How Information and Communication Technologies Affect Intensive and Extensive Margins of Firm Exports: Evidence with Micro Data of South Asian Manufacturing Firms

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Abstract:
International trade plays a pivotal role in growth and development. The use of ICT is profoundly changing the landscape for international trade and expands opportunities especially for developing countries. The key objective of this study is to investigate the effects of different ICT capacities on the extensive and intensive margins of firm-level exports using micro-data of manufacturing firms operating in selected South Asian countries. We employ the Probit and fractional response models as estimation techniques. Findings of the study reveal that different ICT capacities are positively associated with both the extensive and intensive margins of firm-level exports, and our results are robust to the alternative empirical specifications. These results have important implications for designing the export promotion policies in selected South Asian countries. Hence, policy practitioners in these countries should encourage firms to invest in ICT capacities to boost their export performance.

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1. Introduction

International trade plays a pivotal role in growth and development; trade openness, liberalization, and integration of world economies open up many opportunities for the global south to catch up with the global north (Dollar & Kraay, 2004). For developing countries in the global south, merchandise and services exports to the developed north are a key source of foreign exchange earnings, as they ease balance of payment crises and increase employment opportunities (Thangavelu & Rajaguru, 2004; Xing, 2018). Current literature documents a positive link between extensive margins and export growth. The literature has also found that diversifying exports leads to greater stability in foreign exchange earnings in developing countries (Hummels & Klenow, 2005; Besedes & Prusa, 2011). Similarly, an intensive margin also successfully explains the export growth process. In the last two decades, researchers have shifted their emphasis to the causes and origins of firms' export strategies and their ultimate impact on intensive and extensive margins of exports (Cirera, Marin & Markward, 2015; Regis, 2018).

For firms operating in developing countries, uncovering international market conditions is costly due to informational frictions, which affects international trade (Allen, 2014). Hence, in an increasingly globalized world, innovations in information and communication technologies (ICT) have profoundly reshaped the landscape of international trade. They expand opportunities for firms operating in developing countries by providing access to global markets that increase the scale, customer base and profitability of firms. This signifies the role of ICT in providing a conducive environment for the internationalization of firms through exports and in providing ways for firms to meet the challenges of sustaining the volume of their exports (intensive margin of exports) (Vemuri & Siddiqi, 2009; Cotarelo & Calderón, 2018). In this regard, export market dynamism, that is, changes in demand conditions and competition in the global market, is important for firms operating in developing countries (Cadogan, Kuivalainen, & Sundqvist, 2009; Racela & Thoumrungroje, 2020). Hence, ICT helps firms cope with export market

dynamism by providing up-to-date information (Racela & Thoumrungroje, 2020). A few studies highlighted the role of information networks in helping firms to enter into export markets. For instance, Ricci and Trionfetti (2012) found that information networks increase the probability of exporting (extensive margin of export).

With this background, this study intended to investigate the question: *"To what extent does ICT usage affect firm export outcomes?"* For empirical analysis, we use the data of manufacturing firms from selected South Asian countries, namely, India, Pakistan, and Bangladesh. These countries were selected because each has a vibrant manufacturing sector though their export growth has decreased in the past few years and is estimated to be below potential levels. This situation is depicted in a 2019 report by the World Bank, which reported that in the South Asian region, "export grew at the rate of 4.6 percent in 2017 and 9.7 percent in 2018 while import grew at the rate of 14.9 percent in 2017 and 15.6 percent in 2019". Strong domestic demand fueled by the consumption and investment boom has amplified import growth in these countries. Although economic growth still appears to be robust in general, its sustainability over the long term could be in doubt, due to weak performance on the export front (World Bank, 2019). Hence, this study provides useful insight into the export growth process, looking in particular at intensive and extensive margins in South Asian countries.

This study is relevant to Visser (2019), who investigated the effect of internet penetration on the intensive and extensive margins of differentiated good exports of 162 countries. Moreover, Abeliansky, Barbero, & Rodriguez-Crespo (2021) investigate the effect of ICT usage on the intensive and extensive margins of trade for 150 developed and developing countries. However, this study is different from the existing literature on the subject in three ways: First, instead of country-level data, this study used firm-level data from selected South Asian countries. To the best of our knowledge, few studies have explored the link between ICT usage and the export performance of firms operating in South Asian countries. Second, other researchers have used data from a large number of countries by pooling developed and developing countries into a single sample. However, the presence of unobserved heterogeneity implies that these estimates are subject to an incidental parameter bias that may be substantial in large samples (Hahn & Newey, 2004). Hence, to avoid heterogeneity in the sample, this study used the data set of three South Asian developing countries. Third, this study used explicit survey-level

information on ICT usage and the export performance from the selected South Asian manufacturing firms.

