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# Trade in Services: IT and Task Content* 

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#### Abstract

In this paper we investigate the determinants of the dramatic increase in services tradability focusing on the extensive margin of the phenomenon. We use balance sheet and firm-level service trade information over the period 1995-2005 provided by the National Bank of Belgium and we merge it with information on the evolution of information technology use and tasks performed by workers from the qualification and career survey provided by the BIBB-IAB. We show that technological change, measured either by the more intensive use of information technologies or by changes in the task content of jobs, has substantially contributed to the increase in the number of service-trading firms. Interestingly, we find evidence of a churning effect. While technological change has induced net entry into service trading, it has also increased the likelihood of both gross entry and exit of firms. Furthermore, our evidence suggests that due to the peculiar nature of services provision, the change in the tasks content of jobs is a better measure of technological change than the use of information technologies. Our results are robust to controlling for service trade liberalization and offshoring.


Keywords: trade in services; extensive margin; technological change; task content. JEL Classification: F14, F16, O33, L80.

[^0]
## 1 Introduction

Nowadays we live in the era of services: fifty years ago the service sector represented only $30 \%$ of GDP and a negligible share of trade while, according to Francois and Hoeckman (2009), it now accounts for $75 \%$ of GDP and at least $20 \%$ of total world trade ${ }^{1}$. Services are the fastest growing component of trade over the past ten years, with a two-digit average annual growth rate. ${ }^{2}$ During the period 1995-2005 the number of importers and exporters of services in the country we analyze (Belgium) has more than doubled, while the value of services traded has increased by more than $250 \%$. These figures raise an intriguing and important question about the causes of this phenomenon. In this paper we investigate one of the key driving forces behind the dramatic increase in the tradability of services: the Information Technology (IT) revolution. We focus the analysis on the extensive margin side of the issue, i.e. the change in the number of trading firms, and analyze the heterogeneous proliferation of firms involved in the export and import of services across different sectors. We argue that the geographic anchor of service activities has been cast loose, as the IT revolution has modified the basic nature of activities that can be traded or more generally off-shored. Technological change has radically modified the way production and distribution are organized so that some formerly non-tradable services have entered the realm of tradability. Technology is shooting down distance barriers by dramatically reducing transport costs and making the transfer of information almost instantaneous. In the words of Blinder (2009): "Information and communications technology keeps getting both better and cheaper" thus increasing the scope for trade in services.

Despite the major role that services are currently playing in world trade, they have received little attention in the academic literature so far. On the theory side, services have traditionally been treated as a sector whose output is purely non-tradable. As a result, the existing body of research on international trade and trade policy is focused almost entirely on agriculture and (especially) manufacturing. On the empirical side the gap is mainly due to the fact that data on trade flows and FDI in services across countries have become available only very recently. Our paper contributes to the seminal literature on trade in services, recently surveyed by Francois and Hoeckman (2009), as well as to the relatively new empirical literature focusing on firm-level trade. Most previous analyses have used aggregate service trade data. Freund and Weinhold (2002),

[^1]who are no exception to the rule, study the impact of the internet on the increase in the value of trade in services by focusing on cross-country data. Their research topic is closely related to ours, some of the key differences being that we focus on a single country (Belgium), we use firm-level trade in order to look at the extensive margin, and we exploit the multi-dimensional measure of technological change provided by our task variables. The link between trade in services and the change in the task content of jobs has previously been analyzed by Oldenski (2009), albeit in a different setting. Using US sector-level data, Oldenski (2009) analyzes the determinants of the FDI vs. trade decision in the context of services. She shows that the usual trade-off between economies of scale and proximity to the final consumer, which is recognized to be a key element in the exporting versus FDI strategy for manufacturing goods, does not apply to services. We share the same job tasks approach, but we use firm-level trade and focus on the determinants of entry and exit into the export and import of services activities.

Our research is related to Breinlich and Criuscolo (2009) who provide the first descriptive portrait of trade in services at the firm level. Using firm-level panel data for the UK, they show that services traders share many common features with goods traders. In particular, they show that service exporting firms are larger, more productive, and have a more skilled labor force compared to non-traders. In our analysis of the impact of the IT revolution, we make use of similar firm-level data for Belgium and build on Breinlich and Criuscolo (2009) in the choice of our control variables. Our paper is also directly linked to the recent "task approach" developed by both labor and international economics. In particular our paper is related to that of Blinder (2006) and Grossman and Rossi-Hansberg (2008) for the international economics literature, and to Spitz-Oener (2006), Autor et al. (2003) and Levy and Murnane (1996) for the labor economics literature. Both strands consider the production process as a combination of different tasks. Grossman and Rossi-Hansberg (2008) argue that, in an era in which value added is created in different locations, international trade can be considered more and more as trade in tasks rather than trade in goods. From the labor perspective, Spitz-Oener (2006) and Autor et al. (2003) argue that technological change can modify the composition of the tasks involved in a typical job. We embrace these two complementary perspectives and investigate to what extent technological change has modified the tradability of services.

In order to achieve our goal, we take advantage of a firm-level trade in services dataset available at the National Bank of Belgium (NBB), along with balance sheet
information, over the period 1995-2005. We complement our data with the BIBBIAB labor force surveys that provide us with a time-varying measure of technological change. More precisely, we proxy the differential impact of the IT revolution across sectors by either the change in the degree of use of computers, terminals and electronic data processing machines by workers, or the change in the different tasks (analytical, interactive, routine cognitive, routine manual, and non-routine manual) required in a typical job. In particular, we find evidence of a churning effect with technological change increasing the likelihood of both gross entry and gross exit from trade in services activity during the decade we study. Overall, the positive effect of entry dominates across the different firm-groups we consider. Furthermore, our evidence suggests that, due to the peculiar nature of some services provision, and in particular to the increasing need for interactive tasks, the change in the tasks content of jobs is a better measure for technological change than the use of IT.

We provide a number of additional results that further qualify our findings as well as some robustness checks that corroborate our discoveries. We document the existence of a heterogeneous effect of technological change on service tradability depending on firm size, capital and skill intensity, as well the presence of some form of increasing returns. We take into account the issue of omitted variables and focus on service trade liberalization and offshoring. Our results shows that neither service trade liberalization nor offshoring are driving our results.

The structure of the paper is as follows. In Section 2 we describe the data and the main variables used. Section 3 provides some key facts about trade in services in Belgium that will guide our analysis. In Section 4 we describe the econometric strategy, while in Section 5 we outline our main results. Section 6 is devoted to additional results and robustness checks. Finally, Section 7 concludes.

## 2 Data

### 2.1 What is Trade in Services?

Services are flows that do not cross custom frontiers inside a package, therefore their measurement is more problematic and difficult to sort. The need for a common understanding led to the General Agreement on Trade in Services (GATS) classification where one can distinguish four modes of trade in services:

- Mode 1 (Cross-Border): when the service is produced in the territory of one
country and consumed in the territory of another country;
- Mode 2 (Consumption Abroad): when the service is consumed in the territory of one country by the resident of another country;
- Mode 3 (Presence Abroad): when the service is provided by a supplier of one country through commercial presence in the territory of another country;
- Mode 4 (Presence of Natural Person): when the service supplier of one country, through presence of natural persons, provides the service in the territory of another country.

Examples of mode 1 transactions are software developed in the US and used by some UK companies, or a call-center in India providing its services to a UK firm. Mode 2 could be a medical service provided in Switzerland by a Swiss medical center to a French resident, or simply the services consumed by German tourists in Greece. Mode 3 implies the commercial presence of one company in another country, which falls into the common definition of FDI. An example would be a US internet provider selling its services via an affiliate in Ireland. Finally, mode 4 could be an Italian firm sending one of its employees to Spain to provide a service to a Spanish company. Our firm-level service trade dataset contains information about transactions belonging to modes 1 and 4.

### 2.2 Data Sources

The data we use for the analysis comprise two main pieces. The first is a firm-level dataset with balance-sheet information on Belgian firms covering the period 1995-2005, augmented with trade in services. The data on trade in services are collected by the NBB on a yearly basis and contain the universe of import and export transactions at the firm-level by product type and origin/destination. The second piece comes from the Qualification and Career Survey. The data are collected by the German Federal Institute for Vocational Training (BIBB) and the Research Institute of the Federal Employment Service (IAB). It includes five cross sections (1979, 1985/86, 1991/92, 1998/99 and 2006) each one covering about 30,000 individuals. From this dataset we retrieve information on how technological change has affected different sectors and in particular we focus on the use of IT and the tasks involved in different occupations.

Balance sheet information and firm-level data on trade in services. Firmlevel balance sheet data over the period 1995-2005 come from the Business Registry covering the population of Belgian firms required to file their (unconsolidated) accounts to the NBB. The data combine annual accounts figures with data from the Crossroads Bank on firms' main sector, activity and legal status. Overall, most firms that are registered in Belgium (i.e., those that exist as a separate legal entity) and have limited liability are required to file annual accounts. ${ }^{3}$ There are two types of annual accounts: full and abbreviated. Firms have to file a full annual account when they exceed at least two of the following three cutoffs: (i) employ at least 50 employees; (ii) have an annual turnover of more than 7.3 million euros; and (iii) report total assets of more than 3.65 million euros.

For this study, we consider all companies that filed a full-format or abbreviated balance sheet in 1995 and 2005. Starting with 178,069 firms in 1995, 55,515 are no longer in the data in 2005 (exiters), 156,007 new firms are present in 2005 (entrants), and 122,554 are recorded in both years (stayers). ${ }^{4}$ We thus end up with 278,561 firms in 2005. In our analysis we make use of a number of firm-level variables derived from these data: value added, employment in full time equivalent, wage bill, tangible assets, intangible assets, and firm age. These variables are jointly available for about $55 \%$ of firms, allowing us to keep track of 29,581 exiters, 58,550 entrants and 95,512 stayers. The loss of information is essentially due to the unavailability of employment figures, which are not mandatory for small firms and are not recorded for firms with only self-employed persons, so that our final data represent the bulk of Belgian firms' employment and sales. We further assign each firm, based on its NACE rev 1.15 -digit main activity code, to one of the sectors listed in Table 1. The choice of the sectoral disaggregation is dictated by the need to create a correspondence with the classification used in the Qualification and Career Survey, which provides us with measures of technological change. Based on the sectoral breakdown of Table 1 we finally construct,

[^2]starting from firm-level balance-sheet information, the share of employment represented by white-collar workers in each sector in 1995 and 2005. Table 2 provides summary statistics of the variables obtained from balance sheet data for the group of firms for which such variables are jointly available.

Belgian service trade data by year, firm, product (IMF code), and country are provided by the NBB. We aggregate data across the country and product dimensions, which are not relevant to our analysis, thus concentrating on yearly exports and imports of services at the firm-level in 1995 and 2005. Micro service trade data are collected by the NBB on a yearly basis from declarations submitted by Belgian resident banks and financial firms. ${ }^{5}$ Whenever a Belgian resident makes (receives) a payment to (from) a non-resident above a certain amount, ${ }^{6}$ banks and financial firms are obliged to gather detailed information about the transaction. In the case of payments related to imports and exports of services, the IMF code of the traded service and the country of the nonresident are recorded along with the value of the transaction and the identifier (VAT code) of the Belgian resident.

We merge balance sheet and service trade data using the VAT number which uniquely identifies firms in Belgium. Due to the aforementioned requirements to file annual accounts, we loose track of about $30 \%$ (25\%) of service trading firms in 1995 (2005). However, these are essentially small firms and/or firms which have a VAT number but do not exist as a separate legal entity in Belgium, ${ }^{7}$ so that in the end we are able to cover around $80 \%$ ( $90 \%$ ) of total traded values in 1995 (2005). Considering the merged data, we end up with 5,346 firms exporting services in 1995 and 13,029 exporting in 2005. This means that the average increase in the number of firms trading (extensive margin) has been more than $9 \%$ per year over our 10 year period. Figures for imports of services are similar: 5,049 firms import in 1995 and 9,373 in 2005, with the annual increase in the extensive margin averaging more than $6 \%$.

Measuring technological change. The second piece of the our dataset, the Qualification and Career Survey, was provided by the BIBB-IAB and is composed of five cross-sections (1979, 1985/86, 1991/92, 1998/99 and 2006). Our goal is to use these data to measure technological change, which means that we need a sufficiently long

[^3]time period. For the purpose of our investigation, we focus solely on the 1991/92 and 2006 waves in order to match the time coverage of our trade and balance sheet data.

In this Qualification and Career Survey dataset, every individual is classified by occupation and sector, resulting with more than 100 occupations and 42 sectors. A major advantage of this dataset is that workers directly indicate whether they perform a task or not. This procedure prevents the possibility of underestimating the change in occupational content. For example, in a similar US survey, the DOT (Dictionary of Occupational Titles), experts are called to assign frequency or importance scores to tasks used in different occupations. But as highlighted by Spenner (1983), this process leads to an underestimation of the changes in job content. Moreover, surveys like the DOT occupational classifications are not comparable over time. In order to derive our measure of technological change we follow Spitz-Oener (2006). We classify the different tasks by considering how repetitive is their nature and whether they imply manual, cognitive or interactive activities. We end up with five main categories: analytical tasks, interactive tasks, routine cognitive tasks, routine manual tasks and non-routine manual tasks. Table 3 shows the classification. The task intensity is observed at individual level and is defined as the number of activities pertaining to one of the five categories performed by a worker $i$ in a particular year $t$ :

$$
\text { Task } k_{i, j, t}=\frac{\text { number of activities in category } j \text {, per formed by } i \text { at time } t}{\text { total number of activities in category } j \text { at time } t}
$$

Where: $t=(1992,2006)$ and

$$
j=\left\{\begin{array}{ll}
1 & \text { : analytical tasks } \\
2 & \text { : interactive tasks } \\
3 & \text { : routine cognitive tasks } \\
4 & \text { : routine manual tasks } \\
5 & \text { : non - routine manual tasks }
\end{array}\right\}
$$

For instance, if the category interactive tasks contains six tasks and the worker indicates that he or she performs three of them, the task measure for this worker will be 0.5. We then aggregate this individual measure averaging across workers within each of the sectors (index $k$ ) listed in Table 1, thus obtaining a sector $k$-specific measure of the relative use of such task. Table 4 shows the evolution over time in the task intensities across all sectors: one can observe the increase in the use of non-routine cognitive tasks, both analytical and interactive, coupled with a steady decline in routine cognitive and manual tasks.

Our second (alternative) measure of technological change builds on the utilization of information technology. The Qualification and Career Survey provides us with a dummy variable taking value one if a worker uses computers, terminals and electronic data processing machines. In order to measure the change in the importance of IT, we count for each sector $k$ the number of workers using computers, terminals and electronic data processing machines, and we divide the number obtained by the total number of individuals in that sector. Analytically:

$$
\text { Comp }_{k}=\frac{\text { number of workers in sector } k \text { using computers }}{\text { total number of workers in sector } k}
$$

The last column of Table 4 reveals the dramatic increase in the use of IT (across all sectors) over time, rising from a value of $6 \%$ in 1979 to $68 \%$ in 2006. The evolution of both IT and Task intensities over time are in line with the idea of Levy and Murnane (1996), Spitz-Oener (2006) and Autor et al. (2003) that the technological change induced by IT displaces routine cognitive and manual tasks, while complementing non-routine analytical tasks.

A possible issue with these data is that they refer to a country other than Belgium: Germany. In our view this should not matter. First, there is a great affinity between Germany and Belgium. They are close in terms of geographical location, economic development, sectoral specialization and culture with a significant proportion of the Belgian population speaking German. Second, we believe that the technology of services production and distribution across developed countries is very likely to follow a common trend dictated by world best practice. The technology used in a call center in Belgium is unlikely to differ substantially from that used in a German call center, nor will there be significant differences in the methods of reading and/or transmitting X-rays in the two countries. Another potential issue with these data concerns the comparability of the different waves. This is not much of a problem either since, as highlighted by SpitzOener (2006), the occupation and sector classifications, and in general the structure of the questionnaire for the variables we exploit, have only marginally changed over time. In every wave a worker states which tasks he/she performs in his/her occupation. In the 2006 wave, workers are also allowed to state how often they perform a certain task (frequently, occasionally or never). We tackle this problem by considering that a task is performed in 2006 only if a worker states that he/she performs it frequently.

## 3 Some Key Facts About Trade in Services

The main goal of our investigation is to assess whether technological change has affected the tradability of services and, in particular, the number of trading firms (extensive margin). In this Section we document a number of facts about trade in services in Belgium and the changes taking place over time that will guide us in the subsequent econometric analysis.

In order to better distinguish firms across time we divide firms into the following categories: exiters and entrants that do or do not export (import); stayers that never export (import), give-up exporting (importing) after 1995, start exporting (importing) before 2005 and those that export (or import) in both in 1995 and 2005. Figure 1 provides a visual representation. We build on this classification of firms in Table 5 (6) and decompose aggregate 1995 and 2005 exports (imports) of services into the extensive, (i.e. number of firms), and intensive, (i.e. average traded value per firm), margin for the different categories of firms. The pattern of exports in Table 5 is quite clear. Results for imports in Table 6 are qualitatively identical. First of all, one can observe that the remarkable increase in the total number of trading firms comes from two sources: newly created firms (Entrants exporters) outnumber exiters (Exiters exporters), and firms that were already present but were not exporting in 1995 (Stayers start exporting) outnumber firms who ceased to export after 1995 (Stayers give-up exporters). This is the variation we are interested in. The second point is that the huge increase in the intensive margin ( $11.3 \%$ on average per year) is entirely driven by firms that export in both years (Stayers always exporters). Though interesting, the analysis of the intensive margin is beyond the scope of this paper.

To get a better understanding of the change occurred in service trade in Table 7 we distinguish between exporting and importing firms that have their primary activity in the group of service sectors and those whose primary activity is in the group of manufacturing sectors. We can see that the services sector accounts for the lion's share of both aggregate trade value and the number of firms. Companies with their main activity in the service sector account for about $80 \%$ of the firms involved in service trade, and a similar share of the total value of trade. In terms of trading firm dynamics, the service sector is expanding more strongly than the manufacturing sector. The share of trading firms belonging to the service sector increased from $84 \%$ in 1995 to $92 \%$ in 2005 for exports and from $72 \%$ to $80 \%$ for imports. On the other hand, the manufacturing sector has increased its weight in terms of aggregate trade values going from $10 \%$ in 1995 to $14 \%$ in 2005 for export and from $15 \%$ to $16 \%$ for imports. The two key messages
from the above analysis are: (i) the service sector has experienced a stronger increase in the extensive margin, which could be consistent with technological change affecting more firms in this sector; (ii) the manufacturing sector cannot be excluded from the analysis due to its significant share of trading firms and value.

But what are the sectors mainly involved in service trade? Table 8 shows the top 10 trading sectors in terms of traded values, while Table 9 shows the top 10 sectors in terms of the number of firms involved in service trade. As one can see from both Tables, the leading role is played by sectors belonging to the services group: only two out of the top ten sectors belong to the manufacturing group in each of the rankings. But have the sectors experienced the same evolution in terms of trading firms and traded values? Table 10 shows that the sector that experienced the largest increase in terms of number of trading firms, for both exports and imports, is Professional, Scientific and Technical Activities. On the other hand Wholesale and retail trade and Chemical Industry, Rubber and Synthetic Material lead in terms of increase the value of both exports and imports. Comparison of Tables 8, 9, and 10 further reveals that the relative change in the extensive margin has been quite heterogeneous across sectors. This last point is important. Had the extensive margin evolution been homogeneous across sectors, it would be difficult to identify the impact of technological change using its sectoral variation.

Finally, Tables 11 and 12 provide the list of the 10 top-trading countries in terms of, respectively, traded values and number of firms, for both exports and imports of services. Table 11 reveals that the geography of trade values in services has changed substantially over the period 1995-2005, with Great Britain and Japan dramatically increasing their importance. On the other hand, Table 12 indicates that, in terms of number of firms trading, the picture is very stable across time. This last finding is certainly useful in our analysis of the extensive margin because it suggests that the country dimension plays a secondary role.

## 4 Econometric Strategy

In our analysis we make use of a number of firm-level control variables obtained from balance sheet data: (log) firm age is used to model firm survival, (log) value added per worker is our measure of productivity, (log) employment is our measure of firm size, (log) wage per worker is a reduced-form measure of skill intensity and factor costs, (log) tangible assets value over employment captures capital intensity, and (log) intangible
assets value per worker is our proxy for expenditure on technology. We also use our firm-level data to compute the sector share of white collar workers in both 1995 and 2005 as a measure of the general shift of the economy towards white collar jobs. Finally, from the Qualification and Career Survey provided by the BIBB-IAB, we retrieve our two alternative measures of technological evolution: the change in the use of computers, terminals and electronic data processing machines (IT change), and the change in the importance of analytical, interactive, routine cognitive, routine manual and non-routine manual tasks in workers' occupations (Task change).

