

## Abstract

Recent evidence finds that firm-level export intensity, defined as the ratio of exports to revenue, is bimodally distributed in at least 47 countries. In this paper, we investigate the determinants of the bimodality in a developing country by using Thailand's manufacturing firm-level census data covering the period between 2007-2017. Consistent with Melitz (2003), we do not find evidence that firm productivity can explain the variation in export intensity. We document that firms with the export intensity of at least 90 percent, so-called "pure exporters," are relatively young, have foreign ownership, produce narrow product variety, and export to high-income countries.

## Research Question

**Facts:** Most exporters in developed countries sell most of their output in their domestic markets.

- Around two-thirds of American exporters sell less than 10 percent of their output abroad, and less than 5 percent of them export more than 50 percent of their output (Bernard et al., 2003)

**Puzzle:** The export intensity distributions of 47 countries exhibit two peaks at both ends of the distributions (Defever and Riano, 2017)

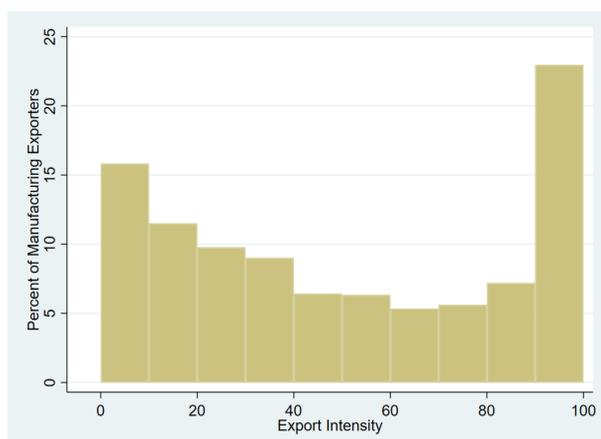
**Why is it a puzzle?**

### 1. Export intensity should be identical across firms

- In standard two-country trade models such as Melitz (2003) and Bernard et al. (2007), a firm's revenues from selling to two markets grow proportionally with its productivity. Therefore, export intensity is independent of firm productivity and is identical across firms.

### 2. Different sets of export markets?

- Heterogeneity in the fixed cost to export to foreign markets can, indeed, lead to a variation of export intensities in multi-country trade models because firms may select a different set of export markets. However, conditional on selling to the same set of export markets, the export intensity is identical across firms independent of firm productivity.



This paper investigates the determinants of the bimodality of the export intensity distribution in a developing country by using Thailand's manufacturing firm-level census data covering the period between 2007-2017.

## Data Description

We use Thailand's firm-level data from three rounds of the industrial census, namely: 2007, 2012, and 2017. The original data set comes in two forms: repeated cross-sectional data and panel data. The numbers of observations in the repeated cross-section data and the panel data are 291,052 and 9,211, respectively.

We define firms that export at least 90 percent of their output as **pure exporters** and define the others as **general exporters**. We use the two-digit ISIC code and restrict our samples to the 23 groups of manufacturing industries.

We establish that the bimodality of the export intensity distribution holds across various classifications such as the census year, region, industry (ISIC two-digit code), firm size, and the economical form and legal form of organization. We do not find evidence that pure exporters are restricted to firms in free trade zones nor processing-trade firms that produce and export according to orders from abroad.

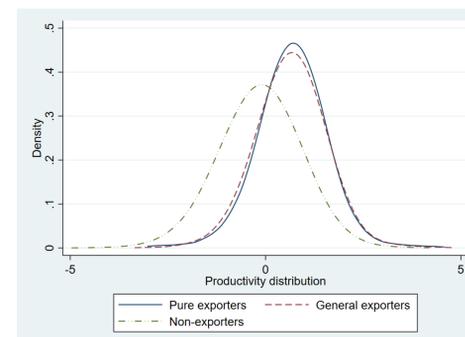
## Empirical results

### Result 1: Pure exporter premia

*Pure exporters are, on average, larger than general exporters in terms of output and value added. Pure exporters likely use more capital and labor than general exporters do, but the capital-labor ratio of pure exporters is smaller than that of general exporters. Generally, pure exporters export to developed countries while general exporters export to developing countries.*