The rest of the paper is organized as follows: Section 2 reviews the relevant literature, while section 3 discusses the methodology employed. Section 4 addresses the findings and discussion, and in section 5 we conclude the study.

2. Literature Review

In developing countries, due to information frictions, the set of goods that an economy can produce and export are determined not only by fundamentals, but also by the number of entrepreneurs engaged in the discovery of appropriate products in the modern sectors of the economy (Hausmann & Rodrik, 2003; Hausmann, Hwang & Rodrik, 2007). Allen (2014) incorporates a costly search process for export market conditions in a model of trade with firm productivity heterogeneity that successfully predicts real-world trade patterns. Similarly, Head and Mayer (2013) argued that despite the low level of traditional trade barriers such as tariffs, quotas, and transport costs, information frictions in the export market substantially hamper international trade. Kneller & Pisu (2011) reported firms' perceptions about major export barriers, and most of the firms identify the initial contact with the prospective client in the international market as a major constraint. In this context, the use of ICT helps firms cope by providing up-to-date information (Racela & Thoumrungroje, 2020). Cotarelo & Calderon (2018) found that the use of ICT is positively associated with export performance in developing countries, while a supportive relationship between exporting firms and their foreign customers mediates the effect of ICT on export success.

Hagsten (2015) investigated the link between ICT usage and export behavior of firms using a distributed data approach. The results of the study revealed that there exists a positive relationship between ICT usage and export decisions. However, the type of ICT that is most useful for firms appears to vary across nations, conceivably associated with the common level of ICT intensity. Similarly, Racela & Thoumrungroje (2020) argued that ICT usage increases a firm's capacity and ability to remain in the export market, and increases their volume of exports. This hypothesis is tested with firm-level data from developing countries. The results substantiate the claim that ICT usage helps firms cope with export market dynamism. Kotnik & Hagsten (2018) found evidence of the positive role of ICT usage by

manufacturing firms in increasing the probability of exporting (extensive margin of exports).

Likewise, Hagsten & Kotnik (2017) found that firms' ICT capacities are positively associated with the probability of exporting and the volume of exports in European countries. However, some studies have argued that there exists complementarity between skills and ICT. For instance, Akerman, Gaarder, & Mogstad (2015) found evidence for the complementarity between ICT usage and skilled labor in the productivity performance of Norwegian manufacturing firms. Ricci & Trionfetti (2012) explored the role of productivity and information networks in the export performance of firms. The authors found evidence of the positive role of network information and firms' productive efficiency for entry into export markets. Similarly, Feiguine & Solovjova (2014) argued that well-educated human resources and ICT capacities are prerequisites for success in the export market. Yushkova (2014) found evidence that ICT innovation reduces trade costs, which in turn magnifies export growth in selected OECD and non-OECD countries. Kneller & Timmis (2016) investigated the effect of broadband usage on the extensive margin of firm exports in the UK and found evidence of the positive effects of broadband usage on the entry of a firm into the export market (extensive margin of export). In the context of African countries, Hinson and Adjasi (2009) investigated the effect of internet usage on export performance in selected African countries. The results revealed that internet usage is positively associated with export performance in selected African countries. In a similar vein, Xing (2018) investigated the effect of ICT usage and e-commerce on the export performance of twenty-one developing and thirty OECD economies. The study supported the claim that the efficient use of ICT unlocks the e-trade potential of developing countries. Similarly, Visser (2019) examined the effect of internet penetration on the extensive and intensive margins of differentiated exports and found that internet penetration facilitates both intensive and extensive margins of differentiated exports. Abeliansky, Barbero, & Rodriguez-Crespo (2021) investigated the effect of ICT usage on the intensive and extensive margin of trade for 150 developed and developing countries and find that ICT usage enhances the intensive and extensive margins of exports.

