values to quantities shipped, or nominal sales divided by quantity). A key finding of research on within-product specialization is the large differences in unit values across countries, even within narrowly defined products shipped to the same market within the same year. Moreover, these differences are persistent over time.

A key challenge for international economics in recent years has been establishing the reasons for this variation in unit values across countries and across firms serving the same destination. One dominant assumption is that unit-value differences may be due to vertical differentiation in the form of quality differences. According to this reasoning, if two firms serve the same destination with the same narrowly defined product and they manage to do so by selling their products at substantially different price levels, it suggests a substantial quality difference in what these two firms sell. If the goods were equal in quality, the reasoning goes, competition should eliminate price differences. However, there are several possible alternative explanations. First, it is possible that bilateral trade data—even at the finest level of disaggregation allowed by international trade classifications—are too coarse to capture the fact that different countries and different firms are really specializing in different goods. They only appear to be the same product because international trade statistics use commodity classification that are too aggregate. Second, price differences could reflect quality perceptions influenced by advertising or reputation, rather than intrinsic characteristics of the goods traded—and some argue that this should not be considered quality differentiation. Third, price differences and dynamics could be attributable to market structure, i.e. heterogeneity in market power.

With these caveats in mind, we propose a method to exploit the information from unit values. It relies on the Export Unit Values database from the French Centre for Research and Studies on the World Economy (CEPII) (Berthou and Emlinger, 2011) to characterize the relative unit values of agricultural imports in the US. As in Schott (2004), unit values were calculated simply as the quotient of general imports values and quantities. Within any product (six-digit HS codes) for any given year, we then have a distribution of unit values of imports from various source countries. For each good i and exporting country c, in time year t, we generate a measure of relative quality R as:

$$R_{itc} = \frac{uv_{itc}}{uv_{it}^{90}}$$

Where u_{itc} denotes de unit value of the good and u^{90}_{it} denotes the value at the 90th percentile of the unit value distribution across countries for that product. R_{itc} denotes the relative quality of the country's export of that good, i.e., quality relative to other countries exporting the same good.

ANNEX 6: DOMINICAN EXPORTERS - RESULTS FROM THE ENTERPRISE SURVEY

An analysis of micro data using World Bank Enterprise Surveys reveals other barriers for Dominican exporters. This report has thoroughly assessed three bottlenecks for export competitiveness: agro exporters' difficulty in complying with SPS standards, a two-tier export basket with limited linkages between SEZs and the domestic economy, and fragmented institutional support efforts. In this section, we briefly look at other potential constraints that emerged in meetings with stakeholders but could not be included in this assessment. Some were beyond the scope of the study (electricity sector and labor market factors factors), others were already covered in a number of studies (transport and logistics). To briefly review these and other issues of the business environment, we have used World Bank-IFC Enterprise Surveys to compare the obstacles faced by Dominican exporters with those in other parts of the world. Results are presented in tables at the end of this annex.

Dominican exporting companies are younger but larger than those of its neighbors. Measured by the number of workers, Dominican exporters tend to be larger than the country's non-exporters and exporting peers from other regions—with the exception of South Asia (SAR). The Dominican Republic joins the East Asia and Pacific region in having exporters with a higher percentage of foreign ownership than the Caribbean, Central America, South America (plus Mexico), and Europe and Central Asia. This is likely the result of a large presence of foreign companies in SEZs. At the same time, average Dominican exporters are younger, with seven fewer years in operation than Caribbean exporters, six fewer years than Central American exporters, and 10 fewer years than South American exporters. However, Dominican export firms' managers have average years of experience that is similar to other countries in the region.

Access to reliable electricity seems to be the most pronounced infrastructure obstacle for Dominican exporters. According to surveyed exporters, wait times to obtain electricity connections are similar to other parts of the world at an average of 40 days—except for the Caribbean (18 days). However, power outages average 16 a month, much more frequent than in other regions, with the exception of the Middle East and SAR (the developing world average is 10). In addition, Dominican companies reported on average of 2.1 water insufficiencies a month, compared to 0.6 in Latin America. Exporters also consider electricity as more of an obstacle to daily operations than in other parts of the world, except for Central America. A range of problems plague the electricity sector—from high technical losses in distribution to insufficient payment recovery, customer fraud, and high variance in the price of energy purchases from private generators. Several studies discuss in more detail some of the current challenges in the electricity sector (for instance, Manzano et al, 2013; Rufín et al, 2014; World Bank, 2014).