In order to identify the effect of technological change on the increase in the number of firms trading services we must take into account the fact that we are not dealing with a homogeneous group of firms. Between 1995 and 2005, new firms appear: some of them are trading services while, within the group of firms active in 1995, some are still operating in 2005, and may have very different trade status, while others have closed down, leading to some exits from service trade participation. Since this feature of the data can cause results to be not comparable, we adopt different empirical strategies for each of the firm groups outlined in Figure 1:

## - Stayers

Stayers are firms active in both 1995 and 2005. As these firms might share some unobservable features affecting service trade participation, we need to control for selection. To this end, we use a Heckman (1979) two-step procedure: first we run a selection equation on all firms active in 1995 using a probit model where the dependent variable $\left(\right.$ Stayer $\left._{i}\right)$ takes value one if firm $i$ is still operating in 2005 and zero otherwise. Our exclusion restriction variable is firm age $\left(A g e_{i}\right)$, while covariates are productivity $\left(\operatorname{Prod}_{i}\right)$, firm size $\left(\right.$ Size $\left._{i}\right)$, tangible capital intensity $\left(\frac{k}{l} i_{i}\right)$, skill intensity $\left(\frac{w}{l}{ }_{i}\right)$, intangible capital intensity $\left(\frac{i k}{l}{ }_{i}\right)$ and sectoral dummies $\left(\operatorname{Ind}_{k}\right)$ :

$$
\begin{equation*}
\text { Stayer }_{i}=\beta^{0}+\beta^{1} \text { Age }_{i}+\beta^{2} \operatorname{Prod}_{i}+\beta^{3} \text { Size }_{i}+\beta^{4} \frac{k}{l_{i}}+\beta^{5} \frac{w}{l_{i}}+\beta^{6} \frac{i k}{l_{i}}+\text { Ind }_{k}+\mu_{i} \tag{1}
\end{equation*}
$$

where $\mu_{i}$ is a iid error component.
In the second step we estimate an outcome equation which takes into account selection by means of the inverse Mill's ratio. We run 3 separate outcome regressions using a linear probability model where the dependent variable $\left(E x p_{i}\right)$ takes value one if (i) firm $i$ starts exporting (importing) between 1995 and 2005; (ii) gives-up exporting
(importing) between 1995 and 2005; (iii) exports (imports) in both 1995 and 2005. The reference category (zero) is represented by all stayers, so that coefficients can be directly related to gross entry and exit and from service trading in each sector. ${ }^{8}$ As control variables we use firm productivity, size, tangible capital intensity, skill intensity, intangible capital intensity (all being deflated by their sectoral mean), as well as the inverse Mill's ratio estimated in the first stage. $\Delta$ variables are defined as the time difference of the concerned variable over the period 1995-2005. In order to identify the role of technology in the increase in extensive margins we use two different strategies: in specification 1 we employ the sectoral change in the share of white collars workers $\left(\Delta W h i t e \_c_{k}\right)$ and the sectoral change in IT use $\left(\Delta \operatorname{Comp}_{k}\right)$ :

$$
\begin{align*}
& \text { Exp }_{i}=\alpha^{0}+\alpha^{1} \operatorname{Prod}_{i}+\alpha^{2} \text { Size }_{i}+\alpha^{3} \frac{k}{l_{i}}+\alpha^{4} \frac{w}{l}_{i}+\alpha^{5} \frac{i k}{l_{i}}+\alpha^{6} I M_{i}  \tag{2}\\
& +\eta^{0} \Delta \text { White_c }_{k}+\eta^{1} \Delta \text { Comp }_{k}+v_{i}
\end{align*}
$$

From this specification we expect to grasp the overall effect that technological progress is having on the tradability of services. In specification 2 we use the sectoral change in the share of white collars workers and the sectoral change in the different tasks $j$ intensity $\left(\Delta\right.$ Task $\left._{j, k}\right)$ :

$$
\begin{align*}
& \text { Exp }_{i}=\alpha^{0}+\alpha^{1} \operatorname{Prod}_{i}+\alpha^{2} \text { Size }_{i}+\alpha^{3} \frac{k}{l_{i}}+\alpha^{4} \frac{w}{l_{i}}+\alpha^{5} \frac{i k}{l_{i}}+\alpha^{6} I M_{i}  \tag{3}\\
& +\eta^{0} \Delta \text { White_c }_{k}+\eta^{j} \Delta \text { Task }_{j, k}+v_{i}
\end{align*}
$$

This specification will allow us to identify the different facets of technological change and highlight possible conflicting effects. For both specifications we report simple robust standard errors as well as sector-clustered ones.

## - Exiters

For this group (firms active in 1995 but not in 2005), we also estimate (2) and (3) while taking into account selection by means of the inverse Mill's ratio derived from the estimation of (1). In particular, we estimate an outcome equation given by a linear probability model where the dependent variable $\left(E x p_{i}\right)$ takes value one if the firm was exporting (importing) in 1995, and zero otherwise. Again, we report for both specifications simple robust standard errors as well as sector-clustered ones.

[^4]
## - Entrants

Concerning Entrants (firms active in 2005 but not in 1995), we estimate specifications 1 and 2 without the inverse Mill's ratio, since no selection mechanisms can be implemented in such a case. The dependent variable of our linear probability model takes value one if the firm was exporting (importing) in 2005, and zero otherwise. We report simple robust standard errors as well as sector-clustered ones.

## 5 Results

In what follows we only discuss the results obtained from the estimation of specifications 1 and 2 for export. Tables 15 and 16 show the results for imports; the results are virtually identical. In the next Section we instead provide a number of additional results as well as robustness checks that corroborate our findings.

Estimations of specification 1 for service exporters are reported in Table 13 for the case of robust (left panel) and clustered standard errors (right panel). Table 14 instead displays results of specification 2 for both the case of robust and clustered standard errors. The first stage of the procedure (column 1) refers to both Stayers and Exiters and tells us that firm age, productivity, size, and tangible capital intensity have a positive and significant effect on the probability of survival, while the skill and intangible capital intensity measures work in the opposite direction. The negative sign of skill intensity is likely to be driven by the fact that average firm wage captures both the average skill level of the workforce and its cost. Furthermore, the negative sign on intangible capital intensity is not significant when clustering standard errors. As far as the inverse Mill's ratio is concerned, Tables 13 and (especially) 14 reveal that selection is at work, justifying the use of a Heckman procedure.

Concerning estimations of specification 1 we find that the signs of core variables are extremely consistent across very different firm groups. Technological change, measured by both the shift in white collar jobs ( $\Delta W h i t e_{-} c_{k}$ ) and, of particular importance in our analysis, by the change in the use of IT $\left(\Delta C o m p_{k}\right)$ lead stayers to have a higher probability of keep exporting services (Always firms) while increasing the likelihood of observing both more Start and Give up exporters. As for Entrants and Exiters, technological change increases the probability of Entrants becoming exporting firms, and increases the likelihood of observing exporting firms among Exiters. All in all, this suggests that technological change is inducing a churning effect in service export participation, with higher gross entry and exit, and an overall net increase (as confirmed
by the magnitude and signs across the different firm groups) in the number of trading firms. However, the impact of IT and education does not survive if we cluster standard errors by sector. To some extent, this is likely to be a pure estimation efficiency issue. But, another possible scenario is that technological change induces conflicting effects that balance each other to some degree. The multi-dimensional features of our task variables allow us to investigate that scenario further.

Spitz-Oener (2006) and Autor et al. (2003) show that, in the labor market, technological change is a substitute for routine-cognitive and routine-manual tasks and a complement for non-routine analytical and interactive tasks. However, as far as service tradability is concerned, there is no need for all changes in the task content of occupations induced by the evolution of technology to foster tradability. Table 14 reveals that the coefficients of routine cognitive and routine manual tasks are consistently negative across all specifications, while being significant in most cases. This is in line with the idea that technological change, by reducing the importance of these tasks, has a positive effect on the extensive margin of service trade. Again, churning is at work with the observed decrease over time in the frequency of these tasks inducing higher gross entry and exit a net positive effect. Crucially, non-routine interactive and analytical tasks display large and extremely significant coefficients while having the opposite sign. To the extent that technological change induces an increase in interactive tasks, which in the case of service provision is likely to entail costly face-to-face contacts, participation to service trade is negatively affected. This finding is reminiscent of Oldenski (2009), who finds that the more the production and/or provision of a particular service is intensive in interactive tasks, the lower the probability of engaging in exports activities as opposed to FDI. On the other hand, the increase in the importance of analytical tasks induced by technology does foster trade participation. As in the case of routine tasks, the sign and size of coefficients indicate that churning is at work with a net entry (exit) effect being implied by the observed increase in the importance of analytical (interactive) tasks.

## 6 Additional Results and Robustness Checks

In this Section we provide a number of additional results that further qualify our findings, as well as robustness checks that corroborate our discoveries.

### 6.1 Additional Results

Manufacturing or Service sector? One legitimate question is whether our results are driven by firms in the group of service sectors or rather by some peculiar behavior on the part of firms in the groups of manufacturing sectors. Tables 17 and 18 report the estimations of specification 1 and 2 for the sample of firms in the service sector only. Tables 19 and 20 display the same estimations for service firms only. Results strongly confirm that our previous findings hold within the group of service firms, which are actually those driving the overall pattern. Indeed, in unreported estimations where we consider only manufacturing firms, we find more mixed evidence about the effect of technological change on the extensive margin of service trade.

Heterogeneous effects? We push our analysis further by allowing the effect of technological change to be heterogeneous across firms. In particular, we consider interactions of either $\Delta C o m p_{k}$ or $\Delta T a s k_{j, k}$ with firm productivity, size, tangible capital intensity and skill intensity. Results for exports are reported in Table 21, while results for imports are shown in Table 22. As for interactions with $\Delta C o m p_{k}$, firm productivity and capital intensity matter in some cases (especially Entrants), with the effect being positive for the former and negative for the latter. This suggests that technological change, as measured by the use of IT, has been in some cases stronger for more productive firms and weaker for capital intensive firms. Concerning interactions with $\Delta \operatorname{Task}_{j, k}$, the picture is rather complex. As far as Interactive (Analytical) tasks are concerned, our findings point to larger and more productive (larger and more skill intensive) firms experiencing a stronger negative (positive) impact of technological change on their likelihood to trade services. Again, churning is at work.

Level effects? We take another step in the direction of generalizing our result by allowing the effect of technology to matter not only in terms of its change across time but also via its level. In particular, we consider the level of either $\operatorname{Comp}_{k}$ or $\operatorname{Task}_{j, k}$ in 1995 as additional covariates in, respectively, specifications 1 and 2. Results for exports are reported in Tables 23 and 24, while results for imports are shown in Tables 25 and 26. Estimates of $\Delta C o m p_{k}$ and $\Delta T a s k_{j, k}$ are in line with previous findings (except Routine Cognitive) though losing somehow in precision. Levels of IT use and task intensity in 1995 are almost always significant suggesting that a strong level effect is also at work. In particular, the sign of a level variable is in most cases equal to that of its time change suggesting that technological change displays some sort of increasing
returns.

### 6.2 Robustness Checks

Service trade liberalization? A possible issue arising in our analysis is the presence of some unobservable sector characteristics that are correlated with our measures of technological change. The most likely candidate is the process of liberalization of trade in services that GATS is slowly putting in place, and that may have some degree of sector specificity. To the extent that GATS has affected the tradability of the different service products in the same way, liberalization of service trade is not in fact an issue for us. Furthermore, as documented in Hoekman (2008), during the time span we consider (1995-2005), GATS has actually had a negligible impact on service tradability, because most of the agreements among partner countries have not been followed by concrete liberalization policies. All in all, this would suggest that GATS is not a problem in our analysis. However, in our period of analysis, the European Union has been actively promoting the tradability of services within the common market by means of various directives, each affecting a different group of service products. In order to address the concern that what is driving our results is ultimately not technological change but sector-specific service trade liberalization by the EU, we run the following robustness check: we consider a firm as trading services only if the country involved is outside the EU25. Tables 27 and 28 report the estimations of, respectively, specification 1 and 2 with export of services arising only when taking place outside the EU25. Tables 29 and 30 display the same estimations for imports. Results strongly confirm our previous findings.

Offshoring? Another candidate for omitted variables is offshoring. Using data on German multinationals, Becker et al. (2009) show that offshoring is associated with a statistically significant shift towards more non-routine and more interactive tasks, and a shift towards highly educated workers. Offshoring might thus contribute, along with technological change, to the observed evolution of the task content of occupations, and ultimately to service tradability. In order to investigate this possibility we restrict our analysis to non-offshoring firms only. To be on the safe side, we employ a broad definition of offshoring by including all sort of firms that can adapt their onshore workforce composition to the presence of a relationship with a foreign party: multinationals, for-
eign owned firms, and importers of services. ${ }^{9}$ Tables 31 and 32 report the estimations of specification 1 and 2 respectively, for export of services, and are obtained by dropping offshoring firms in both 1995 and 2005. Results strongly confirm our previous findings.

## 7 Conclusions

Using data for Belgium, we analyze the impact of the IT revolution on the remarkable increase in the number of service trading firms in the last decade. Our estimates clearly indicate that technological change has played a major role in enabling formerly nontradable services to enter the realm of tradability. The more intensive use of information technologies creates a churning effect that increases both gross entry and exit in the import and export market for services, with a sizeable positive net effect. The change in the use of computers, terminals and electronic data processing machines as a proxy for technological change is sensitive to clustering and provides a narrow picture of how IT has reshaped service tradability. By enlarging our analysis to measures of tasks change over time we find that a much richer pattern emerges. In particular, the demise of routine cognitive and routine manual tasks has favored service tradability. On the other hand, while the rise of non-routine analytical tasks has also increased tradability, the need for more interactive tasks has worked in the opposite direction. This latter result might be rationalized by the peculiar nature of service provision.

## References

Autor, D., Levy, F., and Murnane, R. J. (2003). The Skill Content of Recent Technological Change: an Empirical Exploration. Quarterly Journal of Economics, 118(4):12791333.

Becker, S. O., Ekholm, K., and Muendler, M.-A. (2009). Offshoring and the Onshore Composition of Tasks and Skills. CEPR Discussion Paper, 7391.

Blinder, A. S. (2006). Offshoring: the Next Industrial Revolution? Foreign Affairs, 85(2):113-128.

Blinder, A. S. (2009). How Many U.S. Jobs Might Be Offshorable? The World Economics, 10(2):41-78.

[^5]Breinlich, H. and Criuscolo, C. (2009). International Trade in Services: a Portrait of Importers and Exporters. CEP Discussion Paper, (0901).

Francois, J. J. and Hoeckman, B. (2009). Services Trade and Policy. Journal of Economic Literature, forthcoming.

Freund, C. and Weinhold, D. (2002). The Internet and International Trade in Services. American Economic Review, 92(2):236-240.

Grossman, G. M. and Rossi-Hansberg, E. (2008). Trading Tasks: A Simple Theory of Offshoring. American Economic Review, 98(5):1978-1997.

Heckman, J. (1979). Sample Selection Bias as a Specification Error. Econometrica, 47:153-61.

Hoekman, B. (2008). The General Agreement on Trade in Services: Doomed to Fail? Does it Matter? Journal of Industry, Competition and Trade, 8(3-4):295-318.

Levy, F. and Murnane, R. J. (1996). With What Skills Are Computers a Complement? American Economic Review, 86(2):258-262.

Oldenski, L. (2009). Export Versus FDI: A Task-Based Framework for Comparing Manufacturing and Services. mimeograph.

Spenner, K. (1983). Deciphering Prometheus: Temporal Change in the Skill Level of Work. American Sociological Review, 48(6):824-837.

Spitz-Oener, A. (2006). Technical Change, Job Tasks, and Rising Educational Demands: Looking Outside the Wage Structure. Journal of Labor Economics, 24(2):235-270.

World Trade Organisation (2008). Statistics Database, International Trade and Tariffs Database. available at www.wto.org.

Table 1: Sectoral breakdown used

Sector<br>Food Beverages and Tobacco<br>Textile Industry<br>Leather and Leather Products<br>Wood and Wood Products<br>Cellulose and Paper Industry<br>Publishing, Printing and Reproduction<br>Chemical Industry, Rubber and Synthetic Materials<br>Stone and Clay, Glass and Ceramics<br>Manufacture of Basic Metals<br>Manufacture of Fabricated Metal Products<br>Precision and Optical Instruments<br>Electrical Engineering<br>Machinery Construction<br>Car Industry<br>Shipbuilding, Aircraft, and Aerospace I<br>Office and Data-Processing Machines<br>Other manufacturing<br>Distribution of Energy, Water, Gas and Electricity<br>Construction<br>Wholesale and retail trade<br>Transport Services<br>Postal Services<br>Hotels and Restaurants<br>Information, Art and Communication<br>Financial Service Activities<br>Insurance, Reinsurance and Pension Funding<br>Professional, Scientific and Technical Activities<br>Health and Veterinary<br>Schooling, Education<br>Other services

Table 2: Summary Statistics of variables coming from balance sheet data

| Variable | Obs | Mean | Std.Dev. | 5th percentile | 95th percentile |
| :--- | :---: | :---: | :---: | :---: | :---: |
|  | $\mathbf{1 9 9 5}$ |  |  |  |  |
| Age | 125,093 | 9.9268 | 10.1164 | 0.0000 |  |
| Employment | 125,093 | 13.0570 | 220.1779 | 1.0000 | 37.0000 |
| Value added | 125,093 | 0.7112 | 13.8106 | 0.0126 | 1.5379 |
| Tangible capital | 125,093 | 0.6195 | 25.1264 | 0.0022 | 0.9372 |
| Intangible capital | 125,093 | 0.0498 | 2.6342 | 0.0000 | 0.0521 |
| Average firm wage | 125,093 | 0.4531 | 8.8588 | 0.0067 | 1.0726 |
| Share of white collars | 125,093 | 0.5702 | 0.2425 | 0.2050 | 0.8528 |
|  |  |  | $\mathbf{2 0 0 5}$ |  |  |
| Age |  |  |  |  |  |
| Employment | 126,510 | 13.7542 | 11.3493 | 1.0000 | 36.0000 |
| Value added | 126,510 | 13.7599 | 196.1708 | 0.3000 | 36.0000 |
| Tangible capital | 126,510 | 1.0957 | 16.9470 | 0.0153 | 2.3180 |
| Intangible capital | 126,510 | 0.8691 | 17.9905 | 0.0029 | 1.4170 |
| Average firm wage | 126,510 | 0.1126 | 8.4972 | 0.0000 | 0.1010 |
| Share of white collars | 126,510 | 0.5672 | 9.8835 | 0.0033 | 1.5354 |
|  | 0.2462 | 0.2093 | 0.9807 |  |  |

Values for value added, wages, tangible and intangible capital are in million euros.
Employment is in full time equivalent while age is number of years since firm creation.