Lohrke, Franklin, & Frownfelter- Lohrke (2006) argued that the internet reduces transaction costs and works as a conduit for the flow of information and hence is positively associated with export performance. Hagsten & Kotnik (2017) find evidence supporting a positive effect of ICT usage on the export propensity and export intensity of small and medium

firms operating in European countries. To the best of our knowledge, few studies have explored the link between ICT usage and the export performance of firms operating in South Asian countries. Hence, this study fills a gap in the literature by investigating the effect of ICT usage on the intensive and extensive margins of export in selected South Asian countries. ICT usage can reduce information frictions and transaction costs, and works as a conduit for the transmission and diffusion of knowledge. Based on the literature, the following are the key hypotheses of the study:

H1: ICT usage enhances the probability of firms' entry into the export market.

H2: ICT usage enhances the volume of export sales of incumbent firms.

Hence, it is expected that ICT usage can positively influence both the intensive and extensive margins of firm-level exports.

3. Methodology

3.1 Model Specification

This study investigates the question: "*To what extent does ICT usage affect firm export outcomes?*". To achieve this objective, this study developed an empirical model in line with Berman and Hericourt (2010) and Regis (2018) for the extensive margin of firm exports:

$$EXT_{MAR_i} = \alpha + \beta_1 ICT_i + \sum_{j=1}^{n} \gamma_j X_i + \delta_1 D_c + \delta_2 D_i + \varepsilon_i \qquad (1)$$

where EXT_{MAR_i} represents exporting decisions of a firm that is binary, which takes the value '1' if firm i is exporting and the value '0' if it is not exporting. ICT_i represents the use of ICTs by firm i. X_i represents a set of control variables that include productivity and human capital measures through skills, labor force, firm size, and age of the firm. D_c and D_i are dummies that capture heterogeneity across industries and countries, while ε_i is the stochastic random error term. Similarly, this study developed an empirical model in line with Berman & Hericourt (2010) and Regis (2018) for the intensive margin of exports:

$$V_i = \alpha + \beta_1 ICT_i + \sum_{j=1}^{n} \gamma_j X_i + \delta_1 D_c + \delta_2 D_i + \varepsilon_i \qquad (2)$$

where represents the volume of exports and is measured as a ratio of export sales to total sales. ICT_i represents the use of ICT by firm i. X_i

represents a set of control variables that includes productivity and human capital measures through skills, labor force, firm size, and age of the firm.

3.2 Estimation Strategy

Given the binary nature of the dependent variable, an appropriate estimation strategy would be to use a qualitative response model. A qualitative response model relates the probability of an event to the set of control variables and variables of interest. Hence, in this study, the binary probit model is employed to assess the effect of ICT on the extensive margin of export. The binary probit model would take the form:

$$P\left(export_j \middle| X_j, ICT_j\right) = \Phi\left(X_j\gamma + ICT_j\delta_j + D_c + D_i\right) + \mu_j \tag{3}$$

where $P\left(export_j\right)$ is the probability of exporting by firm j and is known as the extensive margin (EXT_{MAR}) of export. $Ex_{mar_J}^{\cdot}$ is a latent variable that is not directly observable, and we express it as a binary choice

$$Ex_{mar_j} = \begin{cases} Export_d = 1 \, for \, Ex_{mar_J}^{\cdot} > 0 \\ Export_d = 0 \, for \, Ex_{mar_J}^{\cdot} \leq 0 \end{cases}$$

The intensive margin of export reflects the volume of export sales and is measured as a ratio of export sales to total sales. Hence, due to the fractional nature of the dependent variable, the fraction response model proposed by Pake & Wooldridge (1996) is the most appropriate estimation strategy.

$$E\left(V_j, X_j, ICT_j\right) = \Psi\left(X_j\gamma + ICT_j\delta_j + D_c + D_i + \mu_j\right) \tag{4}$$

3.3 Variables and Data

Our dependent variables are the extensive and intensive margins of export. The extensive margin is dichotomous and measured by a dummy equal to '1' if a firm is exporting and is equal to '0' if a firm is not exporting. However, the intensive margin is a fraction because it is measured as the ratio of export sales to total sales.

This study uses firm-level data for three South Asian economies, namely, India, Pakistan, and Bangladesh, that is taken from World Bank's Enterprise Surveys (World Bank, 2020). These countries were selected for analysis because the manufacturing sector in these countries is more

vibrant than that in other South Asian countries, such as Sri Lanka, Maldives, Bhutan, and Afghanistan. Moreover, the manufacturing sector traditionally plays a key role in the economic uplift of the masses, especially in developing countries. According to the World Bank, their survey takes data from a "random sample of firms is drawn from the population of manufacturing sectors in each country by size, region, and two-digit industry". The data set is available for 2013 in the case of Pakistan and Bangladesh, while for India, data are available for 2014. Table A1 in Appendix A provides a detailed description of the variables of the study.