The Dominican telecommunications infrastructure is generally perceived to be as good as most other parts of the world—and, in fact, better than the rest of the Caribbean. In turn, the transportation infrastructure is more of an obstacle in the Dominican Republic than in other Caribbean islands—but no more than in the overall Central America and Caribbean region. It is nonetheless worth noting that Dominican gasoline prices are higher than in any other CAFTA-DR members; the pump price is at around $1.58 per liter, significantly higher than the $0.97 per liter in the US.[81] This study has not focused in transportation and logistics because other donors, such as the Inter-American Development Bank (among others, SIRA-BID, 2011) and USAID (2005; 2008, have already produced several assessments on the topic.

On the institutional side, Dominican exporters seem to mainly face tax administration and informality hurdles.

81 http://data.worldbank.org/indicator/EP.PMP.SGAS.CD.

Tax rates and tax administration are perceived as more of an obstacle in the Dominican Republic than in other parts of the world. Taxes seem to be especially burdensome for service exporters, and less so for exporters of manufactured products. When compared to non-exporters, Dominican exporting companies see competition from the informal sector as more of a constraint. Other institutional factors, such as access to finance and business licensing and permits, are not perceived by Dominican exporters as more of an obstacle than in other regions, although other Dominican companies regard these issues as significant constraints. Dominican exporters perceive the court system as fairer than their counterparts in Central America, but Dominican exporters lag other Caribbean countries on this metric.

The limited availability of highly skilled human capital may be a constraint in the future. Dominican exporting companies have the region's lowest percentage of workers with high school diplomas (with the exception of MENA) and the lowest percentage of skilled workers—on average, 39% in the Dominican Republic, compared to 60% in Central America, 63% in the Caribbean, and 60% in South America. Dominican exporters perceive the lack of adequately educated workforce as more of an obstacle than their counterparts in Central America, East Asia and Pacific, and Europe and Central Asia. This is striking since, as concluded in the Trade Outcomes Analysis (part I of this report), the Dominican Republic exports products that are relatively more sophisticated than other countries in Central America. The lack of a skilled pool of workers may hamper the chances of Dominican exporters to further climb the value added ladder.

Finally, lack of improvement of the Dominican Doing Business ratings could result in the country and its SEZs being perceived as less attractive by foreign investors.[82] According to the World Bank's latest Doing Business indicators, the Dominican Republic's relative rank among 189 economies has dropped from 112nd in 2013 to 117th in 2014. Doing Business dimensions in which the Dominican Republic has more room for improvement are: resolving insolvency (159th out of 189 countries), starting a business (144th), dealing with construction permits (121st), registering property (115th), paying taxes (106th), and protecting investors (98th). The World Bank is currently supporting the Dominican Republic through technical assistance in some of these dimensions.

82 http://www.doingbusiness.org/data/exploreeconomies/dominican-republic/.

Table 15: Characteristics of Dominican companies compared to the world and regions