Table 3: Classification of tasks

| Classification | Task |
| :--- | :--- |
| Analytical | researching, analyzing, evaluating and planning, <br> making plans, constructions, designing, sketch- <br> ing, working out rules/prescriptions, using and <br> interpreting rules |
| Interactive | negotiating, lobbying, coordinating, organizing, <br> teaching or training, selling, buying, advising <br> customers, advertising, entertaining or present- <br> ing, employ or manage personnel |
| Routine Cognitive | calculating, bookkeeping, correct- <br> ing of texts/data measuring of |
| length/weight/temperature mer |  |

Table 4: Evolution of tasks and IT intensity over time

|  | Non Routine Tasks |  |  | Routine Tasks |  | IT use |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Analytic | Interactive | Manual | Cognitive | Manual |  |
| 1979 | 0.04 | 0.09 | 0.14 | 0.36 | 0.31 | 0.06 |
| 1986 | 0.09 | 0.10 | 0.21 | 0.34 | 0.27 | 0.12 |
| 1992 | 0.11 | 0.17 | 0.20 | 0.27 | 0.23 | 0.28 |
| 1999 | 0.12 | 0.31 | 0.28 | 0.20 | 0.17 | 0.53 |
| 2006 | 0.13 | 0.32 | 0.23 | 0.16 | 0.23 | 0.68 |

Table 5: Decomposing the increase in the export of services: extensive and intensive margin

|  |  | Aggregate |  |  | Extensive Margins |  | Intensive |  |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
|  |  | $\mathbf{1 9 9 5}$ | $\mathbf{2 0 0 5}$ | $\mathbf{1 9 9 5}$ | $\mathbf{2 0 0 5}$ | $\mathbf{1 9 9 5}$ | $\mathbf{2 0 0 5}$ |  |
| Entrants | Non Exp | - | 0.00 | - | - | - | - |  |
|  | Exp | - | $11,562.26$ | - | 6,360 | - | 1.8180 |  |
| Stayers | Non Exp | 0.00 | 0.00 | - | - | - | - |  |
|  | Give-up Exp | $1,435.59$ | 0.00 | 1,852 | - | 0.7752 | - |  |
|  | Start Exp | 0.00 | $2,609.08$ | - | 4,808 | - | 0.5427 |  |
|  | Always Exp | $13,247.54$ | $50,258.96$ | 1,861 | 1,861 | 7.1185 | 27.0064 |  |
| Exiters | Non Exp | 0.00 | - | - | - | - | - |  |
|  | Exp | $3,531.67$ | - | 1,633 | - | 2.1627 | - |  |
| TOTAL | $18,214.80$ | $64,430.30$ | 5,346 | 13,029 | 3.3521 | 9.7890 |  |  |
| GROWTH | $253.73 \%$ |  | $143.71 \%$ | $192.02 \%$ |  |  |  |  |
| YEARLY GROWTH | $13.5 \%$ |  | $9.3 \%$ | $1.3 \%$ |  |  |  |  |

Values are in million euros

Table 6: Decomposing the increase in the import of services: extensive and intensive margin

|  |  | Aggregate |  |  | Extensive Margins |  | Intensive Margins |  |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
|  |  | $\mathbf{1 9 9 5}$ | $\mathbf{2 0 0 5}$ | $\mathbf{1 9 9 5}$ | $\mathbf{2 0 0 5}$ | $\mathbf{1 9 9 5}$ | $\mathbf{2 0 0 5}$ |  |
| Entrants | Non Imp | - | 0.00 | - | - | - | - |  |
|  | Imp | - | $10,400.96$ | - | 3,522 | - | 2.928 |  |
| Stayers | Non Imp | 0.00 | 0.00 | - | - | - | - |  |
|  | Give-up Imp | $1,208.29$ | 0.00 | 1,521 | - | 0.7944 | - |  |
|  | Start Imp | 0.00 | $3,645.49$ | - | 3,720 | - | 0.9799 |  |
|  | Always Exp | $14,103.75$ | $45,722.35$ | 2,131 | 2,131 | 6.6183 | 21.455 |  |
| Exiters | Non Imp | 0.00 | - | - | - | - | - |  |
|  | Imp | $3,303.99$ | - | 1,397 | - | 2.3650 | - |  |
| TOTAL | $18,616.03$ | $59,768.80$ | 5,049 | 9,373 | 3.6870 | 6.3766 |  |  |
| GROWTH | $221.06 \%$ |  | $85.64 \%$ |  | $72.94 \%$ |  |  |  |
| YEARLY GROWTH | $12.4 \%$ |  | $6.3 \%$ |  | $5.6 \%$ |  |  |  |

Values are in million euros

Table 7: Trading values and firms: Manufacturing and Services

|  | Aggregate Trade Value |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Export |  |  |  | Import |  |  |  |
|  | 1995 | Perc. | 2005 | Perc. | 1995 | Perc. | 2005 | Perc. |
| Manufacturing | 1,866.11 | 10\% | 9,110.94 | 14\% | 2,864.85 | 15\% | 9,585,93 | 16\% |
| Services | 16,348.69 | 90\% | 55,318.36 | 86\% | 15,751.18 | 85\% | 50,182.87 | 84\% |
| Total | 18,214.80 |  | 64,430.30 |  | 18,616.03 |  | 59,768.80 |  |

Extensive Margin

|  | Export |  |  |  | Import |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1995 | Perc. | 2005 | Perc. | 1995 | Perc. | 2005 | Perc. |
| Manufacturing | 868 | 16\% | 1,065 | 8\% | 1,439 | 28\% | 1,882 | 20\% |
| Services | 4,478 | 84\% | 11,964 | 92\% | 3,610 | $72 \%$ | 7,490 | 80\% |
| Total | 5,346 |  | 13,029 |  | 5,049 |  | 9,373 |  |

Values are in million euros

Table 8: Top 10 trading sectors (values traded)

|  | Export |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Rank | Sector | 1995 | Sector | 2005 |
| 1 | Wholesale and retail trade | 9,410.64 | Wholesale and retail trade | 32,999.88 |
| 2 | Professional, Scientific and Technical Activities | 2,694.65 | Chemical Industry, Rubber and Synthetic Material | 7,930.21 |
| 3 | Transport Services | 2,580.43 | Professional, Scientific and Technical Activities | 6,327.07 |
| 4 | Chemical Industry, Rubber and Synthetic Material | 1,226.71 | Financial services activities | 5,399.97 |
| 5 | Financial services activities | 475.12 | Transport Services | 4,978.13 |
| 6 | Information, art and communication | 465.64 | Insurance, reinsurance and pension funding | 1,666.06 |
| 7 | Construction | 233.59 | Information, art and communication | 1,589.58 |
| 8 | Postal Services | 164.79 | Other services | 832.94 |
| 9 | Other services | 134.64 | Construction | 809,84 |
| 10 | Car Industry | 131.11 | Manufacture of fabricated metal products | 293.82 |
| Import |  |  |  |  |
| Rank | Sector | 1995 | Sector | 2005 |
| 1 | Wholesale and retail trade | 10,406.55 | Wholesale and retail trade | 32,748.97 |
| 2 | Professional, Scientific and Technical Activities | 2,099.28 | Chemical Industry, Rubber and Synthetic Material | 7,955.38 |
| 3 | Transport Services | 1,621.53 | Professional, Scientific and Technical Activities | 4,746.61 |
| 4 | Chemical Industry, Rubber and Synthetic Material | 1,949,79 | Financial services activities | 4,630.05 |
| 5 | Financial services activities | 876.31 | Transport services | 3,345.53 |
| 6 | Information, art and communication | 218.93 | Insurance, reinsurance and pension funding | 2,446.34 |
| 7 | Machinery construction | 210.91 | Information, art and communication | 930.30 |
| 8 | Other services | 206.63 | Other services | 659.11 |
| 9 | Stone and clay, glass and ceramics | 185.46 | Construction | 296.12 |
| 10 | Car industry | 169.96 | Manufacture of fabricated metal products | 243.49 |

Table 9: Top 10 trading sectors (number of firms)

| Export |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Rank | Sector | 1995 | Sector | 2005 |
| 1 | Wholesale and retail trade | 1,611 | Professional, Scientific and Technical Activities | 4,702 |
| 2 | Professional, Scientific and Technical Activities | 1,163 | Wholesale and retail trade | 2,231 |
| 3 | Transport Services | 691 | Transport Services | 1,330 |
| 4 | Construction | 302 | Information, art and communication | 1,014 |
| 5 | Information, art and communication | 248 | Construction | 962 |
| 6 | Other Services | 192 | Other Services | 764 |
| 7 | Chemical Industry, Rubber and Synthetic Material | 160 | Hotels and restaurants | 329 |
| 8 | Manufacture of fabricated metal products | 108 | Insurance, reinsurance and pension funding | 253 |
| 9 | Insurance, reinsurance and pension funding | 195 | Manufacture of fabricated metal products | 183 |
| 10 | Food Beverages and Tobacco | 93 | Chemical Industry, Rubber and Synthetic Material | 179 |
| Import |  |  |  |  |
| Rank | Sector | 1995 | Sector | 2005 |
| 1 | Wholesale and retail trade | 1,732 | Wholesale and retail trade | 2,541 |
| 2 | Professional, Scientific and Technical Activities | 774 | Professional, Scientific and Technical Activities | 2,250 |
| 3 | Transport Services | 380 | Transport Services | 655 |
| 4 | Chemical Industry, Rubber and Synthetic Material | 275 | Information, art and communication | 502 |
| 5 | Food Beverages and Tobacco | 194 | Construction | 477 |
| 6 | Construction | 189 | Other Services | 460 |
| 7 | Information, art and communication | 171 | Chemical Industry, Rubber and Synthetic Material | 360 |
| 8 | Other Services | 160 | Manufacture of fabricated metal products | 255 |
| 9 | Textile Industry | 150 | Food Beverages and Tobacco | 239 |
| 10 | Manufacture of fabricated metal products | 142 | Textile Industry | 181 |

Table 10: Sector change in the number of trading firms and values traded

|  |  | Export |  |  |
| :--- | :--- | ---: | ---: | ---: |
| Rank | Sector | $\Delta$ \# of firms | Sector | $\Delta$ values |
| 1 | Professional, Scientific and Technical Activities | 3,539 | Wholesale and retail trade |  |
| 2 | Information, art and communication | 766 | Chemical Industry, Rubber and Synthetic Material | $23,589.23$ |
| 3 | Construction | 660 | Financial Services | $4,924.50$ |
| 4 | Transport Services | 639 | Professional, Scientific and Technical Activities |  |
| 5 | Wholesale and retail trade | 620 | Transport Services | $3,632.42$ |
| 6 | Other Services | 572 | Insurance, reinsurance and pension funding |  |
| 7 | Hotel and restaurants | 257 | Information, art and communication | $2,397.70$ |
| 8 | Insurance, reinsurance and pension funding | 158 | Other services | $1,590.80$ |
| 9 | Health and veterinary | 144 | Construction | $1,123.94$ |
| 10 | Manufacture of fabricated metal products | 75 | Manufacture of fabricated metal products |  |

## Import

| Rank | Sector | $\Delta$ \# of firms | Sector | $\Delta$ values |
| :--- | :--- | ---: | :--- | ---: |
| 1 | Professional, Scientific and Technical Activities | 1,476 | Wholesale and retail trade | $22,342.42$ |
| 2 | Wholesale and retail trade | 809 | Chemical Industry, Rubber and Synthetic Material | $6,460.60$ |
| 3 | Information, art and communication | 331 | Financial services activities |  |
| 4 | Other Services | 300 | Professional, Scientific and Technical Activities |  |
| 5 | Construction | 288 | Insurance, reinsurance and pension funding |  |
| 6 | Transport Services | 275 | Transport Services | $2,647.34$ |
| 7 | Information, art and communication | 171 | Information, art and communication |  |
| 8 | Hotel and restaurants | 109 | Other Services | $1,724.00$ |
| 9 | Financial Services | 88 | Construction | 711.37 |
| 10 | Chemical Industry, Rubber and Synthetic Material | 85 | Manufacture of fabricated metal products |  |
| Values are in million euros |  |  |  |  |

Table 11: Top 10 trading countries (values traded)

| Export |  |  |  |  |
| :--- | :--- | ---: | :--- | ---: |
| Rank | Country | $\mathbf{1 9 9 5}$ | Country | $\mathbf{2 0 0 5}$ |
| 1 | Germany | $2,901.6$ | Great Britain | $22,813.6$ |
| 2 | Great Britain | $2,856.4$ | Japan | $7,322.5$ |
| 3 | USA | $2,287.6$ | France | $6,765.5$ |
| 4 | France | $1,928.3$ | USA | $6,128.2$ |
| 5 | Nederland | $1,667.2$ | Nederland | $4,685.3$ |
| 6 | Switzerland | 915.5 | Germany | $3,828.1$ |
| 7 | Italy | 758.9 | Switzerland | $1,995.9$ |
| 8 | Japan | 455.0 | Luxembourg | $1,351.1$ |
| 9 | Spain | 437.4 | Ireland | 931.0 |
| 10 | Sweden | 361.8 | Spain | 910.2 |


| Import |  |  |  |  |
| :--- | :--- | ---: | :--- | ---: |
| Rank | Country | $\mathbf{1 9 9 5}$ | Country | $\mathbf{2 0 0 5}$ |
| 1 | Great Britain | $3,582.6$ | Great Britain | $23,787.9$ |
| 2 | Germany | $3,510.7$ | France | $7,723.6$ |
| 3 | USA | $3,302.5$ | Japan | $7,412.6$ |
| 4 | France | $2,509.9$ | USA | $6,834.9$ |
| 5 | Nederland | $2,344.5$ | Nederland | $5,748.0$ |
| 6 | Switzerland | $1,280.6$ | Germany | $4,781.4$ |
| 7 | Italy | 832.9 | Switzerland | $2,290.5$ |
| 8 | Japan | 633.3 | Luxembourg | $1,586.5$ |
| 9 | Luxembourg | 552.8 | Spain | 981.3 |
| 10 | Sweden | 521.2 | Ireland | 976.6 |
|  |  |  |  |  |

Table 12: Top 10 trading countries (number of firms)

| Export |  |  |  |  |  |  |
| :--- | :--- | ---: | :--- | ---: | :---: | :---: |
| Rank | Country | $\mathbf{1 9 9 5}$ | Country | $\mathbf{2 0 0 5}$ |  |  |
| 1 | Nederland | 1,978 | Nederland | 5,176 |  |  |
| 2 | France | 1,813 | France | 4,512 |  |  |
| 3 | Germany | 1,459 | Germany | 3,010 |  |  |
| 4 | Great Britain | 1,131 | Great Britain | 2,736 |  |  |
| 5 | USA | 1,095 | Luxembourg | 1,670 |  |  |
| 6 | Switzerland | 604 | USA | 1,530 |  |  |
| 7 | Luxembourg | 541 | Switzerland | 1,110 |  |  |
| 8 | Italy | 462 | Italy | 1,065 |  |  |
| 9 | Spain | 351 | Spain | 903 |  |  |
| 10 | Sweden | 272 | Sweden | 547 |  |  |
|  |  |  |  |  |  |  |
|  |  | Import |  |  |  |  |
| Rank | Country | $\mathbf{1 9 9 5}$ | Country | $\mathbf{2 0 0 5}$ |  |  |
| 1 | Nederland | 2,846 | Nederland | 4,749 |  |  |
| 2 | France | 2,330 | France | 4,226 |  |  |
| 3 | Germany | 1,960 | Germany | 3,158 |  |  |
| 4 | Great Britain | 1,705 | Great Britain | 2,985 |  |  |
| 5 | USA | 1,572 | USA | 1,742 |  |  |
| 6 | Switzerland | 933 | Luxembourg | 1,365 |  |  |
| 7 | Luxembourg | 706 | Switzerland | 1,331 |  |  |
| 8 | Italy | 658 | Italy | 1,296 |  |  |
| 9 | Spain | 488 | Spain | 1,072 |  |  |
| 10 | Sweden | 344 | Sweden | 555 |  |  |
|  |  |  |  |  |  |  |

Table 13: Exports of Services: Extensive Margin, Specification 1

|  | Robust standard errors |  |  |  |  |  | Clustered standard errors |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Selection | Stayers |  |  | Exiters | Entrants | Selection | Stayers |  |  | Exiters | Entrants |
|  |  | Start | Give up | Always |  |  |  | Start | Give up | Always |  |  |
| Age | $\begin{gathered} 0.0814^{a} \\ (0.012) \end{gathered}$ |  |  |  |  |  | $\begin{gathered} 0.0814^{a} \\ (0.013) \end{gathered}$ |  |  |  |  |  |
| Productivity | $0.2050^{a}$ | $0.0215^{a}$ | $0.0131^{a}$ | $0.0197^{a}$ | $0.0327^{a}$ | $0.0381{ }^{\text {a }}$ | $0.2050^{a}$ | $0.0215^{a}$ | $0.0131^{a}$ | $0.0197^{a}$ | $0.0327^{a}$ | $0.0381{ }^{\text {a }}$ |
|  | (0.008) | (0.002) | (0.001) | (0.001) | (0.003) | (0.002) | (0.021) | (0.007) | (0.005) | (0.004) | (0.009) | (0.009) |
| Size | $0.0538^{a}$ | $0.0260^{a}$ | $0.0178^{a}$ | $0.0317^{a}$ | $0.0432^{a}$ | $0.0401{ }^{a}$ | $0.0538^{a}$ | $0.0260^{a}$ | $0.0178^{a}$ | $0.0317^{a}$ | $0.0432^{a}$ | $0.0401{ }^{a}$ |
|  | (0.004) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.012) | (0.006) | (0.002) | (0.007) | (0.008) | (0.010) |
| Capital Intensity | $0.0988^{a}$ | $0.0043^{a}$ | -0.0001 | $0.0015^{a}$ | $0.0051^{a}$ | $-0.0051^{a}$ | $0.0988^{a}$ | 0.0043 | -0.0001 | 0.0015 | 0.0051 | $-0.0051^{\text {b }}$ |
|  | (0.003) | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) | (0.003) | (0.003) | (0.002) | (0.002) | (0.004) | (0.002) |
| Skill Intensity | $-0.1009^{a}$ | $-0.0035^{a}$ | 0.0010 | $-0.0020^{\text {b }}$ | $0.0060^{a}$ | $0.0077^{a}$ | $-0.1009^{a}$ | -0.0035 | 0.0010 | -0.0020 | 0.0060 | $0.0077^{\text {b }}$ |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.008) | (0.003) | (0.002) | (0.002) | (0.005) | (0.003) |
| Intangible Capital Intensity | $-0.0035^{a}$ | -0.0001 | $0.0003^{\text {b }}$ | 0.0002 | -0.0002 | $0.0005^{\text {b }}$ | -0.0035 | -0.0001 | 0.0003 | 0.0002 | -0.0002 | 0.0005 |
|  | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ White Collar |  | $0.0656^{a}$ | $0.0271^{a}$ | $0.0799^{a}$ | $0.3804^{a}$ | $0.4415^{a}$ |  | 0.0656 | 0.0271 | 0.0799 | $0.3804^{\text {b }}$ | $0.4415{ }^{\text {b }}$ |
|  |  | (0.015) | (0.009) | (0.011) | (0.035) | (0.021) |  | (0.102) | (0.044) | (0.065) | (0.166) | (0.187) |
| $\Delta$ Computer |  | $0.0503{ }^{a}$ | $0.0075^{\text {b }}$ | $0.0076{ }^{\text {c }}$ | $0.0495^{a}$ | $0.1837^{a}$ |  | 0.0503 | 0.0075 | 0.0076 | 0.0495 | 0.1837 |
|  |  | (0.006) | (0.004) | (0.004) | (0.012) | (0.009) |  | (0.082) | (0.012) | (0.049) | (0.069) | (0.129) |
| IM |  | $0.0968^{a}$ | $0.0127^{\text {b }}$ | $0.0514^{a}$ | $0.1328^{a}$ |  |  | 0.0968 | 0.0127 | 0.0514 | 0.1328 |  |
|  |  | (0.011) | (0.006) | (0.008) | (0.020) |  |  | (0.079) | (0.045) | (0.044) | (0.086) |  |
| Constant | $0.7549^{a}$ | $-0.0166^{a}$ | $0.0067^{\text {b }}$ | $-0.0087^{\text {b }}$ | $-0.0293{ }^{a}$ | 0.0110 | $0.7549^{a}$ | -0.0166 | 0.0067 | -0.0087 | -0.0293 | 0.0110 |
|  | (0.027) | (0.005) | (0.003) | (0.004) | (0.010) | (0.003) | (0.001) | (0.048) | (0.019) | (0.030) | (0.049) | (0.037) |
| Sector Dummies | Yes |  |  |  |  |  | Yes |  |  |  |  |  |
| Observations | 125,093 | 95,512 | 95,512 | 95,512 | 29,563 | 58,550 | 125,093 | 95,512 | 95,512 | 95,512 | 29,563 | 58,550 |
| $R^{2}$ | . | 0.0218 | 0.0310 | 0.0741 | 0.0825 | 0.0753 | . | 0.0218 | 0.0310 | 0.0741 | 0.0825 | 0.0753 |