### Result 2: Firm productivity

*We do not find evidence that firm productivity can explain the choice of being a pure exporter or a general exporter. The productivity distribution of pure exporters and general exporters are almost identical. Exporters are more productive than non-exporters.*



## Main Result

### Result 3: What determine the choice of being a pure exporter?

*Pure exporters are relatively young, have foreign ownership, produce narrow product variety, and export to high-income countries.*

Dependent variable	Dummy for being a pure exporter											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)		
Variables	Logit coef.	Logit coef.	Logit marg.	Logit coef.	Logit coef.	Logit marg.	LPM	LPM	LPM	LPM		
TFP	0.017 (0.131)	-0.016 (0.140)	-0.002 (0.020)	-0.122 (0.190)	-0.013 (0.143)	-0.106 (0.159)	-0.016 (0.023)	0.0014 (0.008)	-0.005 (0.008)	-0.024 (0.020)	-0.005 (0.008)	-0.019 (0.013)
Foreign ownership		0.613 (0.128)	0.087 (0.019)	0.723 (0.166)	0.621 (0.124)	0.600 (0.168)	0.089 (0.024)	0.096 (0.014)	0.112 (0.018)	0.097 (0.014)	0.095 (0.022)	
Investment promotion		0.270 (0.108)	0.038 (0.016)	0.241 (0.134)	0.270 (0.108)	0.195 (0.176)	0.029 (0.026)	0.040 (0.015)	0.033 (0.018)	0.039 (0.015)	0.029 (0.028)	
Firm age		-0.018 (0.003)	-0.003 (0.000)	-0.022 (0.005)	-0.018 (0.003)	-0.022 (0.006)	-0.003 (0.001)	-0.002 (0.001)	-0.003 (0.001)	-0.002 (0.001)	-0.002 (0.001)	
TFP <sup>2</sup>				0.048 (0.039)						0.009 (0.005)		
Foreign ownership × TFP				-0.160 (0.110)						-0.023 (0.017)		
Investment promotion × TFP				0.033 (0.097)						0.007 (0.016)		
Firm age × TFP				0.004 (0.006)						0.000 (0.001)		
Free trade zone					-0.077 (0.126)						-0.010 (0.013)	
High-income country						1.580 (0.240)	0.235 (0.033)					0.197 (0.018)
Observations	4,540	4,540	4,540	4,540	4,540	1,897	1,897	4,540	4,540	4,540	4,540	1,897
R-squared								0.113	0.132	0.133	0.132	0.181

(All Logit models do not include fixed effects. All linear probability models include industry-year fixed effects, except model (10) that has industry fixed effects. This table reports results from the panel data. The results from the cross-sectional data are similar.)

### Intuition:

*We propose that pure exporters in a developing country are firms that take advantage of locating in a relatively labor-abundant country by producing relatively labor-intensive products and export to a high-income country.*

## Conclusions

This paper studies the bimodality of export intensity distribution and its determinants. Using firm-level data on Thai manufacturing firms, we first show that the bimodality of the export intensity distribution arises regardless of categorization. We do not find evidence that firm productivity is a factor driving the bimodality of the distribution. Pure exporters tend to be relatively young, have foreign ownership, receive investment promotion, and export to a high-income country.

Doungdao Mahakitsiri & Wisarat Suwanprasert, 2020. "Understanding the Bimodality of the Export Intensity Distribution in Thailand," PIER Discussion Papers 139, Puey Ungphakorn Institute for Economic Research, revised Jun 2020. <https://ideas.repec.org/p/pui/dpaper/139.html>



**Doungdao Mahakitsiri**

Email: [Doungdao.M@Chula.ac.th](mailto:Doungdao.M@Chula.ac.th)  
<https://www.econ.chula.ac.th/faculty-staff/อ-ดร-ดวงดาว-มหาภักษศิริ>



**Wisarat Suwanprasert (Corresponding author)**

Email: [Wisarat.Suwanprasert@mtsu.edu](mailto:Wisarat.Suwanprasert@mtsu.edu)  
<https://sites.google.com/site/wisarutsuwanprasert/>



Please do not hesitate to contact us if you have comments or are interested in our dataset and/or the possibility of future collaboration.