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A Note on Churning of Exporters and Dynamics of Exports: Evidence from Panel Data for 69 Countries

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A Note on Churning of Exporters and Dynamics of Exports: Evidence from Panel Data for 69 Countries*

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Abstract

This short note looks at the link between churning of exporters and dynamics of exports using data from the World Bank Exporter Dynamics Database from 69 countries primarily for the period between 2003 and 2010. In line with Schumpetarian theory of creative destruction we report that a higher rate of turnover in export activity by entry and exit of firms in the year before is positively linked to export growth in the current year after controlling for unobserved time-invariant country effects and country-invariant time effects. Creative destruction is at work in exports.

JEL classification: F14

Keywords: Exporter Dynamics Database, creative destruction, export entry, export exit

* The data from the World Bank Exporter Dynamics Database used this paper are available from the website https://www.worldbank.org/en/research/brief/exporter-dynamics-database. Stata code used to generate the empirical results reported in this note is available from the author.

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1. Motivation

An important lesson learned over the past 30 years from numerous studies which use firm-level micro data on exports is that change in total exports from one year to another is not driven by the growth or decline in exports from incumbent firms alone – by the intensive margin – but by firms that enter into or exit from exports from one year to another, too – by the extensive margin. Some of this year's exporters did not export last year – they are export starters. Some of last year's exporters do not export in this year any longer – they are export exiters. Firm entry rates (the number of new exporters over the number of total exporters is a year) and firm exit rates (the number of exiters over the number of total exporters a year ago) tend to be rather high in each period and every country; Cebeci et al. (2012, p. 20), for example, document this for 38 developing and 7 developed countries in 2006 – 2008.

Empirical investigations document that export entry and exit is not random.[1] New exporters tend to be more productive and innovative than non-exporters (to cover the fixed and sunk entry costs associated with exporting and stay profitable). Exiters, on the other hand, tend to be located at the bottom of the productivity distribution and cannot compete internationally any longer. Churning – export entry and export exit taken together – therefore can be expected to improve the average quality of exporting firms due to positive selection. Furthermore, exiters often set free resources (including skilled employees and experts that are experienced in exporting activities like dealing with problems related to foreign markets) that can be used by "better" entries or incumbents. This reallocation of human capital towards more competitive firms can be expected to foster export growth.

[1] See Wagner (2008) for evidence for Germany and references to studies for other countries.

This view of churning of exporters as an engine of growth for exports is in line with Schumpetarian growth models of creative destruction – where economic growth results from the continuous replacement of less-productive firms by more-productive ones.[2] In international trade contexts, creative destruction manifests as the entry of competitively advantaged exporters and the exit of those unable to sustain export activity, effectively reallocating export shares toward more productive uses of resources.

This short note contributes to the literature by looking for empirical evidence for a positive link between churning of exporters and growth of exports pointing to creative destruction at work, using panel data for a large number of countries and controlling for unobserved time-invariant country effects and country-invariant time effects. Section 2 introduces the data and the variables used. Section 3 presents the econometric approach and the results of the empirical investigation. Section 4 concludes.

2. Data and discussion of variables

The empirical investigation in this note uses data from the Exporter Dynamics Database (EDD) published by the Word Bank.[3] This database contains aggregated measures on export-sector characteristics and dynamics; here we use data at the country-year level. The data are primarily for the period between 2003 and 2010. The

[2] The theory was originally developed in Schumpeter (1942). A discussion is far beyond the scope of this short empirical note; see Aghion, Akcigit and Howitt (2015) for an outline of central ideas in a modern theoretical framework and Aghion, Antonin and Bunel (2021) for a comprehensive discussion of many aspects.

[3] See https://www.worldbank.org/en/research/brief/exporter-dynamics-database. Data are from the version 1997 – 2014 (last modified June 13, 2022). The data file CY_all is used; it provides measures at the country-year level. This dataset includes measures calculated using all firms available with no restrictions on export values or sectors.

measures are constructed from exporter-level customs data, covering the universe of annual exporter transactions (see Cebeci et al. (2012) and Fernandes, Freund and Pierola (2016) for a comprehensive discussion of this database). The appendix table lists the countries included in the sample used in this study and the number of observations.[4]

In the EDD an Entrant in year t is defined as a firm that does not export in year t-1 but exports in year t; an Exiter in year t is a firm that exports in year t-1 but does not export in year t; and an Incumbent in year t is a firm that exports in t-1 and t.

The variables used in this study are defined as follows:

Growth of incumbent exporters – the measure used for dynamics of exports – is the mean of the log difference of total value of exports by incumbent exporters between t and t-1. This information is directly available in the EDD in Variable A11i. It is a measure of the dynamics of exports in the current year.

Churning index – the measure of turnover in exports – is constructed as the sum of two numbers, (1) the *Share of exports by entrants* (computed as the mean export value per entrant multiplied by the number of entrants, divided by the mean export value per incumbent multiplied by the number of incumbents) lagged one year, and (2) the *Share of exports by exiters* (computed as the mean export value per exiter multiplied by the number of exiters, divided by the mean export value per incumbent multiplied by the number of incumbents) lagged one year.[5] In other words, churning is

[4] Note that 4 observations with the country code "QOS" were excluded from the data in CY_all because this code is not an official ISO-Alpha-3-Code, so no country could be identified for these observations.

