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Information for Export Survival: An Analysis of Georgian Export Performance and Survival in International Markets

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Successful entry into export markets and the subsequent survival of export flows are crucial if a country is to grow and diversify its export base. The accumulated experience of firms that export a particular product or serve a specific destination can provide valuable information. When more of this export-relevant information is available to exporters, export flows have better chances of survival in new markets. However, many developing countries face two problems when it comes to acquiring this information. First, and most important, is that firms do not have incentives to share information. Information constitutes part of their competitive advantage, and sharing it may weaken their competitiveness. The second major problem is that this type of information is often absent, lacking, or underutilized. There is no clear mapping of available resources or activities that are actually profitable. Discovery is costly, and chances of export survival are lower. This note focuses on the role of information in the survival of Georgia's exports, unveiling a robust association between product-specific and destination-specific information and export survival. These results suggest that there are gains to be made through fostering greater interfirm dialogue—especially dialogue that generates market- and product-specific information—to increase the chances of exports' survival in Georgia.

How Does Information Help Export Survival?

Entering and surviving in a new market is tricky business. As the literature points out, exporting can be an extremely risky activity, full of potential pitfalls—particularly for exporters in lower-income countries (Besedes and Prusa 2004; Brenton, Saborowski, and Uexkull 2010). Determining the key factors for export survival is therefore tremendously valuable for transitioning economies. From a policy perspective, creating a more enabled export sector requires a better understanding of these factors and their relationships, including the role of export-related information in improving the chances for successful entry and survival.

Informational failures are major obstacles to strong export performance and, more generally, to economic development. As argued by Hausmann and Rodrik (2003), learning what one is good at producing is an important milestone on

the path to development. For individual firms, discovering this is often costly. They need to learn the characteristics of foreign demand (tastes, willingness to pay, volume, and so forth), the intricacies of the exporting activity (dealing with customs regulations, freight forwarders, insurance companies), and calculate actual production costs (technologies, minimum efficient scale, sources of inputs). Without this information, firms must learn through trial and error, which often results in inefficiencies, including potentially enormous sunk discovery costs. When discovery costs are high and the ability to profit from the new discovery is low, those exporters that do become successful have little incentive to share information on their exporting experiences. This results in the undersupply of export information.

For new firms, the accumulated experience of incumbent competitors exporting the same products, or to the same

country, is a source of valuable information. Broader dissemination of this information reduces discovery costs, and can help firms survive longer in export markets. This can then result in increased export earnings, job creation, and therefore, more generally, overall economic growth. When information is proven to increase an export's survival chances, it is also confirming the presence of a *spillover effect*. For transitioning economies like Georgia, enabling positive spillover effects should be a priority.

A recent implementation of the World Bank's Trade and Competitiveness Diagnostic (TCD) Toolkit looked at how Georgian exporting firms fared in international markets, paying particular attention to their survival patterns (Reyes and Varela 2013).

Understanding Export Survival in Georgia

Survival of firms in export markets is a challenge in Georgia, particularly after the Russian Federation trade embargo of 2006. However, not all firms *necessarily should* survive. A thriving export sector requires strong dynamism stemming from exporters testing new markets or new products (or both), as well as new firms trying to become exporters. While some of these firms go on to become profitable, others fail. Failure, or exit, is important in the process of churning—where resources are reallocated from less efficient to more efficient uses, a constant process Schumpeter called “creative destruction.” Firm churning can provide a measure of a country's competitiveness in international markets. The policy objective, therefore, should not be to just ensure high levels of export survival, but rather to generate the conditions where firm churning helps to drive competitiveness, export values, and job creation.

In Georgia, survival rates are actually declining, which is preventing firms from greater integration into the global mar-

ketplace. Table 1 shows yearly firm survival rates in exporting activities, by cohort, from 2003 to 2012. The decline in the first-year survival probabilities is clear, with 2006 being particularly tough on exporters. In 2003, around 54 percent of new exporters were surviving after one year of operation in international markets. This survival rate dropped to 37 percent in 2011. The Russian trade embargo in 2006, a preamble to the 2008 war, clearly impacts the survival rates in 2006 and 2007. But how do these survival rates in Georgia compare with similar countries?