|  | Robust standard errors |  |  |  |  |  | Clustered standard errors |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Selection | Stayers |  |  | Exiters | Entrants | Selection | Stayers |  |  | Exiters | Entrants |
|  |  | Start | Give up | Always |  |  |  | Start | Give up | Always |  |  |
| Age | $\begin{aligned} & 0.0814^{a} \\ & (0.012) \end{aligned}$ |  |  |  |  |  | $\begin{gathered} 0.0814^{a} \\ (0.013) \end{gathered}$ |  |  |  |  |  |
| Productivity | $0.2050^{a}$ | 0.0309 ${ }^{\text {a }}$ | $0.0165^{\text {a }}$ | $0.0285^{a}$ | $0.0413^{a}$ | $0.0361{ }^{a}$ | $0.2050^{a}$ | $0.0309^{a}$ | $0.0165^{a}$ | $0.0285^{a}$ | $0.0413^{a}$ | $0.0361^{a}$ |
|  | (0.008) | (0.002) | (0.001) | (0.002) | (0.003) | (0.002) | (0.021) | (0.008) | (0.004) | (0.005) | (0.007) | (0.008) |
| Size | $0.0538^{a}$ | $0.0289^{a}$ | $0.0188^{a}$ | $0.0344^{a}$ | $0.0455^{a}$ | $0.0397{ }^{\text {a }}$ | $0.0538^{a}$ | $0.0289^{a}$ | $0.0188^{a}$ | $0.0344^{a}$ | $0.0455^{a}$ | $0.0397^{a}$ |
|  | (0.004) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.012) | (0.007) | (0.001) | (0.007) | (0.008) | (0.010) |
| Capital Intensity | $0.0988^{a}$ | $0.0089^{a}$ | $0.0016^{a}$ | $0.0058^{a}$ | $0.0096^{a}$ | $-0.0045^{a}$ | $0.0988^{\text {a }}$ | $0.0089^{\text {b }}$ | 0.0016 | $0.0058^{\text {c }}$ | $0.0096^{a}$ | $-0.0045^{\text {c }}$ |
|  | (0.003) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.003) | (0.004) | (0.001) | (0.003) | (0.003) | (0.002) |
| Skill Intensity | $-0.1009^{a}$ | $-0.0072^{a}$ | -0.0004 | $-0.0055^{a}$ | 0.0020 | $0.0084^{a}$ | $-0.1009^{a}$ | $-0.0072^{\text {c }}$ | -0.0004 | $-0.0055^{\text {c }}$ | 0.0020 | $0.0084^{b}$ |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.008) | (0.004) | (0.002) | (0.003) | (0.004) | (0.003) |
| Intangible Capital Intensity | $-0.0035^{a}$ | -0.0003 | $0.0003^{\text {b }}$ | 0.0000 | -0.0005 | $0.0009^{a}$ | -0.0035 | -0.0003 | 0.0003 | 0.0000 | -0.0005 | 0.0009 |
|  | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ White Collar |  | 0.0023 | 0.0070 | $0.0270^{\text {b }}$ | $-0.2555^{a}$ | $-0.1712^{b}$ |  | 0.0023 | 0.0070 | 0.0270 | $-0.2555^{\text {c }}$ | -0.1712 |
|  |  | (0.017) | (0.010) | (0.012) | (0.077) | (0.067) |  | (0.066) | (0.044) | (0.042) | (0.148) | (0.292) |
| $\Delta$ Routine Cognitive |  | $-0.0001{ }^{a}$ | $0.0000^{c}$ | $-0.0001^{a}$ | $-0.0002^{a}$ | $-0.0004^{a}$ |  | -0.0001 | 0.0000 | -0.0001 | $-0.0002^{\text {c }}$ | -0.0004 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Routine Manual |  | $-0.0016^{a}$ | $-0.0005^{a}$ | $-0.0011^{a}$ | $-0.0021^{a}$ | $-0.0015^{a}$ |  | $-0.0016^{c}$ | $-0.0005^{\text {c }}$ | $-0.0011^{\text {b }}$ | $-0.0021^{a}$ | -0.0015 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ Non-Routine Manual |  | $0.0004^{a}$ | $0.0004^{a}$ | $0.0006^{a}$ | $0.0011^{a}$ | $0.0013^{a}$ |  | 0.0004 | $0.0004^{\text {c }}$ | $0.0006^{\text {c }}$ | $0.0011^{a}$ | $0.0013^{c}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.001) | (0.000) | (0.000) | (0.000) | (0.001) |
| $\Delta$ Interactive |  | $-0.0035^{a}$ | $-0.0013^{a}$ | $-0.0027^{a}$ | $-0.0049^{a}$ | $-0.0072^{a}$ |  | $0.0035^{a}$ | $-0.0013^{a}$ | $-0.0027^{a}$ | $-0.0049^{a}$ | $-0.0072^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.001) | (0.000) | (0.001) | (0.001) | (0.002) |
| $\Delta$ Analytical |  | $0.0033^{a}$ | $0.0008^{\text {a }}$ | $0.0014^{a}$ | $0.0019^{a}$ | $0.0078^{a}$ |  | $0.0033^{a}$ | $0.0008^{\text {b }}$ | $0.0014^{b}$ | $0.0019^{\text {b }}$ | $0.0078^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.001) | (0.000) | (0.001) | (0.001) | (0.002) |
| IM |  | $0.2043^{a}$ | $0.0518^{a}$ | $0.1510^{a}$ | $0.2262^{a}$ |  |  | $0.2043^{\text {b }}$ | 0.0518 | $0.1510^{b}$ | $0.2262^{a}$ |  |
|  |  | (0.016) | (0.010) | (0.012) | (0.025) |  |  | (0.085) | (0.036) | (0.055) | (0.059) |  |
| Constant | $0.7549^{a}$ | 0.0017 | $0.0104^{\text {b }}$ | $-0.0114^{b}$ | 0.0136 | $0.1518^{a}$ | $0.7549^{a}$ | 0.0017 | 0.0104 | -0.0114 | 0.0136 | $0.1518^{a}$ |
|  | (0.027) | (0.007) | (0.005) | (0.005) | (0.012) | (0.006) | (0.001) | (0.031) | (0.017) | (0.021) | (0.029) | (0.031) |
| Sector Dummies | Yes |  |  |  |  |  | Yes |  |  |  |  |  |
| Observations | 125,093 | 95,512 | 95,512 | 95,512 | 29,563 | 58,550 | 125,093 | 95,512 | 95,512 | 95,512 | 29,563 | 58,550 |
| $R^{2}$ | . | 0.0328 | 0.0343 | 0.0864 | 0.0958 | 0.1053 | . | 0.0328 | 0.0343 | 0.0864 | 0.0958 | 0.1053 |
|  | Robust | tandard erro | rs in paren | heses ${ }^{\text {a }} \mathrm{p}<0$ | 1, ${ }^{\text {b }} \mathrm{p}<0.0$ | ${ }^{\text {c }} \mathrm{p}<0.1$ | Sector cl | tered st.err | in parenth | eses ${ }^{a} \mathrm{p}<0.0$ | ,$^{b} \mathrm{p}<0.05$, | ${ }^{\text {c }} \mathrm{p}<0.1$ |

Table 15: Imports of Services: Extensive Margin, Specification 1

|  | Robust standard errors |  |  |  |  |  | Clustered standard errors |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Selection | Stayers |  |  | Exiters | Entrants | Selection | Stayers |  |  | Exiters | Entrants |
|  |  | Start | Give up | Always |  |  |  | Start | Give up | Always |  |  |
| Age | $\begin{gathered} 0.0814^{a} \\ (0.011) \end{gathered}$ |  |  |  |  |  | $\begin{gathered} 0.0814^{a} \\ (0.013) \end{gathered}$ |  |  |  |  |  |
| Productivity | $0.2050^{a}$ | $0.0201{ }^{a}$ | $0.0132^{a}$ | $0.0257^{a}$ | $0.0350^{a}$ | $0.0343^{a}$ | $0.2050^{a}$ | $0.0201{ }^{\text {a }}$ | $0.0132^{a}$ | $0.0257^{a}$ | $0.0350^{a}$ | $0.0343^{a}$ |
|  | (0.008) | (0.002) | (0.001) | (0.001) | (0.003) | (0.001) | (0.021) | (0.007) | (0.004) | (0.007) | (0.008) | (0.005) |
| Size | $0.0538^{a}$ | $0.0306^{a}$ | $0.0154^{a}$ | $0.0427^{a}$ | $0.0446^{a}$ | $0.0420^{a}$ | $0.0538^{a}$ | $0.0306^{a}$ | $0.0154^{a}$ | $0.0427^{a}$ | $0.0446^{a}$ | $0.0420^{a}$ |
|  | (0.004) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.012) | (0.003) | (0.002) | (0.006) | (0.005) | (0.007) |
| Capital Intensity | $0.0988^{a}$ | $0.0026^{a}$ | 0.0001 | $0.0022^{a}$ | $0.0075^{a}$ | $-0.0025^{a}$ | $0.0988^{a}$ | 0.0026 | 0.0001 | 0.0022 | $0.0075^{\text {b }}$ | -0.0025 |
|  | (0.003) | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) | (0.003) | (0.003) | (0.002) | (0.003) | (0.003) | (0.002) |
| Skill Intensity | $-0.1009^{a}$ | $-0.0034^{a}$ | -0.0009 | $-0.0078^{a}$ | -0.0012 | $0.0037^{a}$ | $-0.1009^{a}$ | -0.0034 | -0.0009 | $-0.0078^{\text {b }}$ | -0.0012 | 0.0037 |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.008) | (0.003) | (0.002) | (0.003) | (0.005) | (0.003) |
| Intangible Capital Int. | $-0.0035^{a}$ | 0.0003 | 0.0001 | $0.0011^{a}$ | 0.0004 | $0.0011^{a}$ | -0.0035 | 0.0003 | 0.0001 | $0.0011^{\text {b }}$ | 0.0004 | $0.0011^{b}$ |
|  | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) |
| $\Delta$ White Collar |  | $0.0676^{a}$ | $0.0249^{a}$ | $0.0789^{a}$ | $0.4112^{a}$ | $0.3571{ }^{a}$ |  | 0.0676 | 0.0249 | 0.0789 | $0.4112^{a}$ | $0.3571^{a}$ |
|  |  | (0.014) | (0.008) | (0.012) | (0.036) | (0.018) |  | (0.076) | (0.034) | (0.067) | (0.127) | (0.101) |
| $\Delta$ Computer |  | $0.0329^{a}$ | 0.0013 | $0.0325^{a}$ | $0.0748^{a}$ | $0.0886^{a}$ |  | 0.0329 | 0.0013 | 0.0325 | $0.0748^{\text {b }}$ | $0.0886^{c}$ |
|  |  | (0.005) | (0.003) | (0.004) | (0.011) | (0.007) |  | (0.025) | (0.007) | (0.021) | (0.031) | (0.052) |
| IM |  | $0.0583{ }^{a}$ | $0.0161^{a}$ | $0.0524^{a}$ | $0.1555^{a}$ |  |  | 0.0583 | 0.0161 | 0.0524 | $0.1555^{\text {b }}$ |  |
|  |  | (0.010) | (0.006) | (0.008) | (0.021) |  |  | (0.071) | (0.039) | (0.063) | (0.072) |  |
| Constant | $0.7546^{a}$ | -0.0052 | -0.0016 | $-0.0154^{a}$ | $-0.0442^{a}$ | $0.0346^{a}$ | $0.7549^{a}$ | -0.0048 | 0.0046 | -0.0153 | -0.0517 | 0.0191 |
|  | (0.027) | (0.005) | (0.003) | (0.004) | (0.011) | (0.003) | (0.001) | (0.031) | (0.016) | (0.029) | (0.036) | (0.015) |
| Observations | 125,093 | 95,512 | 95,512 | 95,512 | 29,563 | 58,550 | 125,093 | 95,512 | 95,512 | 95,512 | 29,563 | 58,550 |
| R ${ }^{2}$ | . | 0.0383 | 0.0274 | 0.1096 | 0.0906 | 0.0945 | . | 0.0383 | 0.0274 | 0.1096 | 0.0906 | 0.0945 |
|  | Robust | tandard err | in parent | heses ${ }^{a} \mathrm{p}<0$ | 01, ${ }^{b} \mathrm{p}<0.0$ | , ${ }^{c} \mathrm{p}<0.1$ | Sector clus | ed st.err | in parenth | ses ${ }^{a} \mathrm{p}<0.0$ | ,${ }^{\text {b }} \mathrm{p}<0.05$ | ${ }^{\text {c }} \mathrm{p}<0.1$ |


| Table 16: Imports of Services: Extensive Margin, Specification 2 |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Robust standard errors |  |  |  |  |  | Clustered standard errors |  |  |  |  |  |
|  | Selection | Stayers |  |  | Exiters | Entrants | Selection | Stayers |  |  | Exiters | Entrants |
|  |  | Start | Give up | Always |  |  |  | Start | Give up | Always |  |  |
| Age | $\begin{gathered} 0.0814^{a} \\ (0.012) \end{gathered}$ |  |  |  |  |  | $\begin{gathered} 0.0814^{a} \\ (0.013) \end{gathered}$ |  |  |  |  |  |
| Productivity | $0.2050^{a}$ | $0.0262^{a}$ | $0.0172^{a}$ | $0.0300^{a}$ | $0.0339^{a}$ | $0.0339^{a}$ | $0.2050^{a}$ | $0.0262^{a}$ | $0.0165^{a}$ | $0.0300^{a}$ | $0.0339^{a}$ | $0.0339^{a}$ |
|  | (0.008) | (0.002) | (0.001) | (0.002) | (0.003) | (0.001) | (0.021) | (0.005) | (0.004) | (0.006) | (0.008) | (0.005) |
| Size | $0.0538^{a}$ | $0.0324^{a}$ | $0.0166^{a}$ | $0.0439^{a}$ | $0.0444^{a}$ | $0.0421^{a}$ | $0.0538^{a}$ | $0.0324^{a}$ | $0.0188^{a}$ | $0.0439^{a}$ | $0.0444^{a}$ | $0.0421^{a}$ |
|  | (0.004) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.012) | (0.002) | (0.001) | (0.005) | (0.005) | (0.007) |
| Capital Intensity | $0.0988^{a}$ | $0.0055^{\text {a }}$ | $0.0021^{a}$ | $0.0042^{a}$ | $0.0073{ }^{\text {a }}$ | $-0.0023{ }^{a}$ | $0.0988^{a}$ | $0.0055^{a}$ | 0.0016 | $0.0042^{\text {c }}$ | $0.0073{ }^{\text {b }}$ | -0.0023 |
|  | (0.003) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.003) | (0.002) | (0.001) | (0.002) | (0.003) | (0.002) |
| Skill Intensity | $-0.1009^{a}$ | $-0.0058^{a}$ | $-0.0025^{a}$ | $-0.0094{ }^{\text {a }}$ | -0.0008 | $0.0038^{a}$ | $-0.1009^{a}$ | $-0.0058^{a}$ | -0.0004 | $-0.0094^{a}$ | -0.0008 | 0.0038 |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.008) | (0.002) | (0.002) | (0.003) | (0.005) | (0.002) |
| Intangible Capital Intensity | $-0.0035^{a}$ | 0.0002 | 0.0000 | $0.0011^{a}$ | 0.0003 | $0.0013^{a}$ | -0.0035 | 0.0002 | 0.0003 | $0.0011^{\text {b }}$ | 0.0003 | $0.0013^{a}$ |
|  | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) |
| White Collar |  | 0.0235 | 0.0026 | $0.0475^{a}$ | $0.1450^{\text {c }}$ | $0.2279^{a}$ |  | 0.0234 | 0.0071 | 0.0471 | 0.1447 | 0.2279 |
|  |  | (0.016) | (0.010) | (0.014) | (0.086) | (0.069) |  | (0.074) | (0.044) | (0.065) | (0.218) | (0.252) |
| Routine Cognitive |  | 0.0001 ${ }^{\text {a }}$ | $0.0001^{a}$ | $0.0003^{a}$ | $0.0002^{a}$ | $0.0001{ }^{\text {b }}$ |  | $0.0001^{\text {c }}$ | 0.0000 | $0.0003^{\text {c }}$ | 0.0002 | 0.0001 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Routine Manual |  | $-0.0011^{a}$ | $-0.0005^{a}$ | $-0.0008^{a}$ | $-0.0009^{a}$ | -0.0002 |  | $-0.0011^{\text {b }}$ | $-0.0005^{\text {c }}$ | $-0.0008^{\text {c }}$ | -0.0009 | -0.0002 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |
| Non-Routine Manual |  | $0.0006^{a}$ | $0.0005^{a}$ | $0.0007^{a}$ | $0.0011^{a}$ | $0.0010^{a}$ |  | $0.0006^{a}$ | $0.0004^{\text {c }}$ | 0.0007 | $0.0011^{\text {c }}$ | 0.0010 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) |
| Interactive |  | $-0.0024^{a}$ | $-0.0007^{a}$ | $-0.0023^{a}$ | $-0.0022^{a}$ | $-0.0035^{a}$ |  | $-0.0024^{a}$ | $-0.0013^{a}$ | $-0.0023^{a}$ | $-0.0022^{\text {b }}$ | $-0.0035^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) |
| Analytical |  | $0.0020^{a}$ | $0.0004^{a}$ | $0.0019^{a}$ | $0.0025^{a}$ | $0.0044^{a}$ |  | $0.0020^{a}$ | $0.0008^{\text {b }}$ | $0.0019^{a}$ | $0.0025^{\text {b }}$ | $0.0044^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) |
| IM |  | $0.1263^{a}$ | $0.0611^{a}$ | $0.0993{ }^{\text {a }}$ | $0.1477^{a}$ |  |  | $0.1263{ }^{a}$ | 0.0518 | 0.0993 | $0.1477^{\text {c }}$ |  |
|  |  | (0.015) | (0.010) | (0.013) | (0.025) |  |  | (0.044) | (0.036) | (0.065) | (0.075) |  |
| Constant | $0.7549^{a}$ | 0.0091 | -0.0051 | 0.0062 | -0.0005 | $0.0859^{a}$ | $0.7549^{a}$ | 0.0091 | 0.0104 | 0.0062 | -0.0005 | $0.0859^{a}$ |
|  | (0.027) | (0.007) | (0.005) | (0.006) | (0.012) | (0.005) | (0.001) | (0.020) | (0.017) | (0.032) | (0.034) | (0.016) |
| Sector Dummies | Yes |  |  |  |  |  | Yes |  |  |  |  |  |
| Observations | 125,093 | 95,512 | 95,512 | 95,512 | 29,563 | 58,550 | 125,093 | 95,512 | 95,512 | 95,512 | 29,563 | 58,550 |
| $R^{2}$ | . | 0.0444 | 0.0297 | 0.1186 | 0.0957 | 0.1065 | . | 0.0444 | 0.0343 | 0.1186 | 0.0957 | 0.1065 |
|  | Robust standard errors in parentheses ${ }^{a} \mathrm{p}<0.01,{ }^{\text {b }} \mathrm{p}<0.05,{ }^{\circ} \mathrm{p}<0.1$ |  |  |  |  |  | Sector clustered st.err. in parentheses ${ }^{a} \mathrm{p}<0.01,{ }^{\text {b }} \mathrm{p}<0.05,{ }^{\text {c }} \mathrm{p}<0.1$ |  |  |  |  |  |

Figure 1: Partition of firms based on market presence and export participation

Table 17: Exports of Services: Extensive Margin, Specification 1, only firms belonging to the Service Sector

|  |  | Robust | standar | errors |  |  | Cluster | d standa | d error |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Stayers |  | Exiters | Entrants |  | Stayers |  | Exiters | Entrants |
|  | Start | Give up | Always |  |  | Start | Give up | Always |  |  |
| Productivity | $0.0246^{a}$ | $0.0136^{a}$ | $0.0213^{a}$ | $0.0549^{a}$ | $0.0383^{a}$ | $0.0246^{b}$ | $0.0136^{b}$ | $0.0213^{a}$ | $0.0549^{a}$ | $0.0383^{a}$ |
|  | $(0.002)$ | $(0.001)$ | $(0.001)$ | $(0.004)$ | (0.002) | (0.009) | (0.005) | (0.006) | $(0.017)$ | $(0.010)$ |
| Size | $0.0281{ }^{a}$ | $0.0152^{a}$ | $0.0331{ }^{a}$ | $0.0510^{a}$ | $0.0408^{a}$ | $0.0281^{a}$ | $0.0152^{a}$ | $0.0331{ }^{a}$ | $0.0510^{a}$ | $0.0408^{a}$ |
|  | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.009) | (0.002) | (0.010) | (0.011) | (0.012) |
| Capital Intensity | $0.0056^{a}$ | 0.0002 | $0.0020^{a}$ | $0.0146^{a}$ | $-0.0053^{a}$ | 0.0056 | 0.0002 | 0.0020 | $0.0146^{c}$ | -0.0053 ${ }^{\text {b }}$ |
|  | (0.001) | (0.000) | $(0.001)$ | $(0.002)$ | $(0.001)$ | (0.004) | (0.002) | (0.002) | (0.008) | $(0.002)$ |
| Skill Intensity | $-0.0044^{a}$ | $0.0014^{c}$ | $-0.0022^{b}$ | -0.0027 | $0.0085^{a}$ | -0.0044 | 0.0014 | -0.0022 | -0.0027 | $0.0085^{b}$ |
|  | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.004) | (0.002) | (0.002) | (0.008) | (0.004) |
| Intangible Capital Int. | $-0.0003^{\text {c }}$ | -0.0000 | -0.0001 | $-0.0008^{\text {b }}$ | $0.0004^{c}$ | -0.0003 | -0.0000 | -0.0001 | -0.0008 | 0.0004 |
|  | $(0.000)$ | (0.000) | $(0.000)$ | $(0.000)$ | $(0.000)$ | $(0.000)$ | $(0.000)$ | $(0.000)$ | $(0.001)$ | $(0.001)$ |
| $\Delta$ White Collar | $0.0987^{a}$ | 0.0115 | $0.0856^{a}$ | $0.7872^{a}$ | $0.5141^{a}$ | 0.0987 | 0.0115 | 0.0856 | $0.7872^{b}$ | $0.5141^{b}$ |
|  | (0.018) | (0.010) | (0.012) | (0.061) | (0.021) | (0.140) | (0.053) | (0.088) | (0.293) | (0.228) |
| $\Delta$ Computer | $0.0663^{a}$ | -0.0026 | $0.0081^{c}$ | $0.1370^{a}$ | $0.2078{ }^{a}$ | 0.0663 | -0.0026 | 0.0081 | 0.1370 | 0.2078 |
|  | (0.007) | (0.004) | (0.005) | (0.017) | (0.010) | (0.086) | (0.017) | (0.055) | (0.084) | (0.140) |
| IM | $0.1310^{a}$ | $0.0239^{a}$ | $0.0662^{a}$ | $0.3456^{a}$ |  | 0.1310 | 0.0239 | 0.0662 | $0.3456^{c}$ |  |
|  | (0.012) | (0.006) | (0.009) | (0.036) |  | (0.097) | (0.048) | (0.052) | (0.166) |  |
| Constant | $-0.0339^{a}$ | 0.0035 | $-0.0149^{a}$ | $-0.1401^{a}$ | $0.0071{ }^{\text {b }}$ | -0.0339 | 0.0035 | -0.0149 | -0.1401 | 0.0071 |
|  | (0.006) | (0.003) | (0.004) | (0.019) | (0.003) | (0.054) | (0.021) | (0.034) | (0.087) | (0.040) |
| Observations <br> R -squared | 82278 | 82278 | 82278 | 25661 | 53754 | 82278 | 82278 | 82278 | 25661 | 53754 |
|  | 0.0224 | 0.0258 | 0.0732 | 0.0911 | 0.0775 | 0.0224 | 0.0258 | 0.0732 | 0.0911 | 0.0775 |
|  | Robust st.err. in parentheses ${ }^{a} \mathrm{p}<0.01,{ }^{b} \mathrm{p}<0.05,^{c} \mathrm{p}<0.1$ |  |  |  |  | Ind. clust. | t. st.err. in | par. ${ }^{a} \mathrm{p}<0$ | 01, ${ }^{\text {b }} \mathrm{p}<0.0$ | 5, ${ }^{c} \mathrm{p}<0.1$ |

