Does it matter where you export and does real productivity really rise with exporting?

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Does it matter where you export and does real productivity really rise with exporting?

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Abstract

Utilizing a comprehensive dataset for Turkish manufacturing firms over 2003-2011, we analyse the differentials in the post-entry effects of exporting to markets with different income levels. We employ propensity score matching techniques together with a differences in differences methodology. Controlling for the quality of exports, we explore whether the post-entry effects on productivity are driven by changes in real productivity, as opposed to quality/price markup effects. Our results confirm the learning by exporting hypothesis and suggest real productivity gains in particular for exports to high income (HI) countries as opposed to middle low income (MLI) countries even after controlling for the composition of exports. This suggests that where a firm exports does matter.

Keywords: Exports, Geographical diversification, Post-entry effects, Quality, Export composition.

JEL Classification Codes: D24, F14.

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1 Introduction

There is an extensive literature on the relationship between exporting and productivity, where much of the discussion is concerned with the issue of self-selection versus learning by exporting. The empirical literature largely draws on the theoretical work of (Melitz, 2003) on heterogeneous firms. A core feature of these models is that exporting involves higher fixed/sunk costs and possibly also higher variable costs. Consequently only more productive firms will be able to export, hence the self-selection hypothesis. It is also possible however, that exporting activity can lead to productivity growth, which is the learning-by-exporting hypothesis. Early work on this (Clerides et al. 1998; Bernard & Jensen, 1999) found that the higher productivity is driven by self-selection as opposed to learning-by-exporting. More recent evidence is mixed. This derives in part from the use of different data-sets for different types of countries and different time-periods, and in part from different methodologies employed.

There are several mechanisms through which learning by exporting may occur. These include: greater competition in foreign markets inducing firms to become more competitive (Damijan & Kostevc, 2006); interaction with foreign buyers who may offer technical assistance or demand higher quality (Blalock & Gertler, 2004); an improved understanding of foreign markets (Eaton, 2010); economies of scale or scope arising from access to a larger market or changes in the product mix; investment in product or process innovation (Damijan et.al. 2008), and quality upgrading (Verhoogen, 2008).

There are four closely related strands to this literature. First, there is work focusing on the country and product extensive margins of firm-level exports, which considers what might drive changes in these margins, and what the consequent impact may be on aggregate productivity (e.g. Bernard, 2011; Mayer, 2011; Eckel & Neary, 2010; Nocke & Yeaple, 2006; Allanson & Montagna, 2005). Secondly, there is a body of work focusing on the connections between investment/innovation and exporting (for example Aw et.al., 2011; Eckel et.al., 2015). Thirdly, there is a literature on exports and product quality (e.g. Verhoogen, 2008), and closely allied to this on exports and price-cost mark-ups (De Loecker, 2011; De Loecker and Warzynski, 2012). The first of these strands raises questions concerning the relationship between learning-by-exporting and country/product extensive margins. Given that productivity estimates employed are almost universally revenue based estimates, the second and third strands, raise questions as to whether observed changes in productivity are changes in real productivity, or whether the observed changes are driven by adjustments in mark-ups and/or quality. The fourth strand which has had comparatively little attention in the literature (see Wagner, 2012) is on the extent to which the different channels through which exporting might impact on productivity (real or observed) depends on the destination of exports.

This paper integrates and extends the existing empirical literature on the relationship between exports and productivity. To this end, we exploit an extremely rich and comprehensive firm level data set of Turkish manufacturing industry firms over the years 2003-2011, a period which Turkey has experienced an export boom as well as undergoing a structural transformation process along with sectoral and geographical diversification. We focus on three key issues.

First, we examine whether measured productivity really rises with exporting this is the issue of self-selection versus learning-by-exporting. We do this by employing propensity score matching (PSM) together with a difference-in-differences (DiD) methodology. Whereas the existing literature has relied on matching and then on estimating the average treatment effects between non-exporters and export starters, we also apply this method to export starters and always-exporters. This allows us to control for selection in a much more satisfactory manner than heretofore.

Secondly, we explore whether the post-entry effects on productivity are driven by changes in real productivity, as opposed to quality/price markup effects. We do so in two way. The richness of our data set allows us to compute average unit values for firm level exports based on each firm's 12-digit export flows. We use these unit values to control for quality in the propensity score matching. In addition, our data set allows us to categorize each firm's exports by the type of product being exported — for example between differentiated and homogeneous goods. We use such categorization to explore whether the impact on productivity varies across categories.