Georgian products faced lower survival rates in international markets than comparable countries. Figure 1 shows the Kaplan-Meier survival function for Georgia, Armenia, Lithuania, the Former Yugoslav Republic of Macedonia, Slovakia, and the Czech Republic. For 1999–2011, the probability of a Georgian export flow (a particular product being exported to a particular destination) surviving one year is close to 32 percent, almost 2 percentage points above that of an Armenian export flow, but 21 percentage points below that of the Czech Republic's flows. An alternative way of looking at export survival is to see the mean length of time over which an export flow is active. This analysis indicates that Georgian flows, on average, are active for slightly more than one year, while those of Lithuania average 2.84 years, Slovakia 3.35 years, and those of the Czech Republic 3.5 years. Figure 1 also reveals that the longer the partnership with the buyer (and hence the longer the export flow), the more likely the export flow is to survive an extra year and the less likely it is to exit. This is likely related to the fact that information costs decline as exporting experience accumulates (Araujo and Ornelas 2007).

According to Georgian producers, the amount of information available regarding business opportunities in-country is scarce and constrains their growth potential. In agriculture, for example, more than half of farmers operate on less than one hectare. With the land highly divided, there is little knowledge of production potentials or of opportunities for marketing specific products, and even less about which goods could be candidates for exporting. To what extent do exporters like these benefit from informational spillovers from other exporting firms? To shed light on this issue, the determinants of export survival were examined using a detailed data set of Georgian export transactions by country of destination and product (at the HS6 level) for about 1,900 exporting firms per year, over the period 2003–12.¹ The analysis asks the following questions:

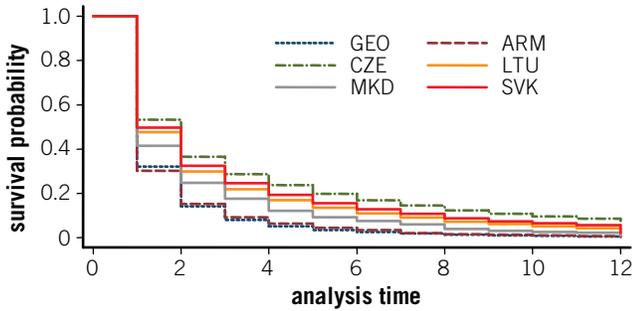
Table 1. Survival Rates in Exporting Activity by Cohort (percentage of surviving firms)

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011
2003	100								
2004	54	100							
2005	38	40	100						
2006	28	25	52	100					
2007	21	15	6	17	100				
2008	17	12	5	12	34	100			
2009	15	10	3	8	23	33	100		
2010	13	9	2	6	17	23	38	100	
2011	13	6	2	5	13	18	24	40	100
2012	11	5	2	4	9	12	15	25	37

Source: Authors' calculations based on data from Geostat.

Note: This table shows the share of firms that survive in international markets after the year of entry.

Figure 1. Survival Rates of Export Relationships at the Sector Level, 1999–2011



Source: Authors' calculations

- Is the overall volume of exports to a *particular destination*, and hence, the amount of information available in Georgia about exporting to that destination, associated with the likelihood of survival of a firm's export flow to that same destination (involving *any* product)?
- Is the overall volume of exports of a *particular product*, and hence, the amount of information available in the economy about exporting that product (controlling for the country's comparative advantages) associated with the likelihood of survival of a firm's export flow of that product (to *any* destination)?
- Are flows that start small less likely to survive past the first year in export markets?
- Are flows from firms with a broader product or destination scope more likely to survive past the first year?

The Value of Destination-Specific Information

Results suggest that a 100 percent increase in exports to a specific destination is associated with an increase in the probability of survival of a firm-product-destination export flow to that specific destination by slightly more than one-third of a percentage point. While these results are not economically large, they are statistically well defined.

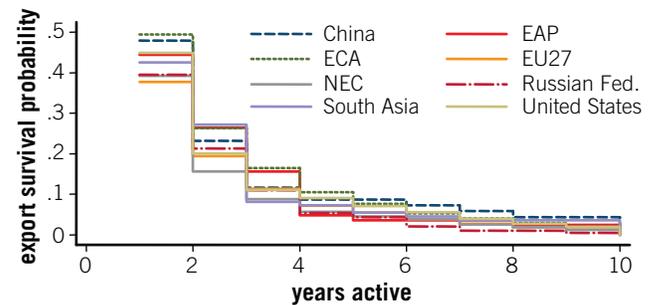
Cultural and geographic ties between trading partners are important to the survival of new export flows. Trading with neighbors, both in the cultural and geographic sense, is less costly when looking at implied transaction costs.² The probability of a Georgian product's export survival is highest when being traded to other countries in the Europe and Central Asia (ECA) region. Figure 2 shows export survival probabilities by region of destination. Georgian firms with flows to other countries in ECA have an almost 50 percent chance of lasting one year, and a more than 20 percent chance of lasting two years. On the other hand, flows to the EU-27 region have a lower chance of surviving: less than a 40 percent probability of surviving one year, and less than 20 percent of surviving a second year. Flows to Latin America, the Caribbean, and sub-Saharan Africa—relatively more cul-

