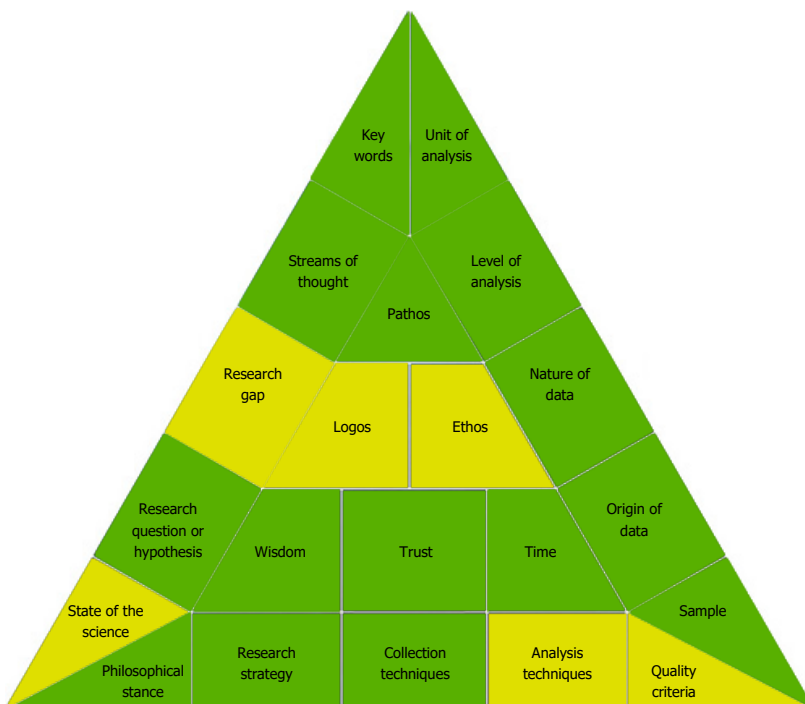


Effect of firm's size on export intensity: evidence from Estonian service traders

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Self-evaluation: 86%



Key words

1/21. Theoretical question: what are the two main key words of your research?

My research "Effect of firm's size on export intensity: evidence from Estonian service traders" explores the effect of the firm size on export intensity among Estonian firms that are selling services abroad (to non-residents).

Based on the aim of the study, the two main keywords are:

1. service traders
2. export intensity

1. Service traders are firms that sell services abroad. Services have become more "tradable" due to the information and communication technology development during the last decades. In this study, the firms with activity codes G to S are included. Firms in Estonia can be established entirely online in just a few hours and from almost anywhere in the world. This way, it is relatively convenient to run a firm and export services, which also explains a large share of small firms in service sectors.

2. Firm's export intensity is the ratio of export value to sales (export plus domestic sales), given that export is defined as sales with companies located abroad.

The relationship between export intensity and a firm's characteristics (e.g., size) has been explored by many researchers (Donkers, 2002; Bonaccorsi, 1992, Wagner 1995, 2021). Firm size is defined as the number of employees working in the firm.

References:

Donkers, B. & Verwaal, E., 2002. Firm Size and Export Intensity: Solving an Empirical Puzzle. *Journal of International Business Studies*, Volume 33, pp. 603-613.

Bonaccorsi, A., 1992. On the relationship between firm size and export intensity. *Journal of international business studies*, 23(4), pp. 605-635.

Wagner, J., 1995. Exports, firm size, and firm dynamics. *Small Business Economics*, 7(1), pp. 29-39.

Wagner, J., 2021. MICROECONOMETRIC STUDIES OF FIRMS?IMPORTS AND EXPORTS: Advanced Methods of Analysis and Evidence from German Enterprises. The causal effects of exports on firm size and labor productivity are first evidence from a matching approach, pp. 47-55.

Self-evaluation: 100%

Streams of thought

2/21. Theoretical question: what are the two main streams of thought of your literature review?

In the research of service exporting firms, the main streams of thought are:

1. classic firm theory, initiated by Coase and developed by Williamson
2. new "new" trade theory, initiated by Melitz in 2003.

My research aims to bridge both theories while explaining the firm theory in combination with the new "new" trade theory (Melitz 2003). The latter utilizes the firm's characteristics, e.g., size (number of employees), firm's ownership.

Reasoning:

1. Although studying market mechanisms is also vital, however much economic activity occurs within firms (Barnard, 1938), and therefore firm's theory is definitely relevant for studying exporting firms. The firm theories are the leading theories of the new institutional economics school of thought since the early 1970s.