4.   Findings and Discussion

The objective of the study is to investigate the effect of ICT on the intensive and extensive margins of firms' exports. The study employed probit and fractional response models as estimation techniques. Table 1 reports the results of the probit model for the extensive margin of exports.

Table 1: Results of probit estimations for the extensive margin of exports

	(1) Exports_ex	(2) Exports_ex	(3) Exports_ex	(4) Exports_ex
size	0.336***	0.305***	0.359***	0.321***
	(0.0158)	(0.0163)	(0.0159)	(0.0166)
age	0.132***	0.125***	0.124***	0.118***
	(0.0256)	(0.0256)	(0.0257)	(0.0258)
prod	0.0510***	0.0412**	0.0581***	0.0483***
	(0.0144)	(0.0145)	(0.0145)	(0.0146)
credit_avail	0.506***	0.513***	0.523***	0.541***
	(0.0593)	(0.0594)	(0.0595)	(0.0597)
imported_tech	0.0942	0.0261		
	(0.0551)	(0.0556)		
workers_skills	0.259***	0.209**		
	(0.0778)	(0.0782)		
F_ownership			0.869***	0.901***
			(0.260)	(0.260)
workers_edu			0.353***	0.392***
			(0.0691)	(0.0697)
ICT_1	0.476***		0.511***	
	(0.0633)		(0.0640)	
ICT_2		0.463***		0.506***
		(0.0439)		(0.0440)
_cons	-3.949***	-3.487***	-3.805***	-3.346***
	(0.225)	(0.228)	(0.218)	(0.220)
N	6449	6449	6451	6451
R²	0.21	0.18	0.22	0.15

| CFE | Yes | Yes | Yes | Yes |
| IFE | Yes | Yes | Yes | Yes |

Heteroskedasticity adjusted robust standard errors in parentheses. $^* p < 0.1$, $^{**} p < 0.05$, $^{***} p < 0.01$. The average marginal effects are reported except constant.

The results reported in column 2 (specification (1)) of Table 1 show that the ICT capacity of a firm measured in terms of e-mail usage for communication with clients or suppliers (ICT_1) is positively related to the firms' exporting decisions in selected South Asian countries. Similarly, the results in column 3 (specification (2)) of Table 1 show that firms with a website (ICT_2) are on average more inclined toward exporting than their counterparts working without a website. These results further reveal that the use of ICT increases the probability of firms entering the export market. These results are consistent with existing studies such as Hagsten & Kotnik (2017) and Kotnik & Hagsten (2018), whose work found a positive effect of ICT usage on the extensive margin of firm-level exports in selected European countries. Similarly, Kneller & Timmis (2016) found a positive effect of ICT usage on the extensive margin of firms' exports in the UK. The control variables in both empirical specifications (1-2) of Table 1, such as the size of the firms, the age of the firms, the productivity of the firms, the availability of credit to firms, the use of imported technology, and the ratio of skilled workers, are all statistically significant with a positive sign. The results of the study suggest that these factors increase the probability of firms' entry into the export market.

In empirical specifications (3-4) of Table 1, we replace imported technology and the ratio of skilled workers with foreign ownership and workers' education as control variables. The results reported in empirical specification (3) show that ICT in terms of email usage (ICT_1) is statistically significant with a positive sign. Similarly, the results in specification (4) of Table 1 show that the probability of exporting increases for firms with a website (ICT_2). The new control variables foreign ownership and workers' education in empirical specifications (3-4) are also statistically significant with positive signs. We also include dummies in all empirical specifications (1-4) to control for unobserved industry fixed effects (IFE) and country fixed effects (CFE).

The intensive margin of exports reflects the volume of export sales and is measured as a ratio of export sales to total sales. Hence, due to the fractional nature of the dependent variable, the fraction response model proposed by Pake & Wooldridge (1996) is the most appropriate estimation model. Table 2 shows the results of the intensive margin of exports

estimated using a fractional probit model. The results shown in the second column of Table 2 (empirical specification (1)) indicate that the ICT capacity of a firm measured in terms of e-mail usage for communication with clients or suppliers (ICT_1) is statistically significant with a positive sign. Similarly, the results reported in empirical specification (2) of Table 2 show that firms with a website (ICT_2) export more on average than their counterparts working without a website.