turally dissimilar and geographically distant—have the lowest survival probabilities.

Export flows to China seem to be relatively resilient; these are only 3.6 percentage points less likely to survive than flows to ECA countries, with one-year survival rates of just below 50 percent. However, digging deeper, many of Georgia's exports to East Asia and Pacific (EAP) countries tend to have low survival rates. This is likely due to the nature of the products being traded, with many being "hazardous" from the point of view of export survival—meaning typically more differentiated, non-resource-based products.³ These types of products are prone to short lifecycles, making it more likely that it is the specific product traded to EAP countries that explains the low survival rates to the region.

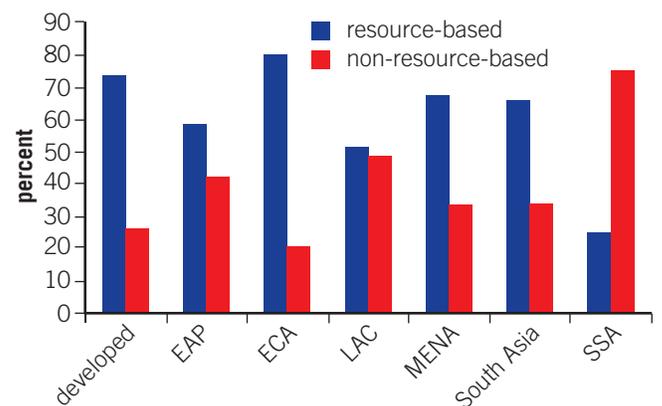
Combining information on survival rates by firm destination and type of product with the export structure by destination is revealing. The export basket to EAP contains more of these hazardous products than the basket to other countries in ECA, to developed partners, to the Middle East and North Africa (MENA) region, or to South Asia (figure 3). Building on these results, figure 4 plots survival rates for commodities and for differentiated goods.⁴ It shows that the difference in survival is substantial, with commodities being close to 10 percentage points more likely to survive the first

Figure 2. Georgian Export Survival Rates by Destination, 2003–12



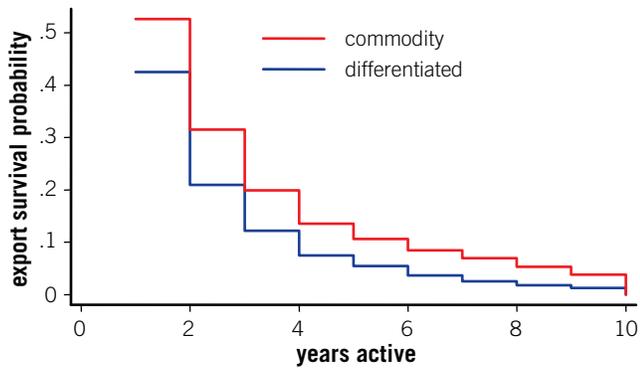
Source: Authors' calculations.

Figure 3. Export Bundles by Region and Type of Product (averages for 1999–2011)



Source: Authors' calculations.

Figure 4. Georgian Export Survival Rates by Type of Product: Commodity/Differentiated, 2003–12



Source: Authors' calculations.

year. This result is in line with previous findings in the literature on export survival.⁵

The Value of Product-Specific Information

The amount of information available in the market about exporting a particular product is systematically and positively associated with the likelihood of surviving past the first year in export markets.

