THE ANALYSIS OF INDUSTRIAL AND EXPORT OPPORTUNIES OF MACEDONIAN ECONOMY

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Introduction

The new growth and trade theory suggest that economic diversification is the main fundamental driver of long-run economic growth.

Production and export diversification matters for economic growth because the country's capacity to accelerate long-run growth is connected to its ability to produce and export a diverse set of products.

According to these theories countries with more complex and diversified export structure have more ability to grow faster, and vice-versa, Hausmann et al. (2005); Jesus Felipe at el. (2010).

Introduction

This process is not easy and it depends on country's production structure and the existence of capabilities that were already accumulated by the country.

The main aim of the paper is to explore the question „*what are the main industrial opportunities of Macedonian economy in metal industry and machinery?*"

To answer this question and to fulfill the main goal of the study we are investigating the current production structure of Macedonian economy in these industries and we analyze the products similarities by using the product space concept.

Methodological framework

The product space can be represented by a matrix of the pairwise distances for all *n* products:

$$\Delta = \begin{bmatrix} 0 & \delta_{1,2} & \delta_{1,3} & \cdots & \delta_{1,n} \\ & \ddots & \delta_{2,3} & \ddots & \vdots \\ & & \ddots & \ddots & \vdots \\ & & & \ddots & \delta_{n-1,n} \\ & & & & 0 \end{bmatrix}$$

The index that measure the distance between goods *i* and *j* in year *t*, which is called proximity, equals

$$\varphi_{i,j,t} = \min \left\{ P\left(x_{i,t} \middle| x_{j,t}\right), P\left(x_{j,t} \middle| x_{i,t}\right) \right\}$$

where for any country *c*

$$x_{c,i,t}, x_{cj} = \begin{cases} 1 \ldots if \ldots RCA_{ij} \geq 1 & for \quad country \quad c \\ 0 \ldots if \ldots RCA_{ij} \leq 1 & for \quad country \quad c \end{cases}$$

Methodological framework

We use index called “density” to measure the average proximity of new potential product *j* to a country’s current productive structure:

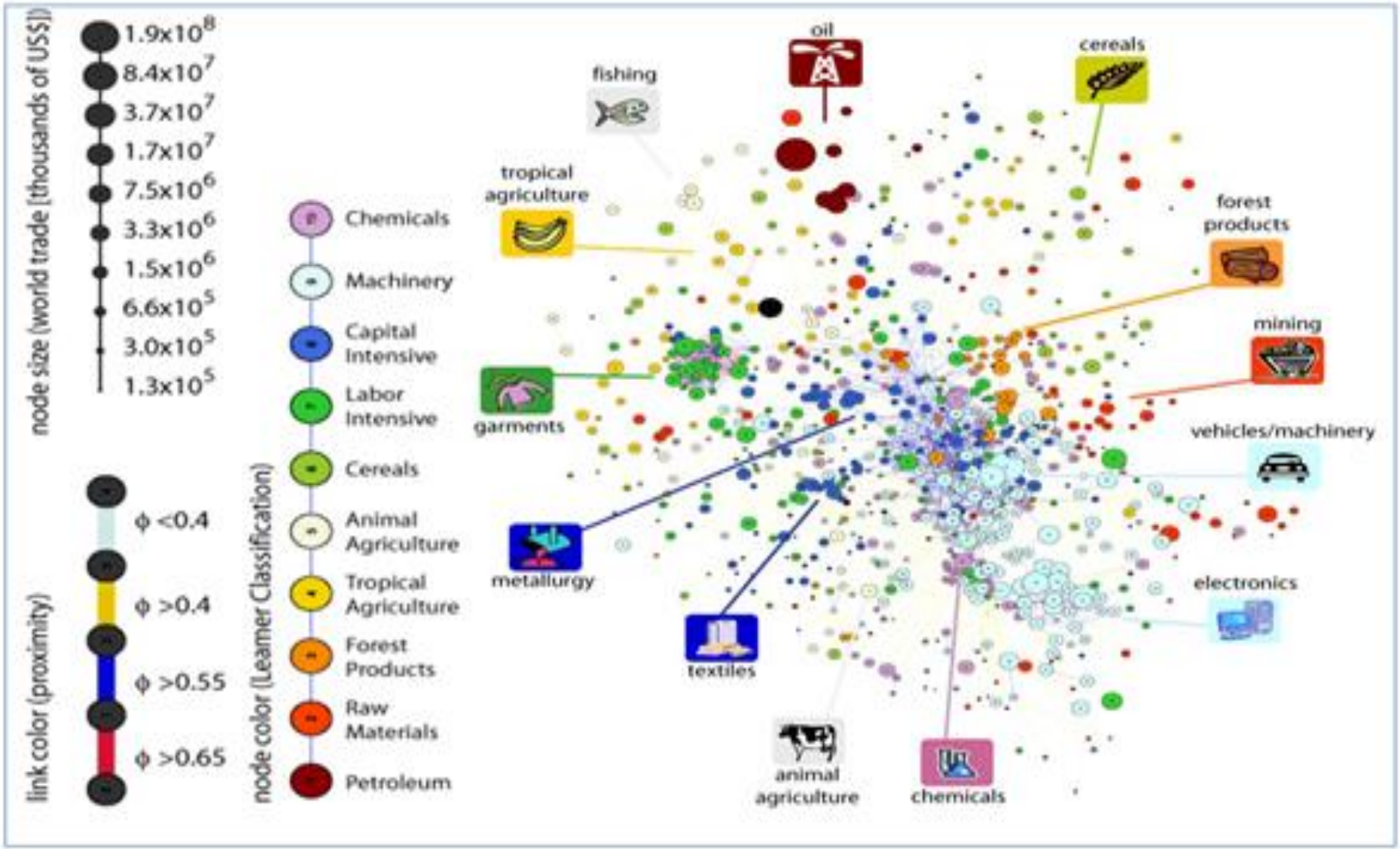
$$density_{i,t} = \frac{\sum_j x_i \phi_{i,j,k}}{\sum_j \phi_{i,j,k}}$$