Table 18: Exports of Services: Extensive Margin, Specification 2, only firms belonging to the Service Sector

|  | Robust standard errors |  |  |  |  | Clustered standard errors |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Stayers |  |  | Exiters | Entrants | Stayers |  |  | Exiters | Entrants |
|  | Start | Give up | Always |  |  | Start | Give up | Always |  |  |
| Productivity | $\begin{gathered} 0.0413^{a} \\ (0.003) \end{gathered}$ | $\begin{gathered} 0.0208^{a} \\ (0.002) \end{gathered}$ | ${ }_{\left(0.0338^{a}\right.}^{0}(0.002)$ | $\begin{gathered} 0.0528^{a} \\ (0.005) \end{gathered}$ | $\begin{gathered} 0.0363^{a} \\ (0.002) \end{gathered}$ | $\begin{gathered} 0.0413^{a} \\ (0.008) \end{gathered}$ | $\begin{gathered} 0.0208^{a} \\ (0.005) \end{gathered}$ | $\begin{gathered} 0.0338^{a} \\ (0.005) \end{gathered}$ | $\begin{gathered} 0.0528^{a} \\ (0.009) \end{gathered}$ | $\begin{gathered} 0.0363^{a} \\ (0.009) \end{gathered}$ |
| Size | $\begin{gathered} 0.0334^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0175^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0370^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0505^{a} \\ (0.002) \end{gathered}$ | $\begin{gathered} 0.0404^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0334^{a} \\ (0.009) \end{gathered}$ | $\begin{gathered} 0.0175^{a} \\ (0.002) \end{gathered}$ | $\begin{gathered} 0.0370^{a} \\ (0.010) \end{gathered}$ | $\begin{gathered} 0.0505^{a} \\ (0.010) \end{gathered}$ | $\begin{gathered} 0.0404^{a} \\ (0.012) \end{gathered}$ |
| Capital Intensity | $\begin{gathered} 0.0138^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0037^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0082^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0144^{a} \\ (0.002) \end{gathered}$ | $\begin{gathered} -0.0047^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0138^{a} \\ (0.004) \end{gathered}$ | $\begin{gathered} 0.0037^{b} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0082^{a} \\ (0.003) \end{gathered}$ | $\begin{gathered} 0.0144^{a} \\ (0.004) \end{gathered}$ | $\begin{gathered} -0.0047^{c} \\ (0.003) \end{gathered}$ |
| Skill Intensity | $\begin{gathered} -0.0111^{a} \\ (0.002) \end{gathered}$ | $\begin{gathered} -0.0015 \\ (0.001) \end{gathered}$ | $\begin{gathered} -0.0073^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} -0.0019 \\ (0.003) \end{gathered}$ | $\begin{gathered} 0.0091^{a}{ }^{a}(0.001) \end{gathered}$ | $\begin{gathered} -0.0111^{b} \\ (0.004) \end{gathered}$ | $\begin{gathered} -0.0015 \\ (0.001) \end{gathered}$ | $\begin{gathered} -0.0073^{b} \\ (0.003) \end{gathered}$ | $\begin{gathered} -0.0019 \\ (0.005) \end{gathered}$ | $\begin{gathered} 0.0091^{b} \\ (0.004) \end{gathered}$ |
| Intangible Capital Int. | $\begin{gathered} -0.0006^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0002 \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0003^{b} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0009^{b} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0009^{a} \\ (0.000) \end{gathered}$ | $\frac{-0.0006^{b}}{(0.000)}$ | $\begin{gathered} -0.0002 \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0003 \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0009 \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0009 \\ (0.001) \end{gathered}$ |
| $\Delta$ White Collar | $\begin{gathered} -0.0031 \\ (0.021) \end{gathered}$ | $\begin{gathered} -0.0180 \\ (0.011) \end{gathered}$ | $\begin{aligned} & 0.0130 \\ & (0.014) \end{aligned}$ | $\begin{gathered} -0.4374^{a} \\ (0.127) \end{gathered}$ | $\begin{gathered} -0.5762^{a} \\ (0.095) \end{gathered}$ | $\begin{gathered} -0.0031 \\ (0.091) \end{gathered}$ | $\begin{gathered} -0.0180 \\ (0.053) \end{gathered}$ | $\begin{aligned} & 0.0130 \\ & (0.055) \end{aligned}$ | $\begin{gathered} -0.4374^{a} \\ (0.126) \end{gathered}$ | $\begin{gathered} -0.5762 \\ (0.370) \end{gathered}$ |
| Routine Cognitive | $\begin{gathered} 0.0001^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0001^{a} \\ (0.000) \end{gathered}$ | $\begin{aligned} & 0.0000 \\ & (0.000) \end{aligned}$ | $\begin{gathered} -0.0002^{c} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0000 \\ (0.000) \end{gathered}$ | $\begin{aligned} & 0.0001 \\ & (0.000) \end{aligned}$ | $\begin{gathered} -0.0001 \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0000 \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0002^{b} \\ (0.000) \end{gathered}$ | $\begin{aligned} & 0.0000 \\ & (0.000) \end{aligned}$ |
| Routine Manual | $\begin{gathered} -0.0027^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0008^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0016^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0033^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} -0.0027^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0027^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} -0.0008^{b} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0016^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0033^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0027^{c} \\ (0.001) \end{gathered}$ |
| Non-Routine Manual | $\begin{gathered} 0.0008^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0006^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0008^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0015^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0016^{a} \\ (0.000) \end{gathered}$ | $\begin{aligned} & 0.0008 \\ & (0.001) \end{aligned}$ | $\begin{gathered} 0.0006^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0008^{c} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0015^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0016 \\ (0.001) \end{gathered}$ |
| Interactive | $\begin{gathered} -0.0035^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0008^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0027^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0048^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} -0.0089^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0035^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0008^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} -0.0027^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} -0.0048^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} -0.0089^{a} \\ (0.001) \end{gathered}$ |
| Analytical | $\begin{gathered} 0.0048^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0005^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0018^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0015^{b} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0079^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0048^{a} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0005 \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0018^{b} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.0015^{a} \\ (0.000) \end{gathered}$ | $\begin{gathered} 0.0079^{a} \\ (0.002) \end{gathered}$ |
| IM | $\begin{gathered} 0.3198^{a} \\ (0.023) \end{gathered}$ | $\begin{gathered} 0.1049^{a} \\ (0.013) \end{gathered}$ | $\begin{gathered} 0.2084^{a} \\ (0.018) \end{gathered}$ | $\begin{gathered} 0.3350^{a} \\ (0.039) \end{gathered}$ |  | $\begin{gathered} 0.3198^{a} \\ (0.080) \end{gathered}$ | $\begin{gathered} 0.1049^{b} \\ (0.040) \end{gathered}$ | $\begin{gathered} 0.2084^{a} \\ (0.053) \end{gathered}$ | $\begin{gathered} 0.3350^{a} \\ (0.080) \end{gathered}$ |  |
| Constant | $\begin{gathered} -0.0439^{a} \\ (0.012) \end{gathered}$ | $\begin{gathered} -0.0222^{a} \\ (0.007) \end{gathered}$ | $\begin{gathered} -0.0329^{a} \\ (0.009) \end{gathered}$ | $\begin{gathered} -0.0313 \\ (0.020) \end{gathered}$ | $\begin{gathered} 0.1828^{a} \\ (0.008) \end{gathered}$ | $\begin{gathered} -0.0439 \\ (0.039) \end{gathered}$ | $\begin{gathered} -0.0222 \\ (0.019) \end{gathered}$ | $\begin{gathered} -0.0329 \\ (0.024) \end{gathered}$ | $\begin{gathered} -0.0313 \\ (0.042) \end{gathered}$ | $\begin{gathered} 0.1828^{a} \\ (0.025) \end{gathered}$ |
| Observations | 82278 | 82278 | 82278 | 25661 | 53754 | 82278 | 82278 | 82278 | 25661 | 53754 |
| R-squared | 0.0389 | 0.0294 | 0.0894 | 0.1023 | 0.1117 | 0.0389 | 0.0294 | 0.0894 | 0.1023 | 0.1117 |
| Robust st.err. in parentheses ${ }^{\text {a }} \mathrm{p}<0.01,{ }^{6} \mathrm{p}<0.05,{ }^{\text {c }} \mathrm{p}<0.1$ |  |  |  |  |  | Ind. clustered st.err. in par. ${ }^{a} \mathrm{p}<0.01,{ }^{b} \mathrm{p}<0.05,{ }^{c}{ }^{c} \mathrm{p}<0.1$ |  |  |  |  |

Table 19: Imports of Services: Extensive Margin, Specification 1, only firms belonging to the Service Sector

|  | Robust standard errors |  |  |  |  | Clustered standard errors |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Stayers |  |  | Exiters | Entrants | Stayers |  |  | Exiters | Entrants |
|  | Start | Give up | Always |  |  | Start | Give up | Always |  |  |
| Productivity | $0.0213^{a}$ | $0.0130^{a}$ | $0.0240^{a}$ | $0.0477^{a}$ | $0.0332^{a}$ | $0.0213^{\text {b }}$ | $0.0130^{\text {b }}$ | $0.0240^{a}$ | $0.0477^{a}$ | $0.0332^{a}$ |
|  | (0.002) | (0.001) | (0.001) | (0.004) | (0.001) | (0.007) | (0.005) | (0.007) | (0.014) | (0.006) |
| Size | $0.0310^{a}$ | $0.0133^{a}$ | $0.0333^{a}$ | $0.0420^{a}$ | $0.0383^{a}$ | $0.0310^{a}$ | $0.0133^{a}$ | $0.0333^{a}$ | $0.0420^{a}$ | $0.0383^{a}$ |
|  | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.004) | (0.002) | (0.006) | (0.007) | (0.007) |
| Capital Intensity | $0.0028^{a}$ | -0.0002 | $0.0017^{a}$ | $0.0130^{a}$ | $-0.0036^{a}$ | 0.0028 | -0.0002 | 0.0017 | $0.0130^{\text {b }}$ | -0.0036 ${ }^{\text {c }}$ |
|  | (0.001) | (0.000) | (0.000) | (0.002) | (0.001) | (0.003) | (0.002) | (0.003) | (0.006) | (0.002) |
| Skill Intensity | $-0.0038^{a}$ | -0.0005 | $-0.0054^{a}$ | $-0.0044^{c}$ | $0.0039^{a}$ | -0.0038 | -0.0005 | -0.0054 | -0.0044 | 0.0039 |
|  | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.003) | (0.002) | (0.003) | (0.008) | (0.003) |
| Intangible Capital Int. | 0.0002 | -0.0001 | $0.0004^{a}$ | -0.0006 ${ }^{\text {b }}$ | $0.0009^{a}$ | 0.0002 | -0.0001 | $0.0004^{a}$ | -0.0006 | $0.0009^{\text {c }}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) |
| $\Delta$ White Collar | $0.0436^{a}$ | 0.0053 | 0.0191 | $0.6257^{a}$ | $0.3248^{a}$ | 0.0436 | 0.0053 | 0.0191 | $0.6257^{\text {b }}$ | $0.3248^{\text {b }}$ |
|  | (0.014) | (0.009) | (0.012) | (0.055) | (0.016) | (0.094) | (0.037) | (0.071) | (0.221) | (0.108) |
| $\Delta$ Computer | $0.0199^{a}$ | $-0.0116^{a}$ | $0.0066^{\text {c }}$ | $0.1072^{a}$ | $0.0747^{a}$ | 0.0199 | -0.0116 | 0.0066 | $0.1072^{\text {b }}$ | 0.0747 |
|  | (0.005) | (0.003) | (0.004) | (0.015) | (0.007) | (0.033) | (0.010) | (0.025) | (0.048) | (0.063) |
| IM | $0.0744^{a}$ | $0.0174^{a}$ | $0.0623^{a}$ | $0.2995^{a}$ |  | 0.0744 | 0.0174 | 0.0623 | $0.2995^{\text {b }}$ |  |
|  | (0.010) | (0.006) | (0.008) | (0.032) |  | (0.078) | (0.040) | (0.064) | (0.130) |  |
| Constant | $-0.0102^{b}$ | $0.0060^{\text {b }}$ | $-0.0157^{a}$ | $-0.1233^{a}$ | $0.0202^{a}$ | -0.0102 | 0.0060 | -0.0157 | $-0.1233^{c}$ | 0.0202 |
|  | (0.005) | (0.003) | (0.004) | (0.016) | (0.002) | (0.035) | (0.017) | (0.029) | $(0.065)$ | (0.017) |
| Observations | 82278 | 82278 | 82278 | 25661 | 53754 | 82278 | 82278 | 82278 | 25661 | 53754 |
| R-squared | 0.0379 | 0.0246 | 0.0830 | 0.0805 | 0.0848 | 0.0379 | 0.0246 | 0.0830 | 0.0805 | 0.0848 |

Table 21: Exports of Services: Extensive Margin, Interaction terms

|  | Robust standard errors |  |  |  |  | Clustered standard errors |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Stayers |  |  | Exiters | Entrants | Stayers |  |  | Exiters | Entrants |
|  | Start | Give up | Always |  |  | Start | Give up | Always |  |  |
| $\Delta$ Computer | $0.0520^{a}$ | $0.0067^{\text {b }}$ | $0.0085^{\text {b }}$ | $0.0481^{a}$ | $0.1877^{a}$ | 0.0520 | 0.0067 | 0.0085 | 0.0481 | 0.1877 |
|  | (0.006) | (0.003) | (0.004) | (0.012) | (0.010) | (0.080) | (0.011) | (0.044) | (0.069) | (0.134) |
| $\Delta$ Computer • Productivity | 0.0002 | 0.0061 | 0.0025 | 0.0056 | $0.0856^{a}$ | 0.0002 | 0.0061 | 0.0025 | 0.0056 | $0.0856{ }^{\text {b }}$ |
|  | (0.010) | (0.007) | (0.009) | (0.017) | (0.014) | (0.009) | (0.007) | (0.016) | (0.014) | (0.037) |
| $\Delta$ Computer - Size | 0.0002 | 0.0061 | 0.0025 | 0.0056 | $0.0856^{a}$ | 0.0084 | 0.0081 | -0.0002 | 0.0257 | 0.0810 |
|  | (0.010) | (0.007) | (0.009) | (0.017) | (0.014) | (0.035) | (0.011) | (0.062) | (0.066) | (0.061) |
| $\Delta$ Computer $\cdot \mathrm{K}$ intensity | $-0.0133^{a}$ | -0.0004 | $-0.0090^{a}$ | -0.0067 | $-0.0233^{a}$ | $-0.0133^{b}$ | -0.0004 | -0.0090 | -0.0067 | $-0.0233^{\text {c }}$ |
|  | (0.007) | (0.005) | (0.008) | (0.015) | (0.010) | (0.006) | (0.003) | (0.006) | (0.009) | (0.013) |
| $\Delta$ Computer • Skill intensity | $0.0170^{\text {c }}$ | -0.0057 | $0.0149^{\text {b }}$ | $0.0309{ }^{\text {b }}$ | $0.0227^{\text {b }}$ | 0.0170 | -0.0057 | 0.0149 | 0.0309 | 0.0227 |
|  | (0.009) | (0.005) | (0.006) | (0.016) | (0.009) | (0.012) | (0.009) | (0.010) | (0.030) | (0.020) |
| $\Delta$ Rout. Cognitive | $-0.0002^{a}$ | $0.0000^{\text {c }}$ | $-0.0001^{a}$ | $-0.0002^{\text {b }}$ | $-0.0004^{a}$ | -0.0002 | 0.0000 | -0.0001 | -0.0002 | -0.0004 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Cognitive • Productivity | -0.0000 | 0.0000 | -0.0001 | -0.0002 | -0.0001 | -0.0000 | 0.0000 | -0.0001 | $-0.0002^{\text {b }}$ | -0.0001 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Cognitive - Size | -0.0001 | 0.0001 | $-0.0003^{a}$ | $-0.0004^{a}$ | $-0.0002^{a}$ | -0.0001 | 0.0001 | -0.0003 | $-0.0004^{a}$ | -0.0002 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Cognitive • K int. | $0.0001{ }^{a}$ | $0.0000^{c}$ | $0.0001^{a}$ | $0.0001^{b}$ | $0.0001^{c}$ | $0.0001^{\text {b }}$ | $0.0000^{c}$ | $0.0001^{a}$ | $0.0001^{a}$ | 0.0001 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Cognitive - Skill int. | $-0.0002^{b}$ | $-0.0001^{a}$ | $-0.0002^{a}$ | $-0.0003^{\text {b }}$ | $-0.0003^{a}$ | $-0.0002^{b}$ | $-0.0001^{\text {b }}$ | $-0.0002^{a}$ | $-0.0003^{\text {b }}$ | $-0.0003^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Manual | $-0.0016^{a}$ | $-0.0005^{a}$ | $-0.0011^{a}$ | $-0.0023^{a}$ | $-0.0016^{a}$ | $-0.0016^{b}$ | -0.0005 ${ }^{\text {c }}$ | $-0.0011^{\text {b }}$ | $-0.0023^{a}$ | -0.0016 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ Rout. Manual P Productivity | 0.0002 | $-0.0001^{\text {c }}$ | $-0.0003^{b}$ | $-0.0000$ | $-0.0007^{a}$ | 0.0002 | -0.0001 | -0.0003 | $-0.0000$ | $-0.0007^{\text {c }}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Manual - Size | $0.0003^{\text {b }}$ | -0.0001 | $-0.0004^{a}$ | -0.0002 | $-0.0005^{a}$ | 0.0003 | -0.0001 | -0.0004 | -0.0002 | -0.0005 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Manual $\cdot \mathrm{K}$ int. | $0.0001{ }^{\text {b }}$ | 0.0000 | $0.0001{ }^{\text {b }}$ | 0.0001 | $0.0002^{a}$ | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0002 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Manual - Skill int. | -0.0001 | -0.0001 | -0.0000 | -0.0002 | -0.0000 | -0.0001 | -0.0001 | -0.0000 | -0.0002 | -0.0000 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Non Rout. Manual | $0.0005^{a}$ | $0.0004{ }^{a}$ | $0.0006^{a}$ | $0.0012^{a}$ | $0.0013^{a}$ | 0.0005 | $0.0004^{c}$ | $0.0006^{\text {c }}$ | $0.0012^{a}$ | 0.0013 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Non Rout. Manual Productivity | $-0.0006{ }^{\text {b }}$ | 0.0001 | 0.0001 | 0.0003 | $0.0007^{a}$ | $-0.0006{ }^{\text {b }}$ | 0.0001 | 0.0001 | 0.0003 | 0.0007 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Non Rout. Manual $\cdot$ Size | $-0.0007^{a}$ | 0.0000 | -0.0000 | -0.0000 | 0.000 | $-0.0007^{c}$ | 0.0000 | $-0.0000$ | -0.0000 | 0.0002 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Non Rout. Manual $\cdot \mathrm{K}$ int. | $-0.0003^{a}$ | $-0.0001^{a}$ | -0.0001 | -0.0001 | $-0.0005^{a}$ | $-0.0003^{a}$ | $-0.0001^{\text {c }}$ | -0.0001 | -0.0001 | $-0.0005^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | $(0.000)$ | (0.000) |
| $\Delta$ Non Rout. Manual • Skill int. | $0.0003^{\text {b }}$ | $0.0003{ }^{\text {a }}$ | 0.0001 | $0.0008^{a}$ | $0.0003{ }^{\text {b }}$ | $0.0003^{c}$ | $0.0003^{\text {b }}$ | $0.0001^{\text {c }}$ | $0.0008^{\text {b }}$ | $0.0003^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Interactive | $-0.0036^{a}$ | $-0.0012^{a}$ | $-0.0024^{a}$ | $-0.0048^{a}$ | $-0.0074^{a}$ | -0.0001 | 0.0000 | -0.0001 | $-0.0002^{\text {c }}$ | -0.0004 |
|  | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.001) | (0.000) | (0.001) | (0.001) | (0.002) |
| $\Delta$ Interactive - Productivity | 0.0004 | -0.0001 | $-0.0010^{a}$ | $-0.0014^{c}$ | $-0.0030^{a}$ | 0.0004 | -0.0001 | $-0.0010^{\text {b }}$ | $-0.0014^{b}$ | $-0.0030^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ Interactive $\cdot$ Size | $-0.0011^{a}$ | $-0.0008^{a}$ | $-0.0036^{a}$ | $-0.0046^{a}$ | $-0.0032^{a}$ | $-0.0011^{\text {b }}$ | $-0.0008^{a}$ | $-0.0036^{a}$ | $-0.0046^{a}$ | $-0.0032^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.001) | (0.001) | (0.001) |
| $\Delta$ Interactive $\cdot \mathrm{K}$ int. | $0.0003^{c}$ | $-0.0002^{\text {c }}$ | -0.0001 | $-0.0000$ | -0.0002 | 0.0003 | -0.0002 | -0.0001 | $-0.0000$ | -0.0002 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Interactive - Skill int. | $-0.0007^{\text {b }}$ | -0.0000 | 0.0001 | -0.0008 | -0.0002 | $-0.0007^{a}$ | -0.0000 | 0.0001 | $-0.0008^{c}$ | -0.0002 |
|  | (0.000) | (0.000) | (0.000) | $(0.000)$ | $(0.000)$ | $(0.000)$ | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Analytical | $0.0034^{a}$ | $0.0008^{a}$ | $0.0013^{a}$ | $0.0017^{a}$ | $0.0077^{a}$ | $0.0034^{a}$ | $0.0008^{\text {b }}$ | $0.0013^{a}$ | $0.0017^{\text {b }}$ | $0.0077^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.001) | (0.000) | (0.000) | (0.001) | (0.002) |
| $\Delta$ Analytical - Productivity | -0.0005 | -0.0000 | -0.0000 | 0.0000 | $0.0032^{a}$ | $-0.0005^{\text {c }}$ | -0.0000 | $-0.0000$ | 0.0000 | $0.0032^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) |
| $\Delta$ Analytical - Size | $0.0008^{\text {a }}$ | $0.0005^{\text {b }}$ | $0.0018^{a}$ | $0.0031^{a}$ | $0.0036^{a}$ | 0.0008 | $0.0005^{\text {c }}$ | $0.0018^{\text {b }}$ | $0.0031^{a}$ | $0.0036^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.001) | (0.001) | (0.001) |
| $\Delta$ Analytical $\cdot \mathrm{K}$ int. | $-0.0003^{a}$ | 0.0001 | $0.0002^{\text {b }}$ | $0.0005^{\text {b }}$ | $-0.0003^{c}$ | $-0.0003^{\text {b }}$ | 0.0001 | 0.0002 | $0.0005^{a}$ | -0.0003 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Analytical $\cdot$ Skill int. | $-0.0008^{a}$ | -0.0000 | $0.0004^{\text {b }}$ | $0.0012^{\text {b }}$ | $0.0005^{\text {c }}$ | $0.0008^{a}$ | -0.0000 | $0.0004^{a}$ | $0.0012^{a}$ | $0.0005^{\text {b }}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
|  | Robust st.err. in par. ${ }^{a} \mathrm{p}<0.01,{ }^{b} \mathrm{p}<0.05,{ }^{c} \mathrm{p}<0.1$ |  |  |  |  | Sector clust. st.err. in par. ${ }^{a} \mathrm{p}<0.01,{ }^{\text {b }} \mathrm{p}<0.05,{ }^{\text {c }} \mathrm{p}<0.1$ |  |  |  |  |