Table 2: Fractional Probit estimates for intensive margin of firm level exports

	(1) Exports_in	(2) Exports_in	(3) Exports_in	(4) Exports_in
Size	0.353***	0.333***	0.379***	0.350***
	(0.0158)	(0.0170)	(0.0163)	(0.0175)
age	0.0402	0.0338	0.0277	0.0210
	(0.0259)	(0.0263)	(0.0261)	(0.0267)
prod	0.0304*	0.0215	0.0353*	0.0238
	(0.0152)	(0.0152)	(0.0151)	(0.0152)
credit_avail	0.315***	0.317***	0.314***	0.326***
	(0.0602)	(0.0606)	(0.0597)	(0.0599)
Imported_tech	0.211***	0.165**		
	(0.0547)	(0.0557)		
workers_skills	0.834***	0.810***		
	(0.0825)	(0.0834)		
F_ownership			0.926***	0.972***
			(0.236)	(0.247)
workers_edu			0.369***	0.414***
			(0.0737)	(0.0747)
ICT_1	0.378***		0.377***	
	(0.0747)		(0.0739)	
ICT_2		0.362***		0.420***
		(0.0508)		(0.0496)
_cons	-4.290***	-3.939***	-3.633***	-3.253***
	(0.237)	(0.239)	(0.222)	(0.225)
N	6682	6682	6684	6684
CFE	Yes	Yes	Yes	Yes
IFE	Yes	Yes	Yes	Yes
R^2	0.25	0.33	0.29	0.35

Robust standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Average marginal effects are reported

These results appear to support the claim that ICT usage helps firms increase their volume of exports. These results are consistent with literature, such as Hagsten & Kotnik (2017) and Kotnik & Hagsten (2018), who found a positive effect of ICT usage on the intensive margin of firm-

level exports in selected European countries. Similarly, Kneller & Timmis (2016) found a positive effect of ICT usage on the intensive margin of firms' exports in the UK. The control variables in both empirical specifications (1-2) of Table 2, such as the size of the firms, the productivity of the firms, the availability of credit to firms, the use of imported technology, and the ratio of skilled workers, are all statistically significant with a positive sign. However, the age of the firms) is statistically insignificant in both empirical specifications (1-2) with a positive sign.

In empirical specifications (3-4) of Table 2, imported technology and the ratio of skilled workers are replaced with foreign ownership and workers' education as control variables. The results shown in empirical specification (3) show that email usage to communicate with clients or suppliers (ICT_1) is statistically significant with a positive sign. Similarly, the results shown in empirical specification (4) of Table 2 show that firms with a website (ICT_2) export more on average than their counterparts working without a website. These results show that ICT capacities help the firm increase its volume of exports. The control variables in both empirical specifications (3-4) of Table 2, such as the size of the firms, the productivity of the firms, the availability of credit to firms, foreign ownership, and workers' education, are all statistically significant with a positive sign. However, the age of the firms is statistically insignificant in both empirical specifications (3-4) with a positive sign.

In order to test the robustness of our results, a beta regression is estimated after deleting the boundary values from the data. The results of the beta regression are reported in table B1 in Appendix B. The results in alternative specifications validate the claim that ICT capacities help the firm to increase its volume of exports. There is also the possibility of endogeneity because exporting activity or an unobserved variable might cause the ICT capacities of firms. Hence, to avoid any potential endogeneity, endogenous treatment with a control function is also used for a robustness check. The control function approach for endogenous treatment provides an excellent tool to deal with endogeneity in observational studies (Wooldridge, 2010; Wooldridge, 2015). We used the productivity of the firms as correlated with both treatment and outcome. The results of the average treatment effect (ATE) of endogenous treatment are reported in table B2 in appendix B. These results again validate the claim that ICT capacities help the firm to increase its volume of exports. However, the magnitude of impact decreased, as depicted in the results reported in table B2.