Firms have to predict what services to develop and trade. However, this prediction is constantly confronted with uncertainty. Firm theory sheds light on the determinants of the firm's behavior related to firm size.

Therefore, small firms have the advantage of quick and efficient adaptation. As a consequence, small firms may result in higher export intensities and thus better performance.

Smaller firms are quicker than their larger counterparts due to structural simplicity (Chen & Hambrick, 1995). Therefore they may be more efficient in responding to the specific requirements of foreign buyers.

2. The new "new" trade theory (Melitz 2003) elaborates more on the firm's characteristics (firm's size and ownership, the number of products in the export basket, and the number of destination countries). Empirical evidence show that there is no consensus, whether the export intensity is affected by the firm size.

References:

Coase, R. H., 1937. The Nature of the Firm. *Economica N.S.*, Volume 4, p. 386-405.

Williamson, O. E., 1989. Transaction cost economics. In: *Handbook of Industrial Organization*. Elsevier, pp. 135-182.

Melitz, M., 2003. The impact of trade on intra? Industry reallocations and aggregate industry productivity. *Econometrica*, 71(6), pp. 1695-1725.

Barnard, Chester. 1938. *The Functions of the Executive*. Cambridge, MA: Harvard University Press

Chen, M. J. & Hambrick, D. C., 1995. Speed, stealth, and selective attack: How small firms differ from large firms in competitive behavior. *Academy of management journal*, 38(2), pp. 453-482.

Self-evaluation: 100%

Research gap

3/21. Theoretical question: what is the main gap that your research addresses?

My goal is to fill in the measurement and methodology gaps due to insufficient information on services traders and refine the theory with a better understanding of the mechanisms behind the strategies. Small exporters may aim to go for a differentiation strategy than large firms. Thus, the gap is that we have scarce evidence on service exporting firms as most of the studies explore firms exporting goods, not services. Furthermore, as Estonia is uniquely positioned as a hub for knowledge and digital firms, my approach to study service traders is vital. Being a small Nordic country with an open market economy for almost 30 years, Estonia is already a world leader in IT.

Although data is everywhere, however, in reality, the global economy contrasts with the lack of micro-level firm data to monitor the actual developments in world trade (Hornok, 2017, Wagner, 2021, Rueda-Cantucho, Kerner, R, 2016). Therefore, I would like to contribute to that gap and thus explain why small service exporting firms are more export intensive than large firms.

The study contributes to a better knowledge of service trading firms. Furthermore, European and world economic and legal agendas (Dollar, et al., 2017) have also declared the objective to enhance the knowledge available on firms engaged in internationalization activities. That information should make for a better understanding of the economic impact of globalization effects" (EU, 2019). The availability of reliable European statistics enhances statistics as a public good that benefits decision-makers, researchers, and the public (EU, 2017). Hence, the

current paper aims to contribute to my doctoral thesis to fill in the methodology and research gap and provide more information on firms and their typology in their internationalization activities.

References:

Dollar, D. et al., 2017. Measuring and Analyzing the Impact of GVCs on Economic Development, International Bank for Reconstruction and Development.

Hornok, C. & K, M., 2017. Winners and Losers of Globalization: Sixteen Challenges for Measurement and Theory. In: Economics Without Borders. Cambridge University Press, pp. 238-273.

Rueda-Cantucho, J., Kerner, R, et al, 2016. Trade-in services by GATS modes of supply: statistical concepts and first EU estimates. Chief Economist Paper.

Wagner, J., 2021. MICROECONOMETRIC STUDIES OF FIRMS?IMPORTS AND EXPORTS: Advanced Methods of Analysis and Evidence from German Enterprises. In: The causal effects of exports on firm size and labor productivity: first evidence from a matching approach, pp. 47-55.

EU, 2019. Regulation 2019/2152 of the European Parliament and the Council on European business statistics

EU, 2017. Regulation 2017/1951 of the European Parliament and of the Council of 25 October 2017 on the European statistical program 2013-17

Self-evaluation: 50%

Research question or hypothesis

4/21. Theoretical question: what is the main question or hypothesis of your research?

Based on the empirical evidence and the previous knowledge, I suggest the hypothesis:

Hypothesis: Firm size has a negative effect on a firm's export intensity

The non-linear effects and possible interactions are also investigated, while independent variables were also squared and multiplied.

Self-evaluation: 100%

State of the science

5/21. Theoretical question: what is the current answer to your research question or hypothesis?