Table 22: Imports of Services: Extensive Margin, Interaction terms

|  | Robust standard errors |  |  |  |  | Clustered standard errors |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Stayers |  |  | Exiters | Entrants | Stayers |  |  | Exiters | Entrants |
|  | Start | Give up | Always |  |  | Start | Give up | Always |  |  |
| $\Delta$ Computer | $0.0338^{a}$ | 0.0010 | $0.0293{ }^{\text {a }}$ | $0.0758^{a}$ | $0.0954^{a}$ | 0.0338 | 0.0010 | 0.0293 | $0.0758^{\text {b }}$ | $0.0954^{c}$ |
|  | (0.005) | (0.003) | (0.004) | (0.011) | (0.008 | (0.025) | (0.007) | (0.018) | (0.030) | (0.054) |
| $\Delta$ Computer - Productivity | -0.0052 | 0.0084 | 0.0003 | 0.0096 | $0.0444^{a}$ | -0.0052 | 0.0084 | 0.0003 | 0.0096 | $0.0444^{c}$ |
|  | (0.009) | (0.007) | (0.009) | (0.017) | (0.011) | (0.012) | (0.009) | (0.018) | (0.033) | (0.023) |
| $\Delta$ Computer $\cdot$ Size | 0.0029 | -0.0039 | $0.0500^{a}$ | $0.0714^{a}$ | $0.0628^{a}$ | 0.0029 | -0.0039 | 0.0500 | $0.0714^{a}$ | $0.0628^{c}$ |
|  | (0.006) | (0.005) | (0.008) | (0.015) | (0.009) | (0.017) | (0.006) | (0.033) | (0.025) | (0.032) |
| $\Delta$ Computer $\cdot \mathrm{K}$ intensity | -0.0040 | -0.0018 | 0.0038 | 0.0030 | -0.0042 | -0.0040 | -0.0018 | 0.0038 | 0.0030 | -0.0042 |
|  | (0.003) | (0.002) | (0.003) | (0.006) | (0.005) | (0.006) | (0.003) | (0.007) | (0.007) | (0.011) |
| $\Delta$ Computer • Skill intensity | $0.0133^{c}$ | $-0.0086^{c}$ | $0.0103^{c}$ | 0.0127 | $0.0110^{c}$ | 0.0133 | -0.0086 | 0.0103 | 0.0127 | 0.0110 |
|  | (0.007) | (0.005) | (0.006) | (0.016) | (0.006) | (0.008) | (0.006) | (0.013) | (0.050) | (0.013) |
| $\Delta$ Rout. Cognitive | $0.0001^{a}$ | $0.0001{ }^{\text {a }}$ | $0.0002^{a}$ | $0.0003^{a}$ | $0.0001{ }^{\text {a }}$ | $0.0001^{\text {c }}$ | 0.0000 | 0.0002 | 0.0003 | 0.0001 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Cognitive • Productivity | -0.0000 | 0.0000 | $0.0003{ }^{a}$ | 0.0002 | 0.0000 | -0.0000 | 0.0000 | $0.0003^{b}$ | 0.0002 | 0.0000 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Cognitive - Size | -0.0001 | -0.0000 | $0.0002^{a}$ | 0.0000 | 0.0001 | -0.0001 | 0.0001 | 0.0002 | 0.0000 | 0.0001 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Cognitive • K int. | $0.0001^{a}$ | $0.0001{ }^{\text {a }}$ | $0.0001^{a}$ | $0.0001^{b}$ | $0.0001^{a}$ | $0.0001{ }^{\text {b }}$ | $0.0000^{\text {c }}$ | $0.0001^{\text {b }}$ | $0.0001^{\text {b }}$ | $0.0001^{\text {b }}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Cognitive - Skill int. | $-0.0001^{\text {c }}$ | $-0.0001^{\text {b }}$ | $-0.0004^{a}$ | $-0.0004^{a}$ | $-0.0002^{a}$ | -0.0001 ${ }^{\text {c }}$ | $-0.0001^{\text {b }}$ | $-0.0004^{a}$ | -0.0004 ${ }^{\text {b }}$ | $-0.0002^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Manual | $-0.0011^{a}$ | $-0.0005^{a}$ | $-0.0007^{a}$ | $-0.0010^{a}$ | $-0.0003^{c}$ | $-0.0011^{a}$ | -0.0005 ${ }^{\text {c }}$ | -0.0007 | -0.0010 | -0.0003 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ Rout. Manual P Productivity | 0.0001 | $-0.0003^{a}$ | $-0.0005^{a}$ | -0.0003 | $-0.0008^{a}$ | 0.0001 | -0.0001 | $-0.0005^{\text {c }}$ | -0.0003 | $-0.0008^{\text {b }}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Manual - Size | 0.0001 | $-0.0002^{\text {b }}$ | $-0.0006^{a}$ | $-0.0005^{a}$ | $-0.0005^{a}$ | 0.0001 | -0.0001 | $-0.0006^{\text {c }}$ | -0.0005 | $-0.0005^{\text {b }}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Manual $\cdot \mathrm{K}$ int. | -0.0000 | 0.0000 | 0.0000 | 0.0001 | $0.0002^{a}$ | -0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0002 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Rout. Manual - Skill int. | -0.0001 | 0.0001 | $0.0002^{a}$ | -0.0001 | -0.0001 | -0.0001 | -0.0001 | 0.0002 | -0.0001 | -0.0001 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Non Rout. Manual | $0.0006^{a}$ | $0.0004{ }^{a}$ | $0.0006{ }^{a}$ | $0.0012^{a}$ | $0.0011^{a}$ | $0.0006^{a}$ | $0.0004^{\text {c }}$ | 0.0006 | $0.0012^{\text {c }}$ | 0.0011 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ Non Rout. Manual - Productivity | $-0.0004^{c}$ | $0.0005^{a}$ | $0.0007^{a}$ | 0.0005 | $0.0008^{a}$ | -0.0004 | 0.0001 | $0.0007^{c}$ | 0.0005 | 0.0008 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ Non Rout. Manual $\cdot$ Size | -0.0001 | $0.0002^{\text {b }}$ | $0.0006^{a}$ | $0.0007^{\text {b }}$ | $0.0006^{a}$ | -0.0001 | 0.0000 | 0.0006 | 0.0007 | 0.0006 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) |
| $\Delta$ Non Rout. Manual $\cdot \mathrm{K}$ int. | -0.0000 | -0.0001 | $-0.0001^{a}$ | -0.0001 | $-0.0004^{a}$ | -0.0000 | $-0.0001^{c}$ | -0.0001 | -0.0001 | $-0.0004^{\text {c }}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Non Rout. Manual - Skill int. | $0.0004^{b}$ | -0.0000 | -0.0001 | 0.0005 | $0.0003{ }^{\text {a }}$ | $0.0004^{c}$ | $0.0003^{\text {b }}$ | -0.0001 | 0.0005 | $0.0003^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Interactive | $-0.0023^{a}$ | $-0.0007^{a}$ | $-0.0019^{a}$ | $-0.0022^{a}$ | $-0.0041^{a}$ | $-0.0023^{a}$ | $-0.0012^{a}$ | $-0.0019^{a}$ | $-0.0022^{\text {b }}$ | $-0.0041^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) |
| $\Delta$ Interactive • Productivity | 0.0002 | $0.0007^{a}$ | $-0.0006^{b}$ | -0.0003 | $-0.0014^{a}$ | 0.0002 | -0.0001 | -0.0006 | -0.0003 | $-0.0014^{c}$ |
|  | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ Interactive $\cdot$ Size | $-0.0013^{a}$ | $-0.0004^{b}$ | $-0.0029^{a}$ | $-0.0028^{a}$ | $-0.0031^{a}$ | $-0.0013^{a}$ | $-0.0008^{a}$ | $-0.0029^{a}$ | $-0.0028^{a}$ | $-0.0031^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) |
| $\Delta$ Interactive $\cdot \mathrm{K}$ int. | 0.0001 | $-0.0002^{b}$ | $-0.0003^{a}$ | $-0.0003$ | $-0.0006^{a}$ | 0.0001 | -0.0002 | $-0.0003^{c}$ | -0.0003 | $-0.0006^{b}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Interactive - Skill int. | 0.0002 | $-0.0005^{b}$ | 0.0003 | -0.0004 | -0.0000 | 0.0002 | -0.0000 | 0.0003 | -0.0004 | -0.0000 |
|  | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) |
| $\Delta$ Analytical | $0.0020^{a}$ | $0.0004{ }^{a}$ | $0.0017^{a}$ | $0.0024^{a}$ | $0.0044^{a}$ | $0.0020^{a}$ | $0.0008^{\text {b }}$ | $0.0017^{a}$ | $0.0024^{b}$ | $0.0044^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | $(0.000)$ | (0.000) | $(0.000)$ | $(0.001)$ | $(0.001)$ | $(0.001)$ |
| $\Delta$ Analytical P Productivity | $-0.0007^{\text {b }}$ | -0.0001 | -0.0003 | 0.0000 | $0.0015^{\text {a }}$ | $-0.0007^{\text {c }}$ | -0.0000 | -0.0003 | 0.0000 | $0.0015^{b}$ |
|  | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ Analytical - Size | $0.0006^{a}$ | 0.0001 | $0.0025^{a}$ | $0.0029^{a}$ | $0.0027^{a}$ | $0.0006{ }^{\text {b }}$ | $0.0005^{\text {c }}$ | $0.0025^{a}$ | $0.0029^{a}$ | $0.0027^{a}$ |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) |
| $\Delta$ Analytical $\cdot \mathrm{K}$ int. | 0.0001 | 0.0001 | $0.0005^{a}$ | $0.0005^{a}$ | $0.0003^{\text {b }}$ | 0.0001 | 0.0001 | $0.0005^{a}$ | $0.0005^{a}$ | 0.0003 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Analytical - Skill int. | $0.0004^{c}$ | -0.0001 | 0.0002 | 0.0006 | -0.0001 | $0.0004^{b}$ | $-0.0000$ | 0.0002 | 0.0006 | -0.0001 |
|  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) |
|  | Robust st.err. in par. ${ }^{a} \mathrm{p}<0.01,{ }^{b} \mathrm{p}<0.05,{ }^{c} \mathrm{p}<0.1$ |  |  |  |  | Sector clust. st.err. in par. ${ }^{\text {a }} \mathrm{p}<0.01,{ }^{\text {b }} \mathrm{p}<0.05,{ }^{\text {c }} \mathrm{p}<0.1$ |  |  |  |  |

Table 24: Exports of Services: Extensive Margin, Specification 2, using also 1995 level of technological change

|  | Robust standard errors |  |  |  |  |  | Clustered standard errors |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Selection | Stayers |  |  | Exiters | Entrants | Selection | Stayers |  |  | Exiters | Entrants |
|  |  | Start | Give up | Always |  |  |  | Start | Give up | Always |  |  |
| Age | $\begin{gathered} 0.0814^{a} \\ (0.012) \end{gathered}$ |  |  |  |  |  | $\begin{gathered} 0.0814^{a} \\ (0.013) \end{gathered}$ |  |  |  |  |  |
| Productivity | $0.2050^{a}$ | $0.0401^{a}$ | $0.0227^{a}$ | $0.0362^{a}$ | $0.0519^{a}$ | $0.0357^{a}$ | $0.2050^{a}$ | $0.0401{ }^{a}$ | $0.0227^{a}$ | $0.0362^{a}$ | $0.0519^{a}$ | $0.0357^{a}$ |
|  | (0.008) | (0.002) | (0.002) | (0.002) | (0.004) | (0.002) | (0.021) | (0.004) | (0.003) | (0.003) | (0.007) | (0.008) |
| Size | $0.0538^{a}$ | $0.0317^{a}$ | $0.0206^{a}$ | $0.0367^{a}$ | $0.0486^{a}$ | $0.0394^{a}$ | $0.0538^{a}$ | $0.0317^{a}$ | $0.0206^{a}$ | $0.0367^{a}$ | $0.0486^{a}$ | $0.0394^{a}$ |
|  | (0.004) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.012) | (0.006) | (0.002) | (0.007) | (0.008) | (0.010) |
| Capital Intensity | $0.0988^{\text {a }}$ | $0.0134^{a}$ | $0.0045^{a}$ | $0.0095^{a}$ | $0.0143^{a}$ | $-0.0045^{a}$ | $0.0988^{a}$ | $0.0134^{a}$ | $0.0045^{a}$ | $0.0095^{a}$ | $0.0143^{a}$ | $-0.0045^{c}$ |
|  | (0.003) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.003) | (0.002) | (0.001) | (0.002) | (0.003) | (0.002) |
| Skill Intensity | $-0.1009^{a}$ | $-0.0109^{a}$ | $-0.0031{ }^{a}$ | $-0.0087^{a}$ | -0.0028 | $0.0084^{a}$ | $-0.1009^{a}$ | $-0.0109^{a}$ | -0.0031 ${ }^{\text {b }}$ | $-0.0087^{a}$ | -0.0028 | $0.0084^{b}$ |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.008) | (0.003) | (0.001) | (0.002) | (0.004) | (0.003) |
| Intangible Capital Intensity | $-0.0035^{a}$ | $-0.0005^{a}$ | 0.0001 | -0.0002 | $-0.0007^{\text {b }}$ | $0.0010^{a}$ | -0.0035 | $-0.0005^{a}$ | 0.0001 | -0.0002 | -0.0007 | 0.0010 |
|  | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ White Collar |  | 0.0010 | $-0.0419^{a}$ | $0.0262^{\text {c }}$ | $-0.3245^{a}$ | 0.1051 |  | 0.0010 | -0.0419 | 0.0262 | $-0.3245^{\text {b }}$ | 0.1051 |
|  |  | (0.019) | (0.011) | (0.014) | (0.102) | (0.088) |  | (0.059) | (0.044) | (0.039) | (0.140) | (0.229) |
| $\Delta$ Routine Cognitive |  | $0.0022^{a}$ | $0.0019^{a}$ | $0.0021^{a}$ | $0.0033^{a}$ | $0.0017^{a}$ |  | $0.0022^{a}$ | $0.0019^{a}$ | $0.0021^{a}$ | $0.0033^{a}$ | $0.0017^{\text {b }}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Routine Manual |  | $-0.0012^{a}$ | -0.0001 | $-0.0013^{a}$ | $-0.0016^{a}$ | $0.0044^{a}$ |  | $-0.0012^{a}$ | -0.0001 | $-0.0013^{a}$ | $-0.0016^{a}$ | $0.0044^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) |
| $\Delta$ Non-Routine Manual |  | $-0.0004^{c}$ | $-0.0013^{a}$ | 0.0000 | $-0.0018^{a}$ | 0.0004 |  | -0.0004 | $-0.0013^{a}$ | 0.0000 | $-0.0018^{c}$ | 0.0004 |
|  |  | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ Interactive |  | $-0.0018^{a}$ | $0.0018^{a}$ | -0.0001 | -0.0004 | $-0.0020^{a}$ |  | -0.0018 ${ }^{\text {b }}$ | $0.0018^{\text {b }}$ | -0.0001 | -0.0004 | -0.0020 |
|  |  | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |  | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| $\Delta$ Analytical |  | $0.0006{ }^{\text {b }}$ | $0.0008^{a}$ | 0.0002 | $0.0018^{a}$ | 0.0011 |  | 0.0006 | $0.0008^{a}$ | 0.0002 | $0.0018^{a}$ | 0.0011 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) |  | (0.000) | (0.000) | (0.000) | (0.001) | (0.003) |
| Routine Cognitive 1995 |  | $0.0020^{a}$ | $0.0021^{a}$ | $0.0026^{a}$ | $0.0030^{a}$ | -0.0006 |  | $0.0020^{a}$ | $0.0021^{a}$ | $0.0026^{a}$ | $0.0030^{a}$ | -0.0006 |
|  |  | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |  | (0.000) | (0.001) | (0.001) | (0.001) | (0.002) |
| Routine Manual 1995 |  | -0.0024 ${ }^{a}$ | 0.0001 | $-0.0012^{a}$ | $-0.0014^{a}$ | $-0.0037^{a}$ |  | -0.0024 ${ }^{a}$ | 0.0001 | $-0.0012^{a}$ | $-0.0014^{a}$ | $-0.0037^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) |
| Non-Routine Manual 1995 |  | $-0.0003^{a}$ | $-0.0006^{a}$ | 0.0001 | $-0.0009^{a}$ | $-0.0011^{a}$ |  | $-0.0003^{\text {b }}$ | $-0.0006^{a}$ | 0.0001 | $-0.0009^{b}$ | $-0.0011^{c}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) |  | (0.000) | (0.000) | (0.000) | $(0.000)$ | $(0.001)$ |
| Interactive 1995 |  | $-0.0023^{a}$ | $0.0024^{a}$ | $0.0007^{\text {b }}$ | $0.0028^{a}$ | $-0.0060^{a}$ |  | $-0.0023^{a}$ | $0.0024^{a}$ | 0.0007 | $0.0028^{\text {b }}$ | $-0.0060^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |  | (0.001) | (0.001) | (0.001) | (0.001) | (0.002) |
| Analytical 1995 |  | $0.0047^{a}$ | $0.0014^{a}$ | $0.0026^{a}$ | $0.0038^{a}$ | $0.0046^{a}$ |  | $0.0047^{a}$ | $0.0014^{b}$ | $0.0026^{a}$ | $0.0038^{a}$ | $0.0046^{\text {b }}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.001) | (0.001) |  | (0.001) | (0.001) | (0.001) | (0.001) | (0.002) |
| IM |  | $0.3067^{a}$ | $0.1199^{a}$ | $0.2364^{a}$ | $0.3280^{a}$ |  |  | $0.3067^{a}$ | $0.1199^{a}$ | $0.2364^{a}$ | $0.3280^{a}$ |  |
|  |  | (0.019) | (0.013) | (0.015) | (0.033) |  |  | (0.038) | (0.028) | (0.033) | (0.059) |  |
| Constant | $0.7549^{a}$ | $-0.0516^{\text {b }}$ | $-0.1468^{a}$ | $-0.1558^{a}$ | $-0.1811^{a}$ | $0.3499^{a}$ | $0.7549^{a}$ | 0.0017 | 0.0104 | -0.0114 | 0.0136 | $0.1518^{a}$ |
|  | (0.027) | (0.025) | (0.020) | (0.020) | (0.046) | (0.033) | (0.001) | (0.031) | (0.017) | (0.021) | (0.029) | (0.031) |
| Sector Dummies | Yes |  |  |  |  |  | Yes |  |  |  |  |  |
| Observations | 125093 | 95512 | 95512 | 95512 | 29563 | 58550 | 125093 | 95512 | 95512 | 95512 | 29563 | 58550 |
| $R^{2}$ | . | 0.0417 | 0.0367 | 0.0931 | 0.0981 | 0.1112 | . | 0.0417 | 0.0367 | 0.0931 | 0.0981 | 0.1112 |

Table 25: Imports of Services: Extensive Margin, Specification 1, using also 1995 level of technological change

Table 26：Imports of Services：Extensive Margin，Specification 2，using also 1995 level of technological change
















合骨佱俞 $(0.001)$
-0.0002 $(0.000)$
$-0.0019^{b}$
$(0.001)$
$0.0045^{c}$
$(0.002)$
0.0008
 $0^{\left(0.00005^{c}\right.}$

$0.0227^{a}$
$(0.003)^{a}$
$0.0206^{a}$
$(0.002)^{a}$ ${ }^{(0.0002)}$
$0.0045^{a}$
$(0.001)$
$0.0355^{a}$曾葛 $(0.002)$
$0.0100^{a}$
$(0.002)$ $-0.0031^{b}$
$(0.001)$
0.0001
 ${ }^{(0.044)}{ }^{0.0019}{ }^{a}$额 $-0.0013^{a}$ $(0.000)$
$0.0018^{b}$ $(0.001)$
$0.0008^{a}$
0会范合家
 ．的苞 （0．001）
 $\stackrel{\circ}{0}$ $(0.013)$
$0.2050^{a}$ 0.2050
$(0.021)$
$0.0538^{a}$ （0．012） $0.0988^{a}$