Because Georgian firms tend to export more of the products for which the country has a comparative advantage, it is natural to find that export flows of these products tend to survive longer. At the same time, these products are exported in larger volumes, regardless of any informational spillover effect. Controlling for the role of comparative advantage (using revealed comparative advantage indicators) isolates the informational spillover effect on export survival. As expected, the estimated effect of the product-specific informational variable on the likelihood of survival more than halves after controlling for revealed comparative advantage and firm- and flow-specific characteristics, but it remains statistically significant at 1 percent. This suggests that firms benefit in the form of a greater probability of survival from the accumulated exporting experience of a given product. From an economic view, and similar to the case of destination-specific information, the effects are relatively small.⁶ Taking the most conservative estimate (column 6 in Table 2), the results suggest that if the value of all firms' exports of product *p* were to double, the probability of export survival for firms selling that same product would increase by about a quarter of a percentage point, a proportional increase of 0.63 percent.⁷

Trial and Error as a Road to Discovery: The Role of Smaller flows

Flows that start small tend to have shorter life spans in export markets. Analysis shows that the initial value of the export flow is positively associated with its survival outlook. Figure 5 plots the probabilities of surviving one year against the size of

the initial export flow and reveals a positive association between the two variables. The average initial value of a Georgian firm's export flow is roughly US\$77,000 dollars. If a firm starts exporting with a flow double that average, its export is about a quarter of a percentage point more likely to survive than firms starting with an order of average size.

One interpretation for this phenomenon is that when importers are uncertain about the capacity of the exporter to meet an order, or when exporters face cost uncertainty, both exporters and importers may start with small orders. Both sides seek to update their information about each other through trial and error. The case of a Georgian firm exporting licorice roots to Japan helps illustrate this point. The Georgian firm exported 20 tons to Japan in 2012, but the flow was disrupted because the firm could not meet the importer's steadily increasing demand for roots. The exporter was uncertain of just how many of these roots were available in the country, which prevented it from committing to delivering larger orders.⁸ This does not mean that exporters should start with large orders. Instead, it suggests that the size of the initial flow may be associated with the uncertainty of the capacity of the exporter to meet the needs of the importer.

Another interpretation for this result is that larger firms tend to receive larger orders. This could happen for many reasons—reputation and production capacity being two major factors. Therefore, these large firms may also have better survival prospects in export markets than those of smaller firms. However, results continue to hold when controlling for scope of the firm in terms of destination and products, which are likely correlated with the size of the firm.⁹

Survival and Diversification Interact in Complex Ways

The scope of products exported by a firm and the number of destinations it exports to (that is, how diversified firms are along the product and destination dimensions) both matter for survival. Flows from firms that reach more destinations have a better chance of survival, as they likely have better information on these markets. However, the converse holds for flows from firms that have a relatively wider product scope. If product specialization is associated with higher productivity, then firms that concentrate on fewer products may be relatively more likely to survive in export markets.

Policy Implications

The main findings from this analysis have important policy implications. As mentioned earlier, incumbent exporters do not have incentives to share valuable information regarding destination markets or products with entrants. This information was probably costly to obtain in the first place, and it could erode their competitive edge, and ultimately their prof-