Export intensity and service trading firms are both globalization phenomena. There is some consensus in the literature that firm size is related to the firm's export performance, measured by export intensity (Donkers & Verwaal, 2002), (Wagner, 1995), (Bonaccorsi, 1992)). However, there is no consensus on whether firm size matters in export activities. However, few studies on service traders explain that theory, as most previous research investigates the manufacturing exporting firms. Therefore, I aim to solve the puzzle by presenting a survey of the service export firms and finding the relationship between the firm size and export intensity.

I suggest that firm size is a valuable approximation of firm resources that might impact export behavior and a firm's strategy. Thus many researchers have included firm size as an independent variable in their empirical studies. For example, in Italy, small firms are deeply involved in foreign trade in the most successful export sectors (Bonaccorsi, 1992). However, he verified that export intensity is negatively related to firm size, not positively. Therefore, I aim to provide some evidence also from Estonian service exporting firms.

References:

Bonaccorsi, A., 1992. On the relationship between firm size and export intensity. Journal of international business studies, 23(4), pp. 605-635.

Donkers, B. & Verwaal, E., 2002. Firm Size and Export Intensity: Solving an Empirical Puzzle. Journal of International Business Studies, Volume 33, pp. 603-613.

Wagner, J., 1995. Exports, firm size, and firm dynamics. Small Business Economics, 7(1), pp. 29-39.

Self-evaluation: 50%

Philosophical stance

6/21. Methodological question: what is the philosophical stance of your research?

The philosophical stance of my research is quantitative objectivism. The focus is to discover the patterns and explain why the firm's characteristics may impact the firm's export behavior.

Quantitative research is an approach for testing objective theories by examining the relationship among variables, which in turn can be measured (Creswell J. & Creswell D. 2017). The significant advantage of quantitative data analysis methods in identifying and examining broader patterns and opening broader generalizations, also emphasized by Panke (Panke, 2018).

References

Creswell, John W.; Creswell, J. David. Research Design. SAGE Publications. 2017.

Panke, Diana. Research Design & Method Selection. SAGE Publications. 2018

Self-evaluation: 100%

Research strategy

7/21. Methodological question: what is the qualitative, quantitative, or mixed-method of your research?

Initially, I thought my research would be fully based on quantitative methods using regression and cluster analysis. However, I have understood that descriptions, classifications, categorizations are all from the qualitative methods toolbox, and I think that combining both methods will definitely enhance the quality of my research.

Thus, my research strategy is actually mixed.

References

Creswell, John W.; Creswell, J. David. Research Design. SAGE Publications. 2017.

Panke, Diana. Research Design & Method Selection. SAGE Publications. 2018

Self-evaluation: 100%

Collection techniques

8/21. Methodological question: what are the data collection techniques of your research?

I suggest that the outcome of my research will be novel and unique as I use the dataset that I have designed especially for my research purposes.

Thus, I have used:

1. Secondary exporters' dataset from Statistics Estonia, I have asked for access to the researchers' environment
2. Secondary firms dataset from Estonian Business Register
3. New unique dataset, after using linking techniques, to link the two datasets.

The linking methodology is commonly used in the new "new" trade theory (Benkovskis 2019). Also, my previous papers support the study (Rueda-Cantucho, Kerner, R. et al., 2016).

References:

Benkovskis, K. et al., 2019. Export and productivity in global value chains: comparative evidence from Latvia and Estonia. Review of World Economics, pp. 1-21.

Rueda-Cantucho, J., Kerner, R., Kutlina-Dimitrova, Z. & Cernat, L., 2016. Trade in Services by Modes of Supply. Global Trade Analysis Project (GTAP).

Rueda-Cantucho, Kerner R., Cernat, L. & V, R., 2016. Trade in services by GATS modes of supply: statistical concepts and first EU estimates. Chief Economist Paper.

Eurostat, 2017. Compilers Guide for statistics on Services Trade by Enterprise Characteristics (STEC). Luxembourg

Self-evaluation: 100%

Analysis techniques

9/21. Methodological question: what are the data analysis techniques of your research?

The following analysis techniques have been used to analyze the population of firms from the Estonian service exporters' dataset that was prepared uniquely for this study.:

1. Coding and classification to classify the firms by their size: 0-9 employees (micro size firms); 10-49 (small); 50-249 (medium); 250-more

employees (large firms).