where high density value means that the country has many developed products surrounding to the *j* product

The **product sophistication level** ($PRODY_K$) is calculated as a weighted average of GDP per capita of countries exporting that product. The index can be presented by the following equation:

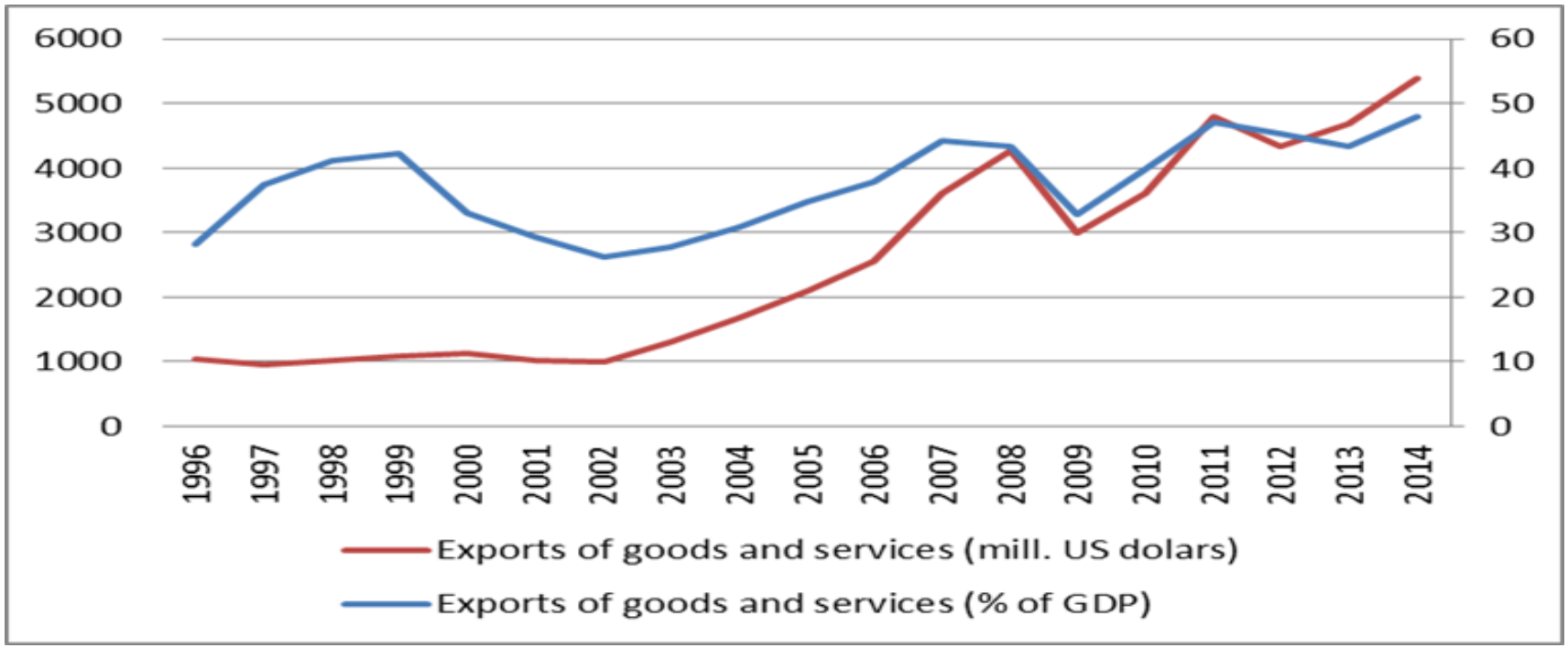
$$PRODY_K = \sum_j \frac{(x_{jk}/X_j)}{\sum_j (x_{jk}/X_j)} Y_j$$