Table 2. Determinants of Export Survival Past the First Year, Georgia

Dependent variable: Survivor = 1 if <i>f</i> , <i>d</i> , <i>p</i> lasts more than 1 year.	(1)	(2)	(3)	(4)	(5)	(6)
Value of all exports of product ' <i>p</i> '	1.98e-06*** (1.36e-07)	1.61e-06*** (1.44e-07)	1.61e-06*** (1.44e-07)	1.55e-06*** (1.44e-07)	1.09e-06*** (1.34e-07)	7.63e-07*** (1.47e-07)
Value of all exports to destination ' <i>d</i> '			7.83e-08* (4.33e-08)	8.83e-08** (4.27e-08)	1.07e-07** (4.20e-08)	9.29e-08** (4.21e-08)
Destination scope				0.00466*** (0.000391)	0.00794*** (0.000427)	0.00735*** (0.000436)
Product scope					-0.00083*** (4.52e-05)	-0.00079*** (4.52e-05)
Initial export value						3.39e-05*** (8.16e-06)
Revealed comparative advantage		0.000154*** (2.12e-05)	0.000155*** (2.12e-05)	0.000149*** (2.11e-05)	0.000105*** (2.05e-05)	9.32e-05*** (2.10e-05)
Dummy East Asia Pacific	-0.0408** (0.0194)	-0.0372* (0.0199)	-0.0368* (0.0199)	-0.0452** (0.0184)	-0.0352* (0.0194)	-0.0320 (0.0199)
Dummy Europe and Central Asia (non-EU-27)	0.0183 (0.0170)	0.0219 (0.0170)	0.0181 (0.0172)	0.0321* (0.0170)	0.0362** (0.0167)	0.0358** (0.0167)
Dummy EU-27	-0.0268* (0.0159)	-0.0266* (0.0160)	-0.0266* (0.0160)	-0.0251 (0.0159)	-0.0112 (0.0164)	-0.0118 (0.0163)
Dummy Latin America and Caribbean	-0.0649*** (0.0164)	-0.0629*** (0.0168)	-0.0628*** (0.0168)	-0.0734*** (0.0144)	-0.0497*** (0.0187)	-0.0548*** (0.0180)
Dummy Middle East and North Africa	-0.0290* (0.0163)	-0.0295* (0.0162)	-0.0293* (0.0162)	-0.0241 (0.0167)	-0.00694 (0.0182)	-0.00728 (0.0181)
Dummy other developed	-0.0438*** (0.0143)	-0.0413*** (0.0146)	-0.0411*** (0.0146)	-0.0446*** (0.0141)	-0.0305** (0.0152)	-0.0301** (0.0152)
Dummy Russian Federation	-0.00736 (0.0180)	-0.00586 (0.0182)	-0.0102 (0.0179)	-0.00190 (0.0186)	0.0131 (0.0198)	0.0111 (0.0196)
Dummy South Asia	-0.00346 (0.0224)	0.00397 (0.0233)	0.00449 (0.0234)	0.0135 (0.0243)	0.0129 (0.0238)	0.0162 (0.0241)
Dummy sub-Saharan Africa	-0.0767*** (0.0126)	-0.0743*** (0.0130)	-0.0740*** (0.0130)	-0.0765*** (0.0124)	-0.0455** (0.0177)	-0.0469*** (0.0174)
Dummy United States	-0.0371** (0.0160)	-0.0338** (0.0164)	-0.0365** (0.0161)	-0.0330** (0.0164)	-0.0216 (0.0174)	-0.0276 (0.0170)
Observations	33,500	33,500	33,500	33,500	33,500	33,500
Region of destination dummies	Yes	Yes	Yes	Yes	Yes	Yes
Initial year dummies	Yes	Yes	Yes	Yes	Yes	Yes

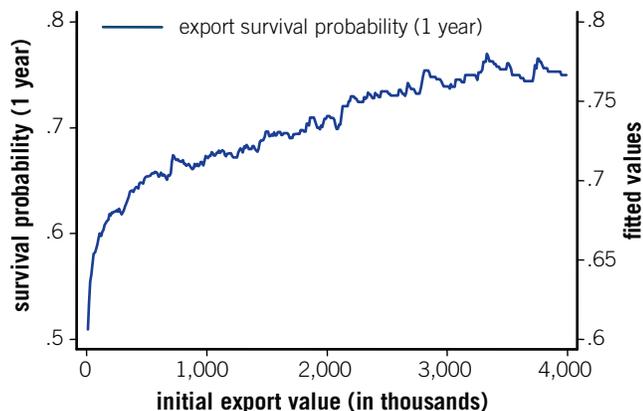
Source: Authors' calculations based on data from Geostat.

Note: Robust standard errors in parentheses.

its. Thus, entrants currently only benefit from the information that ends up in the public domain through occasional leakages. The economically small effects identified in the above analysis are likely to reflect that only a fraction of the potential gains from export-related information sharing has

materialized in Georgia. From a new exporter's perspective, understanding whether the main challenge to export survival is related to difficulties in a specific market, or with a specific product, is essential to their business. With more detailed information, firms may not need to resort to trial and error as

Figure 5. Starting Export Value and Probability of Survival (1999–2011)



Source: Author's calculations.

the dominant mechanism of cost discovery. Export “deaths” and rapid exit from export markets would become less frequent. Therefore, from a policy maker’s perspective, supporting export survival is vital to promote broader economic growth and ensure greater export diversification. The greater the export activity in a particular overseas market, or with a particular type of product, the easier it should be to obtain information.

The evidence from Georgia supports the hypothesis that increased information increases chances of exports’ survival. As the amount of export experience with a specific trading partner increases—as shown by the total exports to that trading partner—the chance that the flow to that same market survives the first year increases substantially. The same holds for the export experience with a particular product. As total exports of that product (to any destination) increase, the chance of that product surviving one year also increases.