	DR (360)	World (64,925)	CA (4,313)	CAR/1 (2,421)	SAM (18,493)	AFR (15,875)	EAP (4,952)	ECA (13,286)	MNA (1,233)	SAR (4,202)	DR vs World ttest (p)	DR vs CAR ttest (p)	DR vs CA ttest (p)	DR vs SAM ttest (p)	DR vs EAP ttest (p)	DR vs ECA ttest (p)
Size of a company (1-3, 3=large)	1.99	1.72	1.80	1.65	1.82	1.47	1.80	1.87	1.33	1.76	0.000***	0.000***	0.000***	0.000***	0.000***	0.006***
% foreign owned	12.87	9.67	10.94	11.77	8.53	13.48	12.75	7.55	1.31	2.22	0.031**	0.513	0.245	0.002***	0.945	0.000***
Manager experience (years)	20.78	17.57	21.05	18.06	22.18	13.17	15.60	16.71	15.07	16.32	0.000***	0.000***	0.673	0.032**	0.000***	0.000***
% of exporters	0.20	0.22	0.27	0.26	0.27	0.12	0.24	0.28	0.07	0.22	0.273	0.010**	0.002***	0.008***	0.107	0.001***
Quality certificates	0.18	0.19	0.17	0.18	0.21	0.15	0.19	0.27	0.07	0.13	0.604	0.897	0.424	0.161	0.713	0.000***
Years of operations	20.20	18.56	23.09	22.54	23.87	14.08	16.09	16.06	13.60	17.56	0.073*	0.049**	0.002***	0.001***	0.000***	0.000***
Days to receive an electrical conn.	35.72	34.50	37.51	19.46	34.38	24.83	26.04	46.58	62.18	60.03	0.900	0.022**	0.863	0.872	0.211	0.351
Power outages/month in last year	26.46	13.56	4.62	3.28	2.30	12.63	2.43	6.11	87.01	54.26	0.064*	0.000***	0.000***	0.000***	0.000***	0.000***
Days to obtain a water connection	25.14	36.45	49.85	40.96	41.66	25.49	25.32	40.19	42.60	61.88	0.604	0.659	0.264	0.389	0.986	0.574
Days to get a telephone connection	9.76	22.77	47.58	17.89	18.46	23.87	11.17	20.31	55.92	43.74	0.092*	0.057*	0.017**	0.053*	0.689	0.112
Obs: electricity	2.35	1.92	2.14	1.82	1.78	2.30	1.21	1.58	2.89	2.52	0.000***	0.000***	0.011**	0.000***	0.000***	0.000***
Obs: telecommunications	1.34	1.14	1.77	1.15	1.45	0.82	0.64	1.23	1.11	0.86	0.003***	0.004***	0.000***	0.161	0.000***	0.156
% of national sales to total sales	89.80	90.40	88.40	88.35	91.51	95.46	84.82	87.49	97.09	83.31	0.649	0.324	0.333	0.140	0.005***	0.117
% of indirect exports to sales	3.54	2.59	3.51	3.42	2.20	1.50	4.50	2.79	1.47	4.58	0.159	0.888	0.971	0.023**	0.334	0.273
% of direct exports to sales	6.66	7.02	8.09	8.21	6.28	3.02	11.19	9.71	1.44	12.20	0.749	0.197	0.240	0.706	0.003***	0.020**
Avg days to clear customs in 2007	60.03	6.51	5.39	8.31	7.72	7.01	6.32	4.50	8.97	7.56	0.000***	0.005***	0.000***	0.000***	0.000***	0.000***
% of inputs of foreign origin	50.44	31.19	41.53	40.32	31.13	30.78	25.16	34.82	31.88	21.63	0.000***	0.005***	0.012**	0.000***	0.000***	0.000***
Obs: transportation	1.43	1.30	1.50	1.27	1.37	1.45	0.92	1.14	1.61	1.16	0.086	0.032**	0.343	0.399	0.000***	0.000***