4　Conclusions

This study investigated the effect of different ICT capacities on the extensive and intensive margins of firm-level exports. The study used micro-data of manufacturing firms operating in selected South Asian countries, namely, India, Pakistan, and Bangladesh and employed the probit model and the fractional response model as estimation techniques. The results of the study show that ICT capacities in terms of the use of e-mail to communicate with clients or suppliers and website ownership are positively associated with both extensive and intensive margins of firm-level exports. ICT is, therefore, an important catalyst in boosting growth in the export sector. Our results also show that other control variables, such as the size of the firms, the age of the firms, the productivity of the firms, the availability of credit to firms, the use of imported technology, and the ratio of skilled workers, are all positively associated with both extensive and intensive margins of trade. Similarly, firms with a larger share of educated workers and foreign ownership on average export more than their counterparts. The results of this study are robust to alternative empirical specifications. These results have important implications for designing export promotion policies in selected South Asian countries. The results suggest that policymakers should assist in providing ICT infrastructure to different industries to boost growth in the export sector.

This study is based on the data collected from the World Bank's Enterprise Surveys, which provides a limited amount of information on ICT usage. The literature on country-level studies used some advanced measures, such as the number of subscriptions (per capita) and average quality of subscriptions (bandwidth) on the extensive and intensive margins. Hence, future research can focus on additional measures of ICT usage, such as mobile appliances and the average quality of subscriptions.

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Table A1: Variables and their Description

Variables	Description
Intensive Margin of Export	Ratio of export sales to total annual sales
Extensive Margin of Export	Dummy variable equal to one if firm export either directly or indirectly
Firm Size	Logarithm of the number of full- time employees.
Productivity of firm	Logarithm of value-added per permanent employee
Age of firm	Logarithm age of an establishment in years
Access to Credit	Percentage of working capital financed by banks and nonbank borrowing
Foreign Ownership	Percentage of the firm owned by private foreign individuals, companies or organization
Worker's skills	Ratio of skilled production workers to unskilled production workers.
Education of Workers	Percentage of full-time permanent workers who completed secondary school
ICT_1	Dummy variable equal to one if establishment use e-mail to communicate with clients or suppliers
ICT_2	Dummy variable equal to one of the establishments has its website
Imported technology	Dummy variable equal to one if the firm use imported technology

Table A2: Descriptive Statistics

Variable	Obs	Mean	Standard Deviation
Extensive margin	8023	.102	.269
Imported technology	8023	.118	.323
Size	8023	3.588	1.302
Access to Credit	8023	.266	.322
Workers Skills	8023	.704	.257
Foreign ownership	8023	.007	.069
Workers Education	8023	.429	.3
Training to employee	8023	.367	.482
ICT_1	8023	.465	.499
ICT_2	8023	.461	.489
age	8023	2.742	.787
Extensive margin	8023	.208	.406
Productivity	8023	13.898	1.332

Appendix B: Results for the robustness check

Table B1: The results of beta regression for intensive margin of export

	(1)	(2)	(3)	(4)
	Exports_int	Exports_int	Exports_int	Exports_int
size	0.0752**	0.0844**	0.0810**	0.0912**
	(0.0293)	(0.0296)	(0.0290)	(0.0295)
age	0.0356**	0.0364**	0.0374**	0.0384**
	(0.0123)	(0.0122)	(0.0224)	(0.01223)
prod	0.0626**	0.0604**	0.0640**	0.0621**
	(0.0254)	(0.0253)	(0.0255)	(0.0254)
credit_avail	0.251**	0.269**	0.225**	0.241**
	(0.113)	(0.113)	(0.113)	(0.113)
imported_tech	0.100*	0.132*		
	(0.0572)	(0.0573)		
workers_skills	0.328**	0.328**		
	(0.152)	(0.151)		
F_ownership			0.245**	0.307****
			(0.109)	(0.111)
workers_edu			0.0702*	0.0154
			(0.0427)	(0.027)
ICT_1	0.445**		0.464**	
	(0.200)		(0.200)	
ICT_2		0.313***		0.307***
		(0.102)		(0.103)
scale				
_cons	0.852***	0.857***	0.845***	0.849***
	(0.0419)	(0.0419)	(0.0418)	(0.0419)
N	1484	1484	1484	1484

Robust standard errors in parentheses; $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. The average marginal effects are reported except constant

Table B2: Results of endogenous treatment with control function approach

	Outcome variable: export intensity Treatment	
	ICT_1	ICT_2
ATE	0.23**	0.18**
	(.1102)	(.081)
N	6682	6682

$^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$