Methodological framework

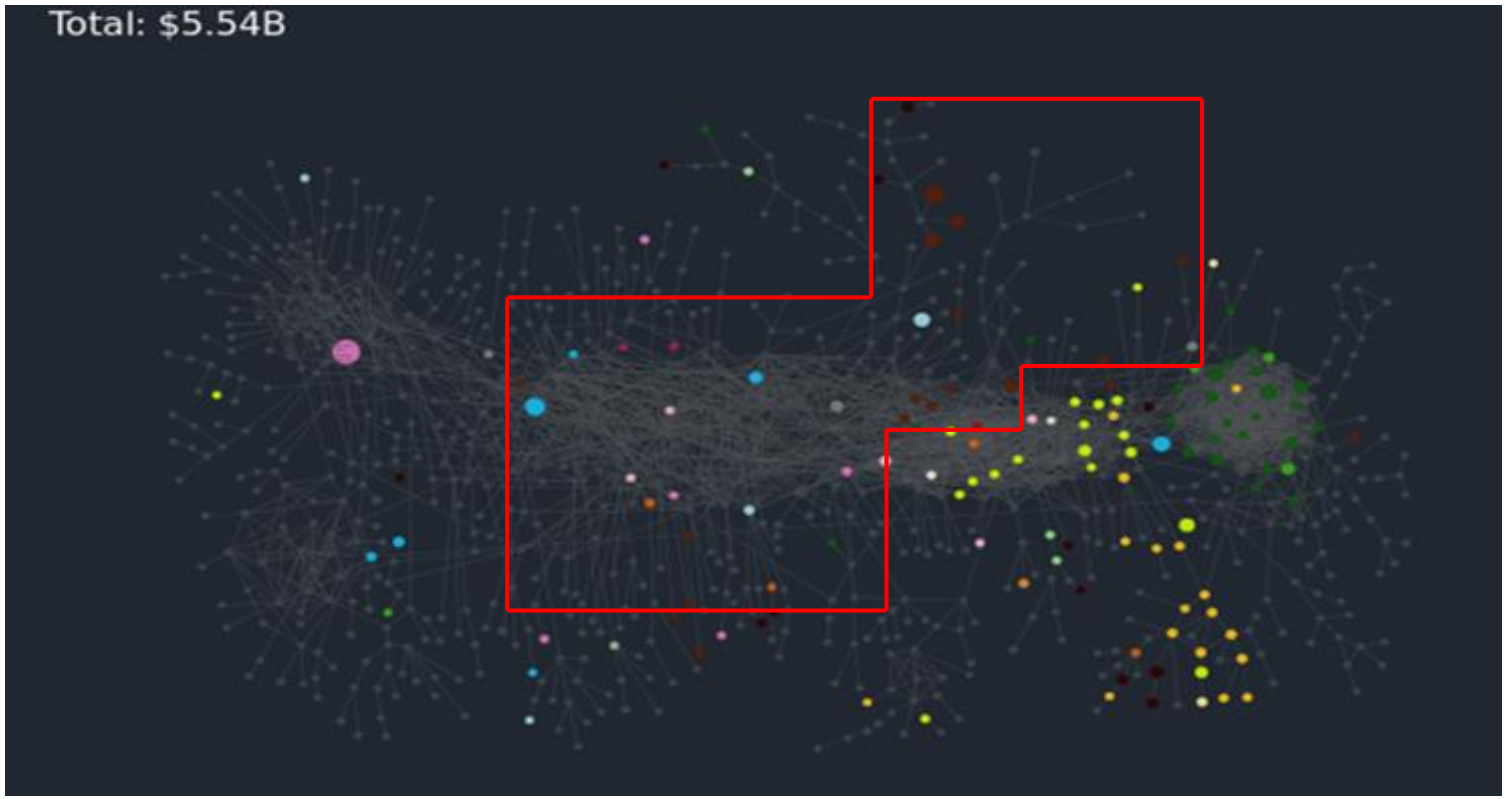


Empirical analysis of Macedonian export performance

Macedonian export volume has increasing trend form 956 million dollars in 1996 to 5.376 million dollars in 2015. The positive increasing trend has also been recorded in export relative to GDP (from 28% in 1996 to 50% in 2015).



Export diversification and composition



The less diversified export basket makes the economy very vulnerable to external shocks. Actually, it has happened during the current global crisis where the main transmission channel of the crisis was through foreign demand.

Export diversification

For illustration, the country exports only 460 products with comparative advantage (RCA>1) from 5.107 products that are produced and exported in the world based on 6-digit HS classification.

Additionally to above argument about low export diversification of Macedonian economy is the evidence that the top ten exporting products have nearly half of the total country's export and more than 70 percent of the export goes to several countries and it is composed of low complexed products.

Export performance of metal industry and machinery their role in Macedonian export

The metal industry and machinery are the most important sectors in Macedonia. The data show that the total export value in 2015 is 1.713 million US dollars, while the relative share in country's export is more than 33%.