Obs: customs and trade regulations?	1.11	1.04	1.10	1.55	1.12	1.04	0.68	0.94	1.20	1.02	0.319	0.000***	0.836	0.947	0.000***	0.014**
Obs: the informal sector competitors	1.94	1.69	1.89	1.43	1.99	1.71	1.11	1.56	1.96	1.17	0.001***	0.000***	0.447	0.570	0.000***	0.000***
Obs: access to land	0.90	1.10	0.96	1.00	0.89	1.26	0.79	1.12	2.25	1.63	0.005***	0.147	0.448	0.843	0.089*	0.004***
Obs: crime, theft and disorder	1.86	1.50	1.94	1.76	1.66	1.52	0.72	1.38	1.95	1.23	0.000***	0.161	0.305	0.004***	0.000***	0.000***
T he court system is fair	1.88	2.13	1.75	2.47	1.89	2.32	2.54	2.18	1.95	2.07	0.000***	0.000***	0.007***	0.798	0.000***	0.000***
% mang. time to deal with regulations?	11.62	12.14	14.02	6.05	17.33	7.78	6.80	14.88	10.76	5.17	0.615	0.000***	0.042**	0.000***	0.000***	0.003***
% annual sales as informal payments	0.34	1.66	1.21	0.18	1.28	2.33	0.72	2.72	3.71	1.21	0.000***	0.067*	0.007***	0.003***	0.075*	0.000***
Number of inspections	5.46	4.09	4.56	2.93	4.26	4.50	2.47	4.35	6.24	2.32	0.456	0.039**	0.547	0.268	0.000***	0.733
Days to obtain an import license	52.24	20.56	19.73	11.67	27.61	19.25	14.69	17.41	21.79	11.07	0.000***	0.000***	0.000***	0.002***	0.000***	0.000***
Days to obtain an operating license	78.79	33.07	45.60	13.04	65.75	26.63	14.22	33.83	22.10	9.04	0.043**	0.000***	0.037**	0.580	0.000***	0.000***
Obs : tax rates	2.28	1.85	1.70	2.08	1.99	1.76	1.02	2.12	2.12	1.60	0.000***	0.004***	0.000***	0.000***	0.000***	0.018**
Obs : tax administrations	1.90	1.51	1.49	1.52	1.77	1.40	0.85	1.47	1.88	1.49	0.000***	0.000***	0.000***	0.048**	0.000***	0.000***
Obs : business licensing and permits	1.20	1.19	1.25	1.06	1.37	1.13	0.60	1.20	1.60	1.14	0.852	0.023**	0.478	0.011**	0.000***	0.977
Obs: political instability	1.80	1.70	2.10	1.22	1.99	1.21	0.83	1.89	2.68	2.32	0.220	0.000***	0.000***	0.012**	0.000***	0.237
Obs: corruption	2.44	1.86	2.42	1.51	2.17	1.60	1.02	1.77	2.86	2.02	0.000***	0.000***	0.807	0.001***	0.000***	0.000***
OBs: access to finance	1.51	1.65	1.57	1.83	1.58	2.04	1.08	1.52	1.93	1.55	0.061*	0.000***	0.456	0.338	0.000***	0.888
% of workers with high school	59.61	68.37	56.11	75.67	77.53	71.45	.	.	21.20	53.17	0.000***	0.000***	0.085*	0.000***	-	-
Obs: labour regulations	1.56	1.09	1.05	1.05	1.65	0.77	0.58	0.99	1.22	0.77	0.000***	0.000***	0.000***	0.218	0.000***	0.000***
Obs: inadequately educated wokforce	2.00	1.53	1.65	1.87	1.93	1.11	0.87	1.70	1.51	1.22	0.000***	0.074*	0.000***	0.320	0.000***	0.000***
% skilled workers	0.52	0.67	0.63	0.63	0.63	0.64	0.79	0.72	0.77	0.78	0.000***	0.003***	0.000***	0.001***	0.000***	0.000***