2. Logarithmic transformation was used for all the variables, as there was notable skewness in the distribution of the data variables:
Log_exp_intensity, Log_exp_value, Log_employees

3. Moreover, to capture non-linear effects and possible interaction, the independent variables were also squared and multiplied:
Square_log_exp_value and product_logemp_logexpvalue.

4. After classifying and transforming, I used regression analysis with IBM SPSS (version 27).

Bernard, A. B., Jensen, J. B. & Schott, P. K., 2005. Importers, exporters, and multinationals: A portrait of firms in the US that trade goods. National Bureau of Economic Research, Volume 11404

Benkovskis, K. e. a., 2019. Export and productivity in global value chains: comparative evidence from Latvia and Estonia. Review of World Economics, pp. 1-21.

Self-evaluation: 50%

Quality criteria

10/21. Methodological question: what are the tactics of your research to ensure scientific quality criteria?

The quality criteria involve both external and internal validity. 1.External validity means the model's ability to generalize (Trochim, 2001). As my empirical analysis relies on the population of firms (over 4000 firms), there should be no significant issues to validate my model. There could be some issues in generalizing the Estonian data to other countries.

2. Internal validity may be evaluated, for example, by the indicator R-square, which explains how much the independent variable could explain the variation of the dependent variable (explanatory power). For translating my concept into an operating reality means how well my variables explain the actual situation.

3. I will also use triangulation to validate the concepts. For example, trustworthiness can be achieved if using different methods; the results will be the same.

References

Trochim, W.M. and Donnelly, J.P., 2001. Research methods knowledge base (Vol. 2). Atomic Dog Pub.

Self-evaluation: 50%

Unit of analysis

11/21. Empirical question: what is the unit of analysis of your research?

The unit of my research is an exporting firm (trader) in Estonia. Firm-level data analysis started with Bernard and Jensen's (Bernard & B.J, 1999) papers on firms' characteristics in different countries and industries.

However, there has not been such research separately for firms trading in services, except for empirical evidence (Bonaccorsi, 1992). Services may be defined as intangible products and not visible and measured "only" by the transactions via the banking system. Thus, firm-level data analysis becomes the more important level of analysis also in the future, also emphasized by Wagner (2021).

References:

Bernard, A. & B.J, J., 1999. Exceptional exporter performance: cause, effect, or both?. Journal of International Economics, 47(1), pp. 1-25.

Bonaccorsi, A., 1992. On the relationship between firm size and export intensity. Journal of international business studies, 23(4), pp. 605-635.

Wagner, J., 2021. MICROECONOMETRIC STUDIES OF FIRMS'IMPORTS AND EXPORTS: Advanced Methods of Analysis and Evidence from German Enterprises. The causal effects of exports on firm size and labor productivity are first evidence from a matching approach, pp. 47-55.

Rueda-Cantuche, J., Kerner, R. et al 2016. Trade-in services by GATS modes of supply: statistical concepts and first EU estimates. Chief Economist Paper.

Self-evaluation: 100%

Level of analysis

12/21. Empirical question: what is the level of analysis of your research?

The level of the analysis is firm. Some aggregations are also done to the sector level.

Reasoning:

Countries do NOT export, but firms do. Therefore, aggregated statistics do not indicate what kind of firms are behind those aggregated total trade numbers.

References:

Cernat, Lucian, Towards 'Trade Policy Analysis 2.0': From National Comparative Advantage to Firm-Level Trade Data (February 23, 2015). ADBI Working Paper 516, Available at SSRN: <https://ssrn.com/abstract=2568543>

Hornok, C., Miklos K. Economics Without Borders, "Winners and Losers of Globalization: Sixteen Challenges for Measurement and Theory, "2017, Cambridge University Press, pp.238-273

Self-evaluation: 100%

Nature of data

13/21. Empirical question: what is the nature of the data of your research?

My study makes use of official data from Statistics Estonia. The possibility of controlled access to confidential micro data sets is provided in the Official Statistics Act of Estonia (Riigikogu, 2010). My dataset includes over 4800 firms that belong to the services sectors and export services. The data are in numbers but also in the text (description of the service).

Riigikogu, 2010. Official Statistics Act, Tallinn

Self-evaluation: 100%

Origin of data

14/21. Empirical question: what is the origin of the data of your research?

The study has a unique dataset designed for this study's purposes.

Data originates from Statistics Estonia and the Estonian Business Register.

The two datasets were linked, and new information was derived (methodology described in Eurostat manual, me being the project manager of this manual).