The total number of products that country exports in these industries in 2015 is 725 out of 1225 at 6-digit HS classification, while the number of products that country exports with comparative advantages (RCA>1) in the same year is significantly smaller (70 products).

However, if we compare this number with the total number of products that country exports in all industries (460 products), we can conclude that more that 15% of that exporting products with comparative advantages are in these two industries.

Top 10 exporting products in metal industry and machinery

#	HS-code	Export value, US$	Relative share, %	RCA	PRODY, US $
1	842139	423920750	7.70%	78.59	17190
2	720260	286257634	5.20%	243.10	13164
3	854430	203850626	3.70%	20.14	10201
4	720221	93785960	1.70%	93.95	31628
5	853710	86401780	1.60%	6.04	29903
6	720851	77977510	1.40%	22.67	20887
7	721070	64160885	1.20%	17.89	15238
8	730661	51831856	0.94%	38.43	18046
9	720852	51389703	0.93%	45.68	19042
10	854442	45595641	0.83%	5.75	24761

Industrial opportunities of metal industry and machinery

#	HS-product code	Density	RCA	Export value, $	PRODY, $
1	850880	0.142857	0.00	0	2130
2	844629	0.098134	0.00	0	11196
3	720719	0.097685	0.00	0	39300
4	720711	0.092903	0.00	0	13615
5	843352	0.092034	0.00	16	16032
6	720810	0.090146	0.00	0	12722
7	720110	0.089377	0.00	0	12316
8	852340	0.089013	0.00	0	15399
9	730240	0.087282	0.00	0	25374
10	721041	0.087228	0.00	666	3200
11	720925	0.085733	0.07	2474	15852
12	720230	0.085194	0.01	4884	9775
13	720690	0.084533	0.00	0	15305
14	850630	0.084486	0.00	0	1803
15	720838	0.082612	0.00	0	21545

Questions and dissuasions

Thank you for your attention!