Table 16: Characteristics of Dominican exporters compared to the world and regions

	DR (74)	World (14,951)	CA (1,195)	CAR/1 (656)	SAM (4,964)	AFR (1,947)	EAP (1,361)	ECA (3,757)	MNA (85)	SAR (962)	RD vs World ttest (p)	DR vs CAR ttest (p)	DR vs CA ttest (p)	DR vs SAM ttest (p)	DR vs EAP ttest (p)	DR vs ECA ttest (p)
Size of a company (1-3, 3=large)	2.49	2.22	2.27	1.85	2.26	2.06	2.30	2.22	1.89	2.47	0.003***	0.000***	0.013**	0.009***	0.035**	0.003***
% foreign owned	30.06	18.46	20.77	18.01	17.20	27.47	30.41	14.21	6.67	4.38	0.007***	0.006***	0.050*	0.003***	0.947	0.000***
Manager experience (years)	19.47	19.85	20.85	18.91	23.56	16.85	16.76	18.17	16.36	17.49	0.776	0.700	0.300	0.004***	0.028**	0.300
Quality certificates	0.32	0.39	0.29	0.29	0.42	0.35	0.38	0.46	0.29	0.33	0.215	0.517	0.493	0.110	0.331	0.018**
Years of operations	19.08	23.42	25.33	26.38	29.23	21.04	16.92	19.39	15.89	19.54	0.077*	0.024**	0.005***	0.000***	0.172	0.893
Days to receive an electrical conn.	40.77	45.60	41.43	17.97	46.03	39.55	30.40	54.12	385.00	64.88	0.857	0.019**	0.970	0.810	0.539	0.622
Power outages/month in last year	16.40	10.15	4.42	3.24	2.02	9.58	2.30	4.64	46.17	60.45	0.082*	0.000***	0.000***	0.000***	0.000***	0.000***
Days to obtain a water connection	35.86	43.18	70.34	68.57	44.79	37.38	21.00	39.98	176.13	53.48	0.859	0.781	0.605	0.725	0.247	0.903
Days to get a telephone connection	8.05	23.05	34.59	20.75	20.47	28.48	10.57	18.78	155.20	76.81	0.374	0.424	0.371	0.231	0.789	0.309
Obs: electricity	2.36	1.86	2.23	1.90	1.79	2.28	1.43	1.54	2.65	2.64	0.005***	0.007***	0.443	0.002***	0.000***	0.000***
Obs: telecommunications	1.34	1.35	1.98	1.15	1.51	1.00	0.85	1.36	2.13	0.92	0.951	0.214	0.000***	0.326	0.006***	0.922
% of national sales to total sales	49.31	57.99	57.87	56.19	68.27	62.30	44.03	55.40	57.31	26.89	0.042***	0.102	0.045**	0.000***	0.286	0.153
% of indirect exports to sales	17.60	11.50	12.75	12.95	8.25	12.54	18.29	9.94	21.49	20.98	0.037**	0.161	0.137	0.000***	0.863	0.005***
% of direct exports to sales	33.10	31.20	29.38	30.99	23.48	25.35	45.43	34.62	21.14	57.74	0.651	0.598	0.372	0.008***	0.016**	0.721
Avg days to clear customs in 2007	60.03	6.51	5.39	8.31	7.72	7.01	6.32	4.50	8.97	7.58	0.000***	0.005***	0.000***	0.000***	0.000***	0.000***
% of inputs of foreign origin	57.65	42.95	53.22	48.15	37.26	48.39	47.04	43.65	55.98	39.25	0.008***	0.108	0.419	0.000***	0.085*	0.014**
Obs: transportation	1.64	1.38	1.67	1.33	1.50	1.62	1.09	1.13	1.83	1.24	0.085*	0.043**	0.851	0.329	0.000***	0.001***
Obs: customs and trade regulations?	1.49	1.38	1.58	1.74	1.56	1.46	0.97	1.13	1.97	1.26	0.483	0.133	0.528	0.612	0.000***	0.019**
Obs: the informal sector competitors	1.65	1.54	1.74	1.19	1.86	1.58	0.91	1.42	2.24	0.92	0.511	0.006***	0.573	0.194	0.000***	0.161
Obs: access to land	0.75	0.98	0.89	0.87	0.91	1.11	0.77	0.92	2.15	1.68	0.129	0.409	0.352	0.257	0.882	0.293
Obs: crime, theft and disorder	1.64	1.38	1.89	1.70	1.50	1.60	0.76	1.11	1.92	1.27	0.090*	0.666	0.099*	0.335	0.000***	0.001***
The court system is fair	2.01	2.12	1.80	2.52	1.93	2.33	2.47	2.23	2.04	2.02	0.348	0.000***	0.049**	0.463	0.000***	0.058*
% mang. time to deal with regulations?	11.63	13.55	13.24	6.92	16.33	9.82	8.15	17.10	16.91	5.75	0.379	0.000***	0.488	0.037**	0.053*	0.033**
% annual sales as informal payments	0.25	1.25	1.06	0.26	0.84	2.12	0.84	1.76	9.77	1.35	0.119	0.966	0.201	0.282	0.292	0.022**
Number of inspections	2.93	4.17	4.40	3.98	5.25	4.09	2.39	3.97	4.81	2.68	0.611	0.781	0.592	0.468	0.411	0.581
Days to obtain an import license	22.91	18.81	19.15	12.93	24.88	17.28	12.77	17.30	17.07	11.38	0.701	0.259	0.777	0.876	0.172	0.428
Days to obtain an operating license	38.64	38.08	45.42	19.92	77.15	17.88	15.65	44.47	23.65	7.73	0.988	0.331	0.794	0.544	0.009***	0.872
Obs : tax rates	1.93	1.92	1.70	2.06	2.12	1.69	1.14	2.14	2.30	1.72	0.939	0.414	0.127	0.184	0.000***	0.164
Obs : tax administrations	1.59	1.61	1.51	1.52	1.90	1.45	0.98	1.52	1.96	1.74	0.913	0.649	0.581	0.028**	0.000***	0.647
Obs : business licensing and permits	1.14	1.22	1.31	0.99	1.42	1.10	0.66	1.19	1.78	1.36	0.553	0.283	0.218	0.048**	0.000***	0.707
Obs: political instability	1.54	1.81	2.08	1.10	2.04	1.20	0.87	1.94	2.73	2.62	0.113	0.004***	0.001***	0.001***	0.000***	0.017**
Obs: corruption	2.15	1.91	2.38	1.39	2.18	1.75	1.16	1.69	3.00	2.40	0.173	0.000***	0.173	0.862	0.000***	0.007***
OBs: access to finance	1.42	1.53	1.53	1.81	1.62	1.73	1.06	1.44	1.70	1.48	0.468	0.024**	0.476	0.187	0.011**	0.877
% of workers with high school	46.83	74.48	56.40	76.18	81.17	66.42	.	.	35.32	56.12	0.000***	0.000***	0.020**	0.000***	-	-
Obs: labour regulations	1.63	1.32	1.12	1.00	1.88	1.00	0.80	1.17	1.46	0.92	0.033**	0.000***	0.000***	0.089*	0.000***	0.001***
Obs: inadequately educated wokforce	2.10	1.75	1.78	1.96	2.09	1.35	1.04	1.78	1.99	1.50	0.024**	0.400	0.026**	0.960	0.000***	0.050*
% skilled workers	0.39	0.64	0.60	0.63	0.60	0.60	0.77	0.69	0.71	0.75	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***

