

התאמה בין-לאומית של מדיניות כלכלית

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L'étude réalisée porte sur l'analyse du potentiel d'amélioration des exportations canadiennes et des investissements directs canadiens à l'étranger. Pour effectuer cette analyse, nous avons constitué un ensemble exclusif de données administratives regroupant des informations détaillées au sujet de millions d'entreprises ayant exercé leurs activités au Canada entre 2010 et 2015. Ainsi avons-nous pu, dans un premier temps, étudier la population canadienne actuelle d'exportateurs et d'investisseurs directs à l'étranger. À l'aide d'un modèle probit et de l'appariement des coefficients de propension, nous en avons déduit, dans un sec-

and Feng 2014; Dutt, Mihov, and Zandt 2013; Tapp, Van Assche, and Wolfe 2017; Timothy and Kim 2013)!

Expanding Canada's exporter community and supporting the economic recovery, therefore, requires

fixed costs and sunk costs.” Baldwin and Yan (2020) find that a firm’s export decision and subsequent performance is related to its prior global engagement as an importer.

To identify key observable firm characteristics typically associated with firms’ exporting or foreign investment decisions, we model a firm’s probability of being an exporter or foreign direct investor as a function of a set of observable characteristics, as follows:

$$Prob(d) = \Phi(Z), \quad (1)$$

where d is an indicator variable that equals 1 if the firm is an exporter or a foreign direct investor and 0 otherwise. Z is a set of observable firm characteristics, which includes labour productivity, size (sales or total assets), age, research and development, capital intensity, financial structure (leverage), industry, province and international activities (exporting, importing, CDIA, foreign ownership in Canada, and proportion of immigrant workers employed by the firm). Industry, province, and foreign ownership in Canada are discrete dummy variables. All other variables are continuous.

Potential Exporters and Outward Canadian Foreign Direct Investors

The key challenge is that potential exporters or Canadian foreign direct investors abroad are not directly observable. However, they can be inferred using propensity score matching.⁴ This approach essentially creates a control group (i.e., potential exporters or foreign direct investors) from the non-treated pool (i.e., the universe of non-exporters or non-foreign direct investors), in which the distribution of observed firm characteristics is as similar as possible to the distribution of the treated group (i.e., currently active exporters or foreign direct investors).

Two steps are involved. First, we identify the key observable firm characteristics typically associated with firms’ exporting and foreign investment decisions. A probit model based on Equation (1) distills the numerous observable characteristics into an estimated propensity score (i.e., the probability that a given firm in Canada, operating in industry i , at time t , is an exporter or foreign direct investor), conditional on a detailed set of observable characteristics, Z .

In the second step, we use the estimated propensity scores to match each current exporter or foreign direct investor with one or more similar firms, whose propensity scores and observable characteristics are not statistically significantly different. The matched firms are the potential pool of exporters and investors who share the same characteristics as the current ones but who have not yet become internationally active.⁵

Year	Exports	Foreign Affiliate Sales
2010	570	541
2011	600	570
2012	630	600
2013	660	630
2014	690	660
2015	720	690
2016	750	720
2017	780	750
2018	810	780
2019	840	810
2020	870	840
2021	900	870
2022	930	900
2023	960	930
2024	990	960
2025	1020	990
2026	1050	1020
2027	1080	1050
2028	1110	1080
2029	1140	1110
2030	1170	1140

as size and age are defined as follows. There are three groups by age: 0–10 years, 11–20 years, and 21 or more years of operations. There are also three size groups: small firms (with fewer than 100 employees), medium-sized firms (with more than 100 but less than 500 employees), and large firms (with more than 500 employees).

This study focuses on active commercial businesses operating in Canada. The commercial business sector here includes 21 NAICS two-digit industries but excludes the following sectors that are generally much less engaged internationally: utilities (NAICS 22), education (NAICS 61), health care and social assistance (NAICS 62), and other services such as professional services (NAICS 813) and public administration (NAICS 91). Businesses with no employment or revenues are excluded. In our sample, there are on average 2.4 million enterprises in Canada each year, but only 0.7 million are considered active Canadian commercial businesses in this study.

Current Exporters and Foreign Direct Investors

Canadian firms serve foreign markets by exporting directly from Canada and by selling from foreign affiliates operating abroad. It is not widely appreciated that total sales from these two channels are similar in magnitude (Table 2). Between 2010 and 2015, the annual value of exports was \$570 billion, whereas annual foreign affiliate sales were \$541 billion. Moreover, foreign affiliate sales grew faster than exports (8.5 percent per year vs. 6.1 percent). Therefore, Canada's exports are increasingly being complemented by a growing, on-the-ground, value-creating presence of Canadian companies operating in foreign markets.

6:

Handwritten notes and diagrams for problem 6. The diagram shows a sequence of points on a horizontal line with vertical tick marks. A horizontal line is drawn above the points, and a vertical line is drawn below them. The label t is written above the horizontal line, and $p-t$ is written below the vertical line. There are several arrows pointing to specific points in the sequence.

7:

Handwritten notes and diagrams for problem 7. The diagram shows a sequence of points on a horizontal line with vertical tick marks. A horizontal line is drawn above the points, and a vertical line is drawn below them. The label t is written above the horizontal line, and $p-t$ is written below the vertical line. There are several arrows pointing to specific points in the sequence.

8:

Handwritten notes and diagrams for problem 8. The diagram shows a sequence of points on a horizontal line with vertical tick marks. A horizontal line is drawn above the points, and a vertical line is drawn below them. The label t is written above the horizontal line, and $p-t$ is written below the vertical line. There are several arrows pointing to specific points in the sequence.