$(0.003)$ | -0.1009 | -0.0099 |
| ---: | ---: |
| $(0.008)$ | $(0.002)$ | -0.0000

$(0.000)$
-0.0342
$(0.070)$
$0.002^{a}$
$(0.001)$ $-0.0004$ 을 ${ }^{(0.000)}$
0.0014 ${ }^{(0.001)}{ }_{0}^{\left(0.0010^{c}\right.}$
佥茄

 E．號笔
 0.7549
$(0.001)$
Yes侖 $0.0342^{a}$
$(0.001)$
$0.0422^{a}$
$(0.001)$
$-0.0023^{a}$
$(0.001)$
$0.0038^{a}$
$(0.001)$
$0.0014^{a}$
$(0.000)$ 흥
O．
S．
0 ${ }^{(0.098)}{ }^{0.0007^{a}}$ ${ }^{(0.000)}{ }^{0.0012^{b}}$
 응

高葛
佥答佥苟佥 $\underset{(0.032)}{0.0845^{a}}$ $0.0547^{a}$
$(0.004)$
$0.0505^{a}$
$(0.002)^{a}$
$0.0164^{a}$
$(0.002)$
$-0.0101^{a}$ $(0.002)$
-0.0001
$(0.000)$ $(0.000)$

$-0.2476^{b}$ ${ }^{(0.116)}{ }^{0.0045^{a}}$ | $(0.001)$ |
| :---: |
| -0.0004 | $(0.000)$

$-0.0032^{a}$ $(0.001)$
$0.0045^{a}$ 흥․ ． $(0.000)$
$0.0044^{a}$ $(0.001)$
-0.0000 $(0.000)$
$-0.0015^{a}$ ${ }^{(0.001)}{ }_{0}^{0.0055^{a}}$ O 흐웅
 $0.0460^{a}$
$(0.002)$
$0.048{ }^{a}$
$(0.001)$
$0.0118^{a}$
$(0.001)$
$0.0164^{a}$
$(0.001)$合荅合
象： O．O． $(0.000)$
$-0.0019^{a}$合薄

合曾
号
0

 | $\circ$ |
| :--- |
| 8 |
|  |


 $(0.001)$

$0.0044^{a}$ | $(0.001)$ |
| :---: |
| $-0.0048^{a}$ | $(0.0001)$

-0.0001 | $(0.000)$ |
| :---: |
| $-0.0396^{a}$ | $(0.011)$

$0.0014^{a}$ $(0.000)$

$-0.0002^{b}$ | $(0.000)$ |
| :---: |
| $-0.0008^{a}$ |

俞落

 응․ 응 $(0.000)$
$0.0009^{a}$
0
 o웅

 $\stackrel{\infty}{\infty}$ ob en o으응 응
佥荡

 응会 ． $0.2298^{a}$
$(0.018)$ $(0.018)$
$-0.1733^{a}$ $\stackrel{\overparen{0}}{\stackrel{0}{0}}$ $(0.012)$
$0.2050^{a}$ ${ }^{(0.008)}$ （0．004） $0.0988^{a}$ $(0.003)$
$-0.1009^{a}$ $-0.0035^{a}$

 たin $\stackrel{\text { ® }}{\substack{e \\ e}}$

＂

$$
\begin{aligned}
& \text { Interactive } 1995 \\
& \text { Analytical } 1995 \\
& \text { IM } \\
& \text { Constant } \\
& \text { Sector Dummies } \\
& \text { Observations } \\
& R^{2}
\end{aligned}
$$



Age
Productivity
Cize
Capital Intensity
ntangible Capital Intensity
White Collar
Routine Cognitive

$$
\begin{aligned}
& \Delta \text { Non-Routine Manual } \\
& \Delta \text { Interactive } \\
& \Delta \text { Analytical } \\
& \text { Routine Cognitive } 1995 \\
& \text { Routine Manual } 1995 \\
& \text { Non-Routine Manual } 1995
\end{aligned}
$$

Table 27: Exports of Services: Extensive Margin, Specification 1, only non EU trade

|  | Robust standard errors |  |  |  |  |  | Clustered standard errors |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Selection | Stayers |  |  | Exiters | Entrants | Selection | Stayers |  |  | Exiters | Entrants |
|  |  | Start | Give up | Always |  |  |  | Start | Give up | Always |  |  |
| Age | $\begin{gathered} 0.0814^{a} \\ (0.012) \end{gathered}$ |  |  |  |  |  | $\begin{gathered} 0.0814^{a} \\ (0.013) \end{gathered}$ |  |  |  |  |  |
| Productivity | $0.2050^{a}$ | $0.0067^{a}$ | $0.0069^{a}$ | $0.0089^{a}$ | $0.0130^{a}$ | $0.0132^{a}$ | $0.2050^{a}$ | $0.0067^{\text {b }}$ | $0.0069^{a}$ | $0.0089^{a}$ | $0.0130^{a}$ | $0.0132^{a}$ |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.021) | (0.003) | (0.002) | (0.002) | (0.004) | (0.003) |
| Size | $0.0538^{a}$ | $0.0094{ }^{a}$ | $0.0103^{a}$ | $0.0114^{a}$ | $0.0151^{a}$ | $0.0141^{a}$ | $0.0538^{\text {a }}$ | $0.0094^{a}$ | $0.0103^{a}$ | $0.0114^{a}$ | $0.0151^{a}$ | $0.0141^{a}$ |
|  | (0.004) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.012) | (0.003) | (0.002) | (0.002) | (0.004) | (0.004) |
| Capital Intensity | $0.0988^{a}$ | $0.0011{ }^{a}$ | $0.0006{ }^{\text {b }}$ | $0.0009^{a}$ | $0.0032^{a}$ | $-0.0016^{a}$ | $0.0988^{\text {a }}$ | 0.0011 | 0.0006 | 0.0009 | $0.0032^{\text {b }}$ | $-0.0016^{b}$ |
|  | (0.003) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.003) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) |
| Skill Intensity | $-0.1009^{a}$ | -0.0008 | 0.0005 | $-0.0021^{a}$ | $0.0024^{\text {b }}$ | $0.0023^{a}$ | $-0.1009^{a}$ | -0.0008 | 0.0005 | $-0.0021^{\text {c }}$ | 0.0024 | $0.0023^{\text {c }}$ |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.001) | (0.000) | (0.008) | (0.002) | (0.001) | (0.001) | (0.002) | (0.001) |
| Intangible Capital Intensity | $-0.0035^{a}$ | $0.0002{ }^{\text {c }}$ | $0.0002^{\text {c }}$ | $0.0002^{\text {c }}$ | -0.0000 | $0.0003^{\text {b }}$ | -0.0035 | 0.0002 | 0.0002 | 0.0002 | -0.0000 | $0.0003^{\text {b }}$ |
|  | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ White Collar |  | $0.0191^{\text {b }}$ | 0.0072 | $0.0236^{a}$ | $0.1268^{a}$ | $0.1315^{a}$ |  | 0.0191 | 0.0072 | 0.0236 | $0.1268^{c}$ | $0.1315^{\text {b }}$ |
|  |  | (0.009) | (0.006) | (0.007) | (0.021) | (0.011) |  | (0.032) | (0.021) | (0.022) | (0.066) | (0.051) |
| $\Delta$ Computer |  | $0.0171^{a}$ | $0.0101^{a}$ | 0.0099 ${ }^{\text {a }}$ | $0.0297{ }^{\text {a }}$ | $0.0447^{a}$ |  | 0.0171 | 0.0101 | 0.0099 | 0.0297 | 0.0447 |
|  |  | (0.003) | (0.003) | (0.002) | (0.007) | (0.005) |  | (0.024) | (0.010) | (0.012) | (0.028) | (0.033) |
| IM |  | 0.0326 ${ }^{\text {a }}$ | $0.0186^{a}$ | $0.0284^{a}$ | $0.0700^{a}$ |  |  | 0.0326 | 0.0186 | 0.0284 | $0.0700^{\text {c }}$ |  |
|  |  | (0.006) | (0.005) | (0.005) | (0.013) |  |  | (0.028) | (0.022) | (0.018) | (0.035) |  |
| Constant | $0.7549^{a}$ | -0.0092 ${ }^{\text {a }}$ | $-0.0051{ }^{\text {b }}$ | $-0.0109^{a}$ | $-0.0260^{a}$ | $0.0033^{b}$ | $0.7549^{a}$ | -0.0092 | -0.0051 | -0.0109 | -0.0260 | 0.0033 |
|  | (0.027) | (0.003) | (0.002) | (0.002) | (0.006) | (0.001) | (0.001) | (0.015) | (0.010) | (0.010) | (0.020) | (0.009) |
| Sector Dummies | Yes |  |  |  |  |  | Yes |  |  |  |  |  |
| Observations | 125093 | 95512 | 95512 | 95512 | 29563 | 58550 | 125093 | 95512 | 95512 | 95512 | 29563 | 58550 |
| $R^{2}$ | . | 0.0108 | 0.0219 | 0.0319 | 0.0336 | 0.0327 | . | 0.0108 | 0.0219 | 0.0319 | 0.0336 | 0.0327 |
|  | Robust | tandard err | rs in paren | ese ${ }^{\text {a }}$ p $<0$ | 01, ${ }^{\text {b }} \mathrm{p}<0.0$ | , ${ }^{\text {c }} \mathrm{p}<0.1$ | Sector clus | ed st.err | in paren | ${ }^{\text {a }}{ }^{\text {a }} \mathrm{p}<$ | $1,{ }^{\text {b }} \mathrm{p}<0$ | p<0.1 |

Table 28: Exports of Services: Extensive Margin, Specification 2, only non EU trade

|  | Robust standard errors |  |  |  |  |  | Clustered standard errors |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Selection | Stayers |  |  | Exiters | Entrants | Selection | Stayers |  |  | Exiters | Entrants |
|  |  | Start | Give up | Always |  |  |  | Start | Give up | Always |  |  |
| Age | $\begin{aligned} & 0.0814^{a} \\ & (0.012) \end{aligned}$ |  |  |  |  |  | $\begin{gathered} 0.0814^{a} \\ (0.013) \end{gathered}$ |  |  |  |  |  |
| Productivity | $0.2050^{a}$ | $0.0092^{a}$ | $0.0085^{\text {a }}$ | $0.0109^{a}$ | $0.0150^{a}$ | $0.0126^{a}$ | $0.2050^{a}$ | $0.0092^{a}$ | $0.0085^{\text {a }}$ | 0.0109 ${ }^{\text {a }}$ | $0.0150^{a}$ | $0.0126^{a}$ |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.021) | (0.003) | (0.002) | (0.002) | (0.003) | (0.003) |
| Size | $0.0538^{a}$ | $0.0102^{a}$ | $0.0108^{\text {a }}$ | $0.0120^{a}$ | $0.0157^{a}$ | $0.0140^{a}$ | $0.0538^{a}$ | $0.0102^{a}$ | $0.0108^{a}$ | $0.0120^{a}$ | $0.0157^{a}$ | $0.0140^{a}$ |
|  | (0.004) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.012) | (0.003) | (0.001) | (0.002) | (0.004) | (0.004) |
| Capital Intensity | $0.0988^{a}$ | $0.0023{ }^{\text {a }}$ | $0.0014^{a}$ | $0.0019^{a}$ | $0.0044^{a}$ | $-0.0014^{a}$ | $0.0988^{a}$ | 0.0023 | $0.0014^{\text {c }}$ | $0.0019^{\text {b }}$ | $0.0044^{a}$ | -0.0014 ${ }^{\text {b }}$ |
|  | (0.003) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.003) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Skill Intensity | $-0.1009^{a}$ | $-0.0017^{\text {b }}$ | -0.0002 | $-0.0029^{a}$ | 0.0015 | $0.0024^{a}$ | $-0.1009^{a}$ | -0.0017 | -0.0002 | $-0.0029^{b}$ | 0.0015 | $0.0024^{\text {c }}$ |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.001) | (0.000) | (0.008) | (0.002) | (0.001) | (0.001) | (0.002) | (0.001) |
| Intangible Capital Intensity | $-0.0035^{a}$ | 0.0001 | 0.0001 | 0.0001 | -0.0001 | $0.0004^{a}$ | -0.0035 | 0.0001 | 0.0001 | 0.0001 | -0.0001 | $0.0004{ }^{\text {a }}$ |
|  | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ White Collar |  | 0.0078 | -0.0004 | $0.0136^{\text {c }}$ | $-0.0704^{\text {c }}$ | 0.0545 |  | 0.0078 | -0.0004 | 0.0136 | -0.0704 | 0.0545 |
|  |  | (0.010) | (0.007) | (0.008) | (0.037) | (0.035) |  | (0.021) | (0.022) | (0.020) | (0.055) | (0.087) |
| $\Delta$ Routine Cognitive |  | $-0.0001{ }^{\text {a }}$ | $-0.0001{ }^{a}$ | $-0.0001^{a}$ | $-0.0002^{a}$ | $-0.0001{ }^{a}$ |  | -0.0001 | $-0.0001{ }^{a}$ | $-0.0001^{\text {c }}$ | $-0.0002^{a}$ | -0.0001 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Routine Manual |  | -0.0004 ${ }^{\text {a }}$ | $-0.0003^{a}$ | $-0.0003^{a}$ | $-0.0006^{a}$ | -0.0001 |  | $-0.0004{ }^{\text {c }}$ | $-0.0003^{\text {b }}$ | $-0.0003^{a}$ | $-0.0006^{a}$ | -0.0001 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Non-Routine Manual |  | $0.0003^{a}$ | $0.0002^{a}$ | $0.0002^{a}$ | $0.0004^{a}$ | $0.0005^{a}$ |  | $0.0003{ }^{\text {c }}$ | $0.0002^{\text {b }}$ | $0.0002^{\text {b }}$ | $0.0004^{\text {b }}$ | $0.0005^{\text {b }}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Interactive |  | $-0.0013^{a}$ | $-0.0007^{a}$ | $-0.0007^{a}$ | $-0.0017^{a}$ | $-0.0019^{a}$ |  | $-0.0013^{a}$ | $-0.0007^{a}$ | $-0.0007^{a}$ | $-0.0017^{a}$ | $-0.0019^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Analytical |  | $0.0011^{a}$ | $0.0006^{a}$ | $0.0005^{a}$ | $0.0009^{a}$ | $0.0022^{a}$ |  | $0.0011^{a}$ | $0.0006^{a}$ | $0.0005^{a}$ | $0.0009^{a}$ | $0.0022^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| IM |  | $0.0625^{a}$ | $0.0375^{a}$ | $0.0515^{a}$ | $0.0933^{a}$ |  |  | $0.0625^{\text {b }}$ | $0.0375^{\text {b }}$ | $0.0515^{\text {b }}$ | $0.0933^{a}$ |  |
|  |  | (0.009) | (0.007) | (0.008) | (0.016) |  |  | (0.026) | (0.017) | (0.019) | (0.026) |  |
| Constant | $0.7549^{a}$ | -0.0006 | -0.0009 | $-0.0096^{a}$ | -0.0058 | $0.0372^{a}$ | $0.7549^{a}$ | -0.0006 | -0.0009 | -0.0096 | -0.0058 | $0.0372^{a}$ |
|  | (0.027) | (0.004) | (0.004) | (0.003) | (0.007) | (0.003) | (0.001) | (0.010) | (0.008) | (0.008) | (0.012) | (0.008) |
| Sector Dummies | Yes |  |  |  |  |  | Yes |  |  |  |  |  |
| Observations | 125093 | 95512 | 95512 | 95512 | 29563 | 58550 | 125093 | 95512 | 95512 | 95512 | 29563 | 58550 |
| $R^{2}$ | . | 0.0161 | 0.0246 | 0.0355 | 0.0398 | 0.0425 | . | 0.0161 | 0.0246 | 0.0355 | 0.0398 | 0.0425 |
|  | Robust standard errors in parentheses ${ }^{\text {a }} \mathrm{p}<0.01,{ }^{\text {b }} \mathrm{p}<0.05,{ }^{\text {c }} \mathrm{p}<0.1$ |  |  |  |  |  | Sector clustered st.err. in parentheses ${ }^{\text {a }} \mathrm{p}<0.01,{ }^{\text {b }} \mathrm{p}<0.05,{ }^{\text {c }} \mathrm{p}<0.1$ |  |  |  |  |  |

Table 29: Imports of Services: Extensive Margin, Specification 1, only non EU trade

|  | Robust standard errors |  |  |  |  |  | Clustered standard errors |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Selection | Stayers |  |  | Exiters | Entrants | Selection | Stayers |  |  | Exiters | Entrants |
|  |  | Start | Give up | Always |  |  |  | Start | Give up | Always |  |  |
| Age | $\begin{gathered} 0.0814^{a} \\ (0.012) \end{gathered}$ |  |  |  |  |  | $\begin{gathered} 0.0814^{a} \\ (0.013) \end{gathered}$ |  |  |  |  |  |
| Productivity | $0.2050^{a}$ | $0.0107^{a}$ | $0.0078{ }^{\text {a }}$ | $0.0104^{a}$ | $0.0137^{a}$ | $0.0147^{a}$ | $0.2050^{a}$ | $0.0107^{a}$ | $0.0078^{a}$ | $0.0104^{a}$ | $0.0137^{a}$ | $0.0147^{a}$ |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.021) | (0.003) | (0.002) | (0.002) | (0.004) | (0.002) |
| Size | $0.0538^{a}$ | $0.0148^{a}$ | $0.0099^{a}$ | $0.0150^{a}$ | $0.0157^{a}$ | $0.0167^{a}$ | $0.0538^{a}$ | $0.0148^{a}$ | $0.0099^{a}$ | $0.0150^{a}$ | $0.0157^{a}$ | $0.0167^{a}$ |
|  | (0.004) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.012) | (0.002) | (0.001) | (0.003) | (0.003) | (0.003) |
| Capital Intensity | $0.0988^{a}$ | $0.0011^{a}$ | 0.0001 | $0.0012^{a}$ | $0.0025^{a}$ | $-0.0010^{a}$ | $0.0988^{a}$ | 0.0011 | 0.0001 | 0.0012 | 0.0025 | -0.0010 |
|  | (0.003) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.003) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) |
| Skill Intensity | $-0.1009^{a}$ | $-0.0022^{a}$ | $-0.0012^{b}$ | $-0.0032^{a}$ | -0.0002 | $0.0009^{\text {b }}$ | $-0.1009^{a}$ | -0.0022 | -0.0012 | $-0.0032^{\text {b }}$ | -0.0002 | 0.0009 |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.001) | (0.000) | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) |
| Intangible Capital Int. | $-0.0035^{a}$ | $0.0003^{\text {b }}$ | $0.0003^{a}$ | $0.0006^{a}$ | 0.0001 | $0.0006^{a}$ | -0.0035 | 0.0003 | $0.0003^{\text {c }}$ | $0.0006{ }^{\text {b }}$ | 0.0001 | $0.0006^{a}$ |
|  | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) |
| $\Delta$ White Collar |  | $0.0438^{a}$ | 0.0065 | $0.0225^{\text {a }}$ | $0.1608^{a}$ | $0.1404{ }^{a}$ |  | 0.0438 | 0.0065 | 0.0225 | $0.1608^{a}$ | $0.1404{ }^{a}$ |
|  |  | (0.010) | (0.007) | (0.007) | (0.021) | (0.011) |  | (0.034) | (0.020) | (0.026) | (0.052) | (0.043) |
| $\Delta$ Computer |  | $0.0216^{a}$ | $0.0112^{a}$ | $0.0178^{a}$ | $0.0359^{a}$ | $0.0344^{a}$ |  | $0.0216^{\text {b }}$ | $0.0112^{a}$ | $0.0178^{\text {b }}$ | $0.0359^{\text {b }}$ | $0.0344^{c}$ |
|  |  | (0.003) | (0.002) | (0.002) | (0.006) | (0.004) |  | (0.010) | (0.004) | (0.007) | (0.014) | (0.017) |
| IM |  | $0.0401^{a}$ | $0.0113^{b}$ | $0.0273^{a}$ | $0.0662^{a}$ |  |  | 0.0401 | 0.0113 | 0.0273 | $0.0662^{\text {c }}$ |  |
|  |  | (0.006) | (0.004) | (0.005) | (0.012) |  |  | (0.031) | (0.021) | (0.022) | (0.035) |  |
| Constant | $0.7549^{a}$ | $-0.0126^{a}$ | -0.0030 | $-0.0123^{a}$ | $-0.0272^{a}$ | $0.0048^{a}$ | $0.7549^{a}$ | -0.0126 | -0.0030 | -0.0123 | -0.0272 | 0.0048 |
|  | (0.027) | (0.003) | (0.002) | (0.002) | (0.006) | (0.001) | (0.001) | (0.014) | (0.009) | (0.010) | (0.018) | (0.005) |
| Observations | 125093 | 95512 | 95512 | 95512 | 29563 | 58550 | 125093 | 95512 | 95512 | 95512 | 29563 | 58550 |
| $\mathrm{R}^{2}$ | . | 0.0232 | 0.0220 | 0.0455 | 0.0363 | 0.0449 | . | 0.0232 | 0.0220 | 0.0455 | 0.0363 | 0.0449 |
|  | Robust | andard err | in paren | ses ${ }^{\text {a }} \mathrm{p}<0$ | , ${ }^{\text {b }} \mathrm{p}<0.0$ | , ${ }^{\text {c }} \mathrm{p}<0.1$ | Sector clu | red st.er | in parent | ses ${ }^{\text {a }} \mathrm{p}<0$. | , ${ }^{\text {b }} \mathrm{p}<0.05$ | ${ }^{\text {c }} \mathrm{p}<0.1$ |