Source: World Bank staff calculations based on the World Bank Enterprise Survey. For methodology, please see note at the end of the annex.

Table 17: Comparison of firm characteristics and perception of business environment in the Dominican Republic

	Non-Exporters (286)	Exporters (74)	Non- Exporters vs Exporters ttest(p)	Exporters Services (30)	Exporters Manuf. (44)	Exporters Services vs Manuf.
Size of a company (1-3, 3=large)	1.86	2.49	0.000***	2.33	2.59	0.114
% foreign owned	8.46	30.06	0.000***	24.79	33.60	0.409
Manager experience (years)	21.11	19.47	0.274	20.07	19.05	0.714
Quality certificates	0.15	0.32	0.000***	0.27	0.36	0.389
Years of operations	20.49	19.08	0.448	15.67	21.47	0.138
Days to receive an electrical conn.	34.43	40.77	0.830	11.67	65.71	0.039**
Power outages/month in last year	28.96	16.40	0.110	16.90	16.04	0.882
Days to obtain a water connection	21.57	35.86	0.281	12.33	53.50	0.191
Days to get a telephone connection	10.10	8.05	0.492	5.75	9.46	0.329
Obs: electricity	2.34	2.36	0.886	2.30	2.41	0.750
Obs: telecommunications	1.35	1.34	0.961	1.53	1.20	0.283
% of national sales to total sales	100.00	49.31	0.000***	56.54	44.70	0.226
% of indirect exports to sales	0.00	17.60	0.000***	34.61	6.77	0.000***
% of direct exports to sales	0.00	33.10	0.000***	8.86	48.52	0.000***
Avg days to clear customs in 2007	.	60.03	-	5.71	72.29	0.629
% of inputs of foreign origin	46.19	57.65	0.129	.	57.65	
Obs: transportation	1.37	1.64	0.089*	1.73	1.58	0.616
Obs: customs and trade regulations?	1.01	1.49	0.003***	1.32	1.59	0.365
Obs: the informal sector competitors	2.02	1.65	0.039**	1.67	1.64	0.929
Obs: access to land	0.94	0.75	0.197	0.83	0.70	0.591
Obs: crime, theft and disorder	1.92	1.64	0.089*	1.70	1.59	0.709
The court system is fair	1.85	2.01	0.171	1.97	2.05	0.735
% mang. time to deal with regulations?	11.62	11.63	0.992	14.22	10.05	0.069*
% annual sales as informal payments	0.37	0.25	0.706	0.57	0.00	0.082*
Number of inspections	6.28	2.93	0.514	3.21	2.64	0.628
Days to obtain an import license	66.26	22.91	0.169	23.00	22.86	0.993
Days to obtain an operating license	93.03	38.64	0.162	48.40	30.50	0.268
Obs : tax rates	2.37	1.93	0.006**	2.52	1.55	0.002***
Obs : tax administrations	1.99	1.59	0.011**	2.10	1.25	0.004***
Obs : business licensing and permits	1.22	1.14	0.600	1.17	1.11	0.822
Obs: political instability	1.87	1.54	0.055*	1.47	1.59	0.693
Obs: corruption	2.51	2.15	0.038**	2.30	2.05	0.462
OBs: access to finance	1.54	1.42	0.468	1.30	1.50	0.499
Obs: labour regulations	1.54	1.63	0.578	1.60	1.65	0.870
Obs: inadequately educated wokforce	1.97	2.10	0.447	2.23	2.00	0.395
% skilled workers	0.59	0.39	0.001***	.	0.39	-