[5] With the information in the EDD these figures are computed for the year t as (L.A7i * L.A2) / (L.A10i * L.A5) and as (L.A8i * L.A3) / (L.A10i * L.A5), respectively, where L. indicates that the variable is lagged one year, i,e. it is measured for the year t-1.

a measure of the relative economic importance of exporter entry and exit in total exports of the past year.

Descriptive statistics for the variables used in the empirical investigation are reported in Table 1.

[Table 1 near here]

3. Results

To test for the links between the dynamics of exports and the churning of exporters a two-way fixed effects panel regression model is estimated with the growth of incumbent exporters as the dependent variable and the lagged churning index as an independent variable, controlling for country and year fixed effects (that take care of time-invariant country characteristics like size, continent and state of development, and country-invariant year effects like times of global crisis):

(1) $\text{Growth of incumbent exporters}_{it} = a + ß*\text{churning index}_{it-1} + \text{country}_i + y_t + e_{it}$

where i is the index of the county, t is the index of the year, country_i and y_t are country and year fixed effects, and e_{it} is an error term.

Results are reported in Table 2. As theoretically expected, the estimated coefficient of the churning index is positive and statistically significantly different from zero. A higher rate of turnover in export activity by entry and exit of firms in the year before is positively linked to export growth in the current year after controlling for unobserved time-invariant country effects and country-invariant time effects. Creative destruction is at work in exports.

[Table 2 near here]

4. Concluding remarks

This note looks at the link between churning of exporters and dynamics of exports using data from the World Bank Exporter Dynamics Database from 69 countries primarily for the period between 2003 and 2010. In line with Schumpetarian theory of creative destruction we report that a higher rate of turnover in export activity by entry and exit of firms in the year before is positively linked to export growth in the current year after controlling for unobserved time-invariant country effects and country-invariant time effects. Creative destruction is at work in exports.

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Table 1: Descriptive statistics for sample used in estimations

Variable	Mean	Std.dev.	Min	Max
Share of exports by entrants (lagged one year)	0.0545	0.1239	0.00039	1.7697
Share of exports by exiters (lagged one year)	0.0315	0.0331	0.000022	0.2874
Churning index	0.0860	0.1327	0.00068	0.1783
Growth of incumbent exporters	0.0431	0.1661	-0.3921	1.7966
Number of countries	69			
Number of observations	462			

Source: Own calculations with data from World Bank Exporter Dynamics Database; for details see text.

Table 2: Estimation results (Fixed-effects panel regression)

Dependent variable: Growth of incumbent exporters	
Variable	Coefficient (p-value)
Churning index	0.1771 (0.003)
Country fixed effects	included
Year fixed effects	included
Number of observations	462

Note: Standard errors adjusted for clusters in country. Own calculations with data from World Bank Exporter Dynamics Database; for details see text.

Appendix: Countries and number of observations

Country	Freq.	Percent
Albania	7	1.52
Belgium	15	3.25
Burkina Faso	4	0.87
Bangladesh	8	1.73
Bulgaria	4	0.87
Bolivia	5	1.08
Brazil	16	3.44
Botswana	9	1.95
Chile	8	1.73
Co.d'Ivoire	2	0.43
Cameroon	9	1.95
Columbia	5	1.08
Costa Rica	13	2.81
Germany	2	0.43
Denmark	10	2.16
Domen.Rep.	9	1.95
Ecuador	11	2.38
Egypt	5	1.08
Spain	8	1.73
Estonia	13	2.81
Ethiopia	3	0.65
Gabon	5	1.08
Georgia	8	1.73
Guinea	2	0.43
Guatemala	7	1.52
Croatia	4	0.87
Iran	3	0.65
Jordan	8	1.73
Kenya	5	1.08
Kyrgystan	5	1.08
Cambodia	6	1.30
Lao PDR	3	0.65
Lebanon	3	0.65
Morocco	10	2.16
Madagascar	4	0.87
Mexico	8	1.73
N. Macedonia	8	1.73
Mali	2	0.43
Myanmar	1	0.22
Mauritius	9	1.95
Malawi	3	0.65
Niger	1	0.22
Nicaragua	9	1.95
Norway	16	3.46
Nepal	2	0.43
New Zealand	10	2.16
Pakistan	7	1.52
Peru	15	3.25
Portugal	14	3.03
Paraguay	4	0.87
Romania	5	1.08
Rwanda	7	1.52
Senegal	11	2.21
El Salvador	6	1.30
Slovenia	13	2.81
Sweden	8	1.73
Thailand	1	0.22
Timor-Leste	5	1.08
Turkiye	10	2.16
Tanzania	8	1.73
Uganda	6	1.30
Uruguay	10	2.16
Yemen	3	0.65
South Africa	10	2.16
Zambia	11	2.38
Total	462	100.00

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