References

Eurostat, 2017. Compilers Guide for statistics on Services Trade by Enterprise Characteristics (STEC). Luxembourg

Self-evaluation: 100%

Sample

15/21. Empirical question: what is the sample of your research?

My sample includes over 4000 firms that export services. This is a cross-sectional study of the year 2018.

The sample consists of all the firms that have exporting activities during the year.

Altogether I have one dependent variable and five independent variables namely: (1) Log_exp_intensity, which is a dependent variable (2) Log_exp_value, (3) Log_employees, (4) Square_log_employees, (5) Square_log_exp_value and (6) product_logemp_logexpvalue.

Self-evaluation: 100%

Pathos

16/21. Rhetorical question: what are the positive and negative emotions of your research?

1. Positive emotions of my study: to promote Estonian digital agenda (Estonia, 2018), which underscores the importance of enhancing the knowledge on firms to export services. Therefore, the results of my study can be a valuable input for the decision-makers while supporting small and medium-size firms in finding new markets.

2. Negative emotions of my study: the knowledge that small service exporting firms can be a flagship of the Estonian economy. Small firms in services sectors export more intensively because they can adapt quickly. Bigger firms can be better tax-payers as small firms may want to avoid taxes.

Main implications:

The results of my study can be a valuable input for the decision-makers while supporting small and medium-size firms in finding new markets. One of the reasons for many micro-firms in my study may also be the facility to start a firm in Estonia and the firm-friendly environment; for example, there is no income tax.

Self-evaluation: 100%

Logos

17/21. Rhetorical question: what is the scientific logic of your research?

My research involves the population of firms, and therefore I use the hypothetic deductive logic since my sample size is large and the theme generally has been widely studied.

Self-evaluation: 50%

Ethos

18/21. Rhetorical question: what are the limitations of your research?

This research did not consider the firm's ownership and imports value, which can also impact the firm's export intensity. Furthermore, the productivity (export value ratio to the number of employees) has also not been investigated. Those are the topics for further research.

In addition, the Ordinary Least Squares regression analysis was used; however, based on literature (Wagner 2021), quantile regression should be the more appropriate method to investigate the population of exporting firms.

References:

Wagner, J., 2021. MICROECONOMETRIC STUDIES OF FIRMS?IMPORTS AND EXPORTS: Advanced Methods of Analysis and Evidence from German Enterprises. In: The causal effects of exports on firm size and labor productivity: first evidence from a matching approach, pp. 47-55.

Self-evaluation: 50%

Wisdom

19/21. Authorial question: what is your education and experience related to your research?

My previous experience fully supports my research on firms exporting services. In 2015-2017, I was a member of the World Trade Organization WTO member in the task force of international trade in services. Furthermore, I have also organized the working groups in Eurostat where all the EU member states participated in developing services trade statistics methodology.

I am also the main author of the Eurostat manual on services trade by enterprise characteristics (Eurostat, 2017). I was the project manager of the services experimental methodologies. Hence, my previous knowledge contributes to the methodology and analysis as well.

My master thesis (defended in 2010) was also on export activities of the firms: "The role of the structure of exports in the formation of competitiveness of Estonian manufacturing sectors."

References:

Eurostat, 2017. Compilers Guide for statistics on Services Trade by Enterprise Characteristics (STEC). Luxembourg.

Kerner, R., The role of the structure of exports in the formation of competitiveness of Estonian manufacturing sectors". Tartu University European College, 2010

Self-evaluation: 100%

Trust

20/21. Authorial question: who are the partners of your research?

The partners of my research are Statistics Estonia and the colleagues in the Commission with whom I have published also the previous papers and who contribute also with reviewing my research.

Furthermore, the main support comes from the professors with whom I collaborate in Estonia.

Rueda-Cantuche, J., Kerner, R., Cernat, L. & Ritola, V., 2016. Trade in services by GATS modes of supply: statistical concepts and first EU estimates. Chief Economist Paper.

Rueda-Cantuche, J., Kerner, R., Kutlina-Dimitrova, Z. & Cernat, L., 2016. Trade in Services by Modes of Supply. Global Trade Analysis Project (GTAP).

Self-evaluation: 100%

Time

21/21. Authorial question: what is your availability of time and resources for your research?

I am available part-time to conduct my research as I also work in Statistics Estonia.

Estonian government supports the government officers to take the study breaks annually for 20 days; therefore, this facilitates my Ph.D. studies and the availability for further research.

Self-evaluation: 100%