Source: World Bank staff calculations based on the World Bank Enterprise Survey.

Table 18: Foreign-owned firm characteristics and linkages in the Dominican Republic, compared to other regions

	DR (57)	World (8,293)	CA (558)	CAR/1 (406)	SAM (2,360)	EAP (780)	ECA (1,301)	DR vs World ttest (p)	DR vs CAR ttest (p)	DR vs CA ttest (p)	DR vs SAM ttest (p)	DR vs EAP ttest (p)	DR vs ECA ttest (p)
Size of a company (1-3, 3=large)	2.56	2.10	2.35	1.95	2.16	2.25	2.30	0.000***	0.000***	0.043**	0.000***	0.004***	0.011***
% foreign owned	79.68	78.99	84.24	71.52	79.61	81.19	76.15	0.855	0.054*	0.206	0.984	0.698	0.367
Manager experience (years)	20.44	16.34	17.43	17.66	19.59	15.17	14.84	0.004***	0.080*	0.028**	0.573	0.000***	0.000***
Quality certificates	0.30	0.40	0.40	0.33	0.43	0.46	0.48	0.119	0.685	0.149	0.040	0.015**	0.008***
Years of operations	18.86	19.38	20.19	24.22	24.11	14.60	15.56	0.843	0.130	0.576	0.088*	0.018**	0.157
% of inputs of foreign origin	68.33	49.61	57.60	48.77	43.19	54.44	51.90	0.016**	0.017**	0.147**	0.000***	0.092*	0.044**
% of national sales to total sales	70.12	79.26	70.68	77.47	83.62	58.29	68.92	0.048**	0.150	0.920	0.001***	0.055*	0.824
% of indirect exports to sales	13.82	4.25	7.50	6.56	2.97	9.38	4.15	0.000***	0.019**	0.059*	0.000***	0.224	0.000***
% of direct exports to sales	16.05	16.62	21.82	16.04	13.41	35.22	26.93	0.894	0.998	0.244	0.464	0.001***	0.036**

*Note: LAC= Latin America and Caribbean; CAR= Caribbean; CAM= Central America; SAM= South America and Mexico; EAP= East Asia and Pacific; ECA= Europe and Central Asia; DR= Dominican Republic. The DR is excluded from the Caribbean region for the purpose of the analysis. The symbols ***, **, and * denote significance of coefficients at the 1%, 5% and 10% levels of confidence, respectively. The different tables of this annex present the results of the difference in two sample mean tests, assuming equal variance for the groups compared. Results have been computed in STATA. More information about the application of these tests is available at http://www.stata.com/manuals13/rttest.pdf. Source: World Bank staff calculations based on the World Bank Enterprise Survey.*

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