Table 30: Imports of Services: Extensive Margin, Specification 2, only non EU trade

|  | Robust standard errors |  |  |  |  |  | Clustered standard errors |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Selection | Stayers |  |  | Exiters | Entrants | Selection | Stayers |  |  | Exiters | Entrants |
|  |  | Start | Give up | Always |  |  |  | Start | Give up | Always |  |  |
| Age | $\begin{gathered} 0.0814^{a} \\ (0.012) \end{gathered}$ |  |  |  |  |  | $\begin{gathered} 0.0814^{a} \\ (0.013) \end{gathered}$ |  |  |  |  |  |
| Productivity | $0.2050^{a}$ | $0.0126^{a}$ | $0.0083^{a}$ | $0.0114^{a}$ | $0.0131^{a}$ | $0.0146^{a}$ | $0.2050^{a}$ | $0.0126^{a}$ | $0.0085^{a}$ | $0.0114^{a}$ | $0.0131^{a}$ | $0.0146^{a}$ |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) | (0.021) | (0.003) | (0.002) | (0.002) | (0.005) | (0.002) |
| Size | $0.0538^{a}$ | $0.0154^{a}$ | $0.0100^{a}$ | $0.0153^{a}$ | $0.0156^{a}$ | $0.0167^{a}$ | $0.0538^{a}$ | $0.0154^{a}$ | $0.0108^{\text {a }}$ | $0.0153^{a}$ | $0.0156^{a}$ | $0.0167^{a}$ |
|  | (0.004) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.012) | (0.002) | (0.001) | (0.003) | (0.003) | (0.003) |
| Capital Intensity | $0.0988^{\text {a }}$ | $0.0020^{a}$ | 0.0004 | $0.0017^{a}$ | $0.0024^{a}$ | $-0.0009^{a}$ | $0.0988^{a}$ | $0.0020^{\text {b }}$ | $0.0014^{\text {c }}$ | $0.0017^{\text {c }}$ | 0.0024 | -0.0009 |
|  | (0.003) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.003) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) |
| Skill Intensity | $-0.1009^{a}$ | $-0.0029^{a}$ | $-0.0014^{\text {b }}$ | $-0.0036^{a}$ | -0.0000 | $0.0009^{\text {b }}$ | $-0.1009^{a}$ | $-0.0029^{\text {b }}$ | -0.0002 | $-0.0036^{a}$ | -0.0000 | 0.0009 |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.001) | (0.000) | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.001) |
| Intangible Capital Intensity | $-0.0035^{a}$ | $0.0002^{\text {b }}$ | $0.0003^{a}$ | $0.0006^{a}$ | 0.0001 | $0.0007^{a}$ | -0.0035 | 0.0002 | 0.0001 | $0.0006{ }^{\text {b }}$ | 0.0001 | $0.0007^{a}$ |
|  | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) |
| White Collar |  | $0.0361^{a}$ | 0.0054 | $0.0163^{\text {c }}$ | 0.0514 | $0.1464{ }^{\text {a }}$ |  | 0.0361 | -0.0004 | 0.0163 | 0.0514 | 0.1464 |
|  |  | (0.011) | (0.008) | (0.009) | (0.050) | (0.044) |  | (0.035) | (0.022) | (0.027) | (0.092) | (0.130) |
| Routine Cognitive |  | 0.0000 | 0.0000 | $0.0000^{a}$ | -0.0000 | 0.0000 |  | 0.0000 | $-0.0001^{a}$ | 0.0000 | -0.0000 | 0.0000 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Routine Manual |  | $-0.0004^{a}$ | $-0.0002^{a}$ | $-0.0003^{a}$ | $-0.0003^{c}$ | 0.0001 |  | $-0.0004^{c}$ | $-0.0003^{\text {b }}$ | $-0.0003^{c}$ | -0.0003 | 0.0001 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Non-Routine Manual |  | $0.0005^{a}$ | $0.0002^{a}$ | $0.0002^{a}$ | $0.0002^{\text {c }}$ | $0.0003{ }^{\text {a }}$ |  | $0.0005^{a}$ | $0.0002^{\text {b }}$ | 0.0002 | 0.0002 | 0.0003 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Interactive |  | $-0.0010^{a}$ | $-0.0004^{a}$ | $-0.0007^{a}$ | $-0.0009^{a}$ | $-0.0012^{a}$ |  | $-0.0010^{a}$ | $-0.0007^{a}$ | $-0.0007^{\text {b }}$ | $-0.0009^{\text {b }}$ | $-0.0012^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Analytical |  | $0.0010^{a}$ | $0.0005^{\text {a }}$ | $0.0009^{a}$ | $0.0010^{a}$ | $0.0017^{a}$ |  | $0.0010^{a}$ | $0.0006^{a}$ | $0.0009^{a}$ | $0.0010^{\text {b }}$ | $0.0017^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) |
| IM |  | $0.0619^{a}$ | $0.0176^{\text {b }}$ | $0.0386^{a}$ | $0.0626^{a}$ |  |  | $0.0619^{\text {b }}$ | $0.0375^{\text {b }}$ | 0.0386 | 0.0626 |  |
|  |  | (0.010) | (0.007) | (0.008) | (0.015) |  |  | (0.025) | (0.017) | (0.026) | (0.039) |  |
| Constant | $0.7549^{a}$ | -0.0036 | 0.0021 | -0.0031 | -0.0036 | 0.0279 ${ }^{\text {a }}$ | $0.7549^{a}$ | -0.0036 | -0.0009 | -0.0031 | -0.0036 | $0.0279^{a}$ |
|  | (0.027) | (0.005) | (0.004) | (0.004) | (0.007) | (0.003) | (0.001) | (0.012) | (0.008) | (0.013) | (0.017) | (0.006) |
| Sector Dummies | Yes |  |  |  |  |  | Yes |  |  |  |  |  |
| Observations | 125093 | 95512 | 95512 | 95512 | 29563 | 58550 | 125093 | 95512 | 95512 | 95512 | 29563 | 58550 |
| $R^{2}$ | . | 0.0266 | 0.0231 | 0.0485 | 0.0379 | 0.0496 | . | 0.0266 | 0.0246 | 0.0485 | 0.0379 | 0.0496 |
|  | Robust standard errors in parentheses ${ }^{\text {a }} \mathrm{p}<0.01,{ }^{\text {b }} \mathrm{p}<0.05,{ }^{\text {c }} \mathrm{p}<0.1$ |  |  |  |  |  | Sector clustered st.err. in parentheses ${ }^{a} \mathrm{p}<0.01,{ }^{\text {b }} \mathrm{p}<0.05,{ }^{\text {c }} \mathrm{p}<0.1$ |  |  |  |  |  |

Table 31: Exports of Services: Extensive Margin, Specification 1, only non-offshoring firms

|  | Robust standard errors |  |  |  |  |  | Clustered standard errors |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Selection | Stayers |  |  | Exiters | Entrants | Selection | Stayers |  |  | Exiters | Entrants |
|  |  | Start | Give up | Always |  |  |  | Start | Give up | Always |  |  |
| Age | $0.0814^{a}$ |  |  |  |  |  | $0.0814^{a}$ |  |  |  |  |  |
|  | (0.012) |  |  |  |  |  | (0.013) |  |  |  |  |  |
| Productivity | $0.2050^{a}$ | $0.0162^{a}$ | $0.0058^{a}$ | $0.0032^{a}$ | $0.0169^{a}$ | $0.0381{ }^{\text {a }}$ | $0.2050^{a}$ | $0.0162^{a}$ | $0.0058^{\text {b }}$ | $0.0032^{a}$ | $0.0169^{a}$ | $0.0381^{a}$ |
|  | (0.008) | (0.001) | (0.001) | (0.001) | (0.002) | (0.002) | (0.021) | (0.006) | (0.002) | (0.001) | (0.006) | (0.009) |
| Size | $0.0538^{a}$ | $0.0178^{a}$ | $0.0065^{a}$ | $0.0055^{a}$ | 0.0205 ${ }^{\text {a }}$ | $0.0401^{a}$ | $0.0538^{a}$ | $0.0178^{\text {b }}$ | $0.0065^{a}$ | $0.0055^{\text {b }}$ | $0.0205^{a}$ | $0.0401^{a}$ |
|  | (0.004) | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) | (0.012) | (0.007) | (0.001) | (0.002) | (0.005) | (0.010) |
| Capital Intensity | $0.0988^{a}$ | $0.0034^{a}$ | 0.0002 | -0.0001 | $0.0016^{c}$ | $-0.0051^{a}$ | $0.0988^{a}$ | 0.0034 | 0.0002 | -0.0001 | 0.0016 | $-0.0051^{\text {b }}$ |
|  | (0.003) | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) | (0.003) | (0.002) | (0.001) | (0.000) | (0.002) | (0.002) |
| Skill Intensity | $-0.1009^{a}$ | $-0.0026^{\text {b }}$ | 0.0009 | $0.0009^{a}$ | $0.0039^{\text {b }}$ | $0.0077^{a}$ | $-0.1009^{a}$ | -0.0026 | 0.0009 | 0.0009 | 0.0039 | $0.0077^{\text {b }}$ |
|  | (0.008) | (0.001) | (0.001) | (0.000) | (0.002) | (0.001) | (0.008) | (0.003) | (0.001) | (0.001) | (0.003) | (0.003) |
| Intangible Capital Intensity | $-0.0035^{a}$ | -0.0001 | $-0.0001^{c}$ | $-0.0001^{\text {b }}$ | -0.0003 | $0.0005^{\text {b }}$ | -0.0035 | -0.0001 | $-0.0001^{c}$ | -0.0001 | -0.0003 | 0.0005 |
|  | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) |
| $\Delta$ White Collar |  | $0.0504^{a}$ | $0.0292^{a}$ | $0.0243^{a}$ | 0.2069 ${ }^{\text {a }}$ | $0.4415^{a}$ |  | 0.0504 | 0.0292 | 0.0243 | $0.2069^{\text {c }}$ | $0.4415^{\text {b }}$ |
|  |  | (0.014) | (0.006) | (0.005) | (0.027) | (0.021) |  | (0.091) | (0.026) | (0.023) | (0.105) | (0.187) |
| $\Delta$ Computer |  | $0.0375^{a}$ | 0.0021 | $-0.0052^{\text {b }}$ | $0.0151^{\text {c }}$ | $0.1837^{a}$ |  | 0.0375 | 0.0021 | -0.0052 | 0.0151 | 0.1837 |
|  |  | (0.006) | (0.003) | (0.002) | (0.009) | (0.009) |  | (0.067) | (0.011) | (0.018) | (0.045) | (0.129) |
| IM |  | $0.0704^{a}$ | $0.0083^{\text {b }}$ | 0.0042 | $0.0590^{a}$ |  |  | 0.0704 | 0.0083 | 0.0042 | 0.0590 |  |
|  |  | (0.009) | (0.004) | (0.003) | (0.016) |  |  | (0.060) | (0.021) | (0.011) | (0.051) |  |
| Constant | $0.7549^{a}$ | $-0.0107^{\text {b }}$ | $0.0039^{\text {c }}$ | $0.0045^{\text {b }}$ | -0.0043 | $0.0110^{a}$ | $0.7549^{a}$ | -0.0107 | 0.0039 | 0.0045 | -0.0043 | 0.0110 |
|  | (0.027) | (0.005) | (0.002) | (0.002) | (0.008) | (0.003) | (0.001) | (0.038) | (0.010) | (0.010) | (0.030) | (0.037) |
| Sector Dummies | Yes |  |  |  |  |  | Yes |  |  |  |  |  |
| Observations | 125093 | 88498 | 88498 | 88498 | 28577 | 58550 | 125093 | 88498 | 88498 | 88498 | 28577 | 58550 |
| $R^{2}$ | . | 0.0113 | 0.0080 | 0.0089 | 0.0318 | 0.0753 | . | 0.0113 | 0.0080 | 0.0089 | 0.0318 | 0.0753 |


|  | Robust standard errors |  |  |  |  |  | Clustered standard errors |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Selection | Stayers |  |  | Exiters | Entrants | Selection | Stayers |  |  | Exiters | Entrants |
|  |  | Start | Give up | Always |  |  |  | Start | Give up | Always |  |  |
| Age | $\begin{aligned} & 0.0814^{a} \\ & (0.012) \end{aligned}$ |  |  |  |  |  | $\begin{gathered} 0.0814^{a} \\ (0.013) \end{gathered}$ |  |  |  |  |  |
| Productivity | $0.2050^{a}$ | $0.0247^{a}$ | $0.0078^{a}$ | $0.0068^{a}$ | $0.0250^{a}$ | $0.0361{ }^{a}$ | $0.2050^{a}$ | $0.0247^{a}$ | $0.0078^{a}$ | $0.0068^{\text {b }}$ | $0.0250^{a}$ | $0.0361^{a}$ |
|  | (0.008) | (0.002) | (0.001) | (0.001) | (0.003) | (0.002) | (0.021) | (0.007) | (0.002) | (0.003) | (0.004) | (0.008) |
| Size | $0.0538^{a}$ | $0.0214^{a}$ | $0.0075^{\text {a }}$ | $0.0069^{a}$ | $0.0230^{a}$ | $0.0397{ }^{\text {a }}$ | $0.0538^{a}$ | $0.0214^{a}$ | $0.0075^{a}$ | $0.0069^{\text {b }}$ | $0.0230^{a}$ | $0.0397^{a}$ |
|  | (0.004) | (0.001) | (0.001) | (0.000) | (0.002) | (0.001) | (0.012) | (0.007) | (0.001) | (0.003) | (0.005) | (0.010) |
| Capital Intensity | $0.0988^{a}$ | $0.0074^{a}$ | $0.0011^{a}$ | $0.0016^{a}$ | $0.0057^{a}$ | $-0.0045^{a}$ | $0.0988^{a}$ | $0.0074{ }^{\text {c }}$ | 0.0011 | 0.0016 | $0.0057^{a}$ | $-0.0045^{\text {c }}$ |
|  | (0.003) | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) | (0.003) | (0.004) | (0.001) | (0.001) | (0.002) | (0.002) |
| Skill Intensity | $-0.1009^{a}$ | $-0.0059^{a}$ | 0.0001 | -0.0006 | 0.0003 | $0.0084^{a}$ | $-0.1009^{a}$ | -0.0059 | 0.0001 | -0.0006 | 0.0003 | $0.0084^{b}$ |
|  | (0.008) | (0.001) | (0.001) | (0.000) | (0.002) | (0.001) | (0.008) | (0.004) | (0.001) | (0.001) | (0.002) | (0.003) |
| Intangible Capital Intensity | $-0.0035^{a}$ | -0.0002 | $-0.0002^{\text {c }}$ | $-0.0002^{a}$ | $-0.0005^{\text {b }}$ | $0.0009^{a}$ | -0.0035 | -0.0002 | -0.0002 | -0.0002 ${ }^{\text {c }}$ | -0.0005 | 0.0009 |
|  | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) |
| $\Delta$ White Collar |  | -0.0080 | $0.0187^{\text {b }}$ | 0.0022 | $-0.2527^{a}$ | $-0.1712^{b}$ |  | -0.0080 | 0.0187 | 0.0022 | $-0.2527^{\text {b }}$ | -0.1712 |
|  |  | (0.016) | (0.007) | (0.005) | (0.059) | (0.067) |  | (0.063) | (0.024) | (0.015) | (0.094) | (0.292) |
| $\Delta$ Routine Cognitive |  | $-0.0001{ }^{\text {b }}$ | -0.0000 | 0.0000 | $-0.0001^{\text {c }}$ | $-0.0004^{a}$ |  | -0.0001 | -0.0000 | 0.0000 | -0.0001 | -0.0004 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $\Delta$ Routine Manual |  | $-0.0013^{a}$ | $-0.0002^{a}$ | $-0.0004^{a}$ | $-0.0016^{a}$ | $-0.0015^{a}$ |  | $-0.0013^{c}$ | -0.0002 | $-0.0004^{c}$ | $-0.0016^{a}$ | -0.0015 |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) |
| $\Delta$ Non-Routine Manual |  | $0.0003^{a}$ | $0.0002^{a}$ | $0.0002^{a}$ | $0.0007^{a}$ | $0.0013^{a}$ |  | 0.0003 | 0.0002 | 0.0002 | $0.0007^{\text {b }}$ | $0.0013^{c}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.001) | (0.000) | (0.000) | (0.000) | (0.001) |
| $\Delta$ Interactive |  | $-0.0028^{a}$ | $-0.0009^{a}$ | $-0.0008^{a}$ | $-0.0034^{a}$ | $-0.0072^{a}$ |  | $-0.0028^{a}$ | $-0.0009^{a}$ | $-0.0008^{\text {b }}$ | $-0.0034^{a}$ | $-0.0072^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.001) | (0.000) | (0.000) | (0.000) | (0.002) |
| $\Delta$ Analytical |  | $0.0026^{a}$ | $0.0006^{a}$ | $0.0003{ }^{\text {a }}$ | $0.0009^{a}$ | $0.0078^{a}$ |  | $0.0026^{\text {a }}$ | $0.0006^{a}$ | 0.0003 | $0.0009^{\text {c }}$ | $0.0078^{a}$ |
|  |  | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |  | (0.001) | (0.000) | (0.000) | (0.000) | (0.002) |
| IM |  | $0.1627^{a}$ | $0.0306^{a}$ | $0.0428^{\text {a }}$ | $0.1442^{a}$ |  |  | $0.1627^{\text {b }}$ | $0.0306{ }^{\text {c }}$ | $0.0428^{\text {c }}$ | $0.1442^{a}$ |  |
|  |  | (0.014) | (0.007) | (0.005) | (0.020) |  |  | (0.074) | (0.017) | (0.023) | (0.032) |  |
| Constant | $0.7549^{a}$ | 0.0011 | $0.0073{ }^{\text {b }}$ | -0.0015 | 0.0124 | $0.1518^{a}$ | $0.7549^{a}$ | 0.0011 | 0.0073 | -0.0015 | 0.0124 | $0.1518^{a}$ |
|  | (0.027) | (0.006) | (0.003) | (0.002) | (0.009) | (0.006) | (0.001) | (0.025) | (0.009) | (0.006) | (0.017) | (0.031) |
| Sector Dummies | Yes |  |  |  |  |  | Yes |  |  |  |  |  |
| Observations | 125093 | 88498 | 88498 | 88498 | 28577 | 58550 | 125093 | 88498 | 88498 | 88498 | 28577 | 58550 |
| $R^{2}$ | . | 0.0207 | 0.0105 | 0.0129 | 0.0415 | 0.1053 | . | 0.0207 | 0.0105 | 0.0129 | 0.0415 | 0.1053 |
|  | Robust | tandard err | rs in paren | heses ${ }^{a} \mathrm{p}<0$ | 01, ${ }^{\text {b }} \mathrm{p}<0.0$ | ${ }^{\text {c }} \mathrm{p}<0.1$ | Sector clu | tered st.err | in parenth | ses ${ }^{\text {a }} \mathrm{p}<0.0$ | , ${ }^{\text {b }} \mathrm{p}<0.05$, | ${ }^{\text {c }} \mathrm{p}<0.1$ |

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[^1]:    ${ }^{1}$ Francois and Hoeckman (2009) further argue that if one also adds the indirect trade in goods generated by trade in services, the figure could rise to a whopping $50 \%$.
    ${ }^{2}$ See (World Trade Organisation, 2008) for further details

[^2]:    ${ }^{3}$ Exceptions include: sole traders; small companies whose members have unlimited liability; general partnerships; ordinary limited partnerships; cooperative limited liability companies; large companies whose members have unlimited liability, if none of the members is a legal entity; public utilities; agricultural partnerships; hospitals, unless they have taken the form of a trading company with limited liability; health insurance funds; professional associations; schools and higher education institutions.
    ${ }^{4}$ We exclude firms belonging to agriculture, fishery, and mining because of their little participation to service trade. Furthermore, banks (NACE rev 1.1 code 6512 ) and some insurance companies (NACE rev 1.1 code 6601 and 6603) are also excluded from our analysis because of the particular nature of their accounts which makes it impossible to measure some key variables like value added and intangible capital.

[^3]:    ${ }^{5}$ For payments made via non-resident banks and financial firms the Belgian resident involved in the operation must report the details of the transaction directly to the NBB.
    ${ }^{6}$ The threshold at which a legal obligation to report the transaction arises is rather low and has fluctuated between 12,500 and 25,000 euros during the period 1995-2005.
    ${ }^{7}$ The latter group includes Belgian affiliates of a foreign group which do not exist as a separate legal entity in Belgium and fiscal representatives.

[^4]:    ${ }^{8}$ We also experimented with choosing the group of never exporters as reference category obtaining qualitatively identical results.

[^5]:    ${ }^{9}$ Information on multinational status and foreign ownership of a firm come from the yearly survey of Foreign Direct Investments carried out by the NBB.