The estimated spillover effects reported here are likely to be only a fraction of the real value that firms attach to information. The small size of the estimated spillovers in Georgia should be taken as a lower bound of the benefits that firms could realize by learning from the accumulated experience of other exporters serving similar markets or selling similar products. There is a sound, statistical relationship between information and export survival. It is one of many reasons—though not the silver bullet—why exports survive or die.

Export promotion agencies?

In the light of these findings confirming the valuable role information can play in exports’ survival, it is worth discussing the possibility of using public funds to increase the amount of information regarding exporting specific products or serving specific markets. Some public and private initiatives that partially address this problem are already in place. For example, the Georgian Farmers’ Association has implemented a new project based on what it calls the “pass-

portization” of villages. Through the project, the association has helped map the production capacity of more than 3,000 villages across the country.¹⁰ A separate public sector–led effort is using the Partnership Fund, with the help of the U.S. Agency for International Development (USAID), and the Economic Prosperity Initiative to support farmers’ exports of mandarins. The project has provided information and financial resources to improve the packaging of fruits. It has also introduced “consolidators” that buy from several farmers and consolidate the produce to achieve a minimum efficiency of scale. These types of efforts are also being implemented in the production of bay leaves and hazelnuts. The Italian firm Ferrero—with its lengthy experience exporting hazelnuts in Georgia—has helped prove that there is sufficient international demand to make it profitable to export these from Georgia.

Evidence on the performance of publicly financed export promotion activities is, however, mixed (Lederman, Olarreaga, and Payton 2010). Inadequate funding, lack of strong leadership, poor client orientation, and excess bureaucracy have been some of the problems associated with agencies engaged in export promotion in developing countries (Hogan, Keesing, and Singer 1991). More recent evidence has shown that export promotion activities may be effective in terms of improving export performance. However, these agencies have been more effective when helping circumvent trade barriers abroad or tackling asymmetric information problems (Lederman, Olarreaga, and Payton 2010). For these reasons, and given the scarcity of public funds in countries like Georgia, an evidence-based public-private dialogue is necessary to first help fully understand the costs and benefits of export promotion. Whether this comes in the form of information provision or some other form, designing the most effective framework along with a monitoring and evaluation program to reach the desired objectives of boosting trade competitiveness will be critical.

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Notes

1. The dataset was kindly provided by Geostat. For more details on the methodology, please contact the authors.
2. This has been pointed out in the literature before (see Brenton, Saborowski, and Uexkull [2010]).
3. More recently, EAP’s imports of natural resource–based products from Georgia increased substantially. Over 2006–11, EAP’s imports from Georgia represented 70 percent of its

total imports, compared to 54 percent over 1999–2005. This is likely related both to a compositional shift in terms of quantities, but also to an increase in the prices of natural resource–based products over the last five years.

4. The classification follows Rauch (1999).

5. For example, Besedes and Prusa (2004) find a 23 percentage point difference in survival of commodities versus differentiated goods for U.S. export flows.

6. Table 2 reports the results of estimating a probit model designed to test for informational spillovers on export survival on the export-transaction-based data set with data for 2003–12. This closely follows the approach of Cadot et al. (2013), Brenton, Saborowski, and Uexkull (2010), and Rauch and Watson (2003). For further details of the methodology, please contact the authors. Column 1 shows a basic specification, and columns 2–6 report results for models with added regressors, which capture firm- and flow-specific characteristics.

7. The effect is calculated at the average value of exports of product p . The reported coefficient is the marginal effect, giving the change in the probability of survival, given an infinitesimal change in the explanatory variable. To obtain the effect of a 10 percent change in the value of all exports of p on the probability of survival, the coefficient is multiplied by the size of the induced change in exports (US\$362,000, in this case, which accounts for 10 percent of the average value of exports of a given product p).

8. This information was provided by the managers of the exporting firm. They claimed that a comprehensive herbal resource assessment could help mitigate uncertainty with respect to the production potential of licorice roots, and wild products in general, which would boost growth and employment. In fact, the managers mentioned that the Japanese im-

porters had expressed interest in investing to start processing the licorice roots in Georgia, if local collectors could supply at least 1,000 tons of the product.

9. Unfortunately, there is no information in the data set about the turnover or the number of employees of the firms.

10. This information was provided by the Georgian Farmers' Association during an interview held in Tbilisi in May 2013.

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