Thirdly we identify the differentials in immediate and future productivity gains upon entry of firms into export markets with different income levels controlling for the composition of exports. For this we first group countries using World Bank's classification according to gross national income per capita and distinguish between two mutually exclusive groups of markets: High-income (HI) countries and Medium-Low-income (MLI) countries. We then categorize firms on the basis of the destination of their exports. Once again, this is made possible by the richness of the data which gives us the destination for each 10-digit product produced by each firm.

To summarize our results: First, we find clear evidence of learning-by-exporting and consistent with earlier work this is primarily with regard to exporters to high income countries. When we control for quality effects, the learning-by-exporting effects become larger for exporters to high income countries, but we find no evidence of an increase in real productivity for exporters to medium and low income destinations. We find a bigger impact on productivity for high-technology and skill-labour intensive products, as well as for differentiated products where we find no impact of exporting for primary/resource/unskilled labor-intensive products. This is consistent both with a learning-by-export hypothesis, but also with changes in mark-ups and/or quality. Once we control for quality however we still find a positive impact which suggests that real productivity is positively associated with exporting. However, in terms of MLI starters we only find some evidence of a positive impact on productivity with regard to differentiated products. Our results strongly suggests where you export matters. Finally, we find a larger positive impact on productivity associated either with exporting to more countries, or with exporting more products. This suggests there may be economics of scope either in the product or country dimension.

The remainder of this paper is organized as follows. Section 2 gives a brief overview of the literature. Section 3 discusses data and preliminary descriptive evidence. Section 4 presents the results of our empirical investigation. Section 5 concludes.

2 Related Literature

The heterogenous firms international trade literature largely builds on the work of Melitz (2003) and Bernard et al. (2003). Due to sunk costs and differential productivity levels within the same industry the most productive firms self-select into export markets. An alternative but not mutually exclusive explanation regarding the superior performance of exporters is that firms become more efficient after they begin exporting through learning or economies of scale effects (Clerides et al., 1998).[1]

Evidence on self-selection versus learning-by-exporting (LBE) is mixed. Several authors find little or no evidence of LBE. This includes, for example, Clerides et al (1998) using data on Columbia, Mexico and Morocco; Arnold and Hussinger (2003) with regard to German firms; and Greenaway, Gullstrand et al (2005) for Swedish firms. Damijan & Kostevc (2006) with regard to Slovenian firms, and Eliasson et al (2009) using data on small and medium sized Swedish firms find an initial one-period impact on observed productivity but that the productivity gap then remains constant. A possible explanation for this is a short-run increase in capacity utilization with no longer run impacts on productivity.

Alvarez & Lopez (2005) used the term "conscious self selection" to describe firms choosing to invest in order to increase productivity in preparation for exporting. Costantini & Melitz (2007) show analytically how trade liberalization can increase the rate of return on R&D or investment in new technology leading to future endogenous productivity gains (see also Atkeson & Burstein, 2010). In a dynamic model Burstein and Melitz (2011) show how innovation and the decision

[1]See Wagner (2007), Greenaway & Kneller (2007), and Silva et.al (2012) for relevant surveys

to export endogenously interact, as a result amplifying the productivity differences between exporters and non-exporters. In these papers export market size affects the firm's choice to export or invest in new technology.

Alvarez & Lopez find strong evidence supporting the notion of self-selection as a conscious process. Bustos (2011) working with Argentinian firm shows how exporting provides firms incentives to invest in new technologies leading to higher productivity. Aw, Roberts et al. (2011) based on Taiwanese data show how investments in R&D and technology adoption are correlated with exporting and therefore productivity. In related work Damijan & Kostevc (2006) find evidence that exporting has a positive impact on innovation; and Iacovone & Javorcik (2008) show that Mexican firms improve quality (unit values) prior to exporting to the United States in response to NAFTA. Eckel et al (2015) integrate the literature on multi-product firms with the literature on endogenous investment and show that firms may choose to compete in export markets either with respect to cost, or with respect to quality and that this depends on the nature of the markets they are exporting to and the nature of the products they produce. They test the model on Mexican data and show that firms producing differentiate products tend to compete on quality, while those producing non-differentiated goods compete more on price.

De Loecker (2010) argues that existing methods tend to bias against rejecting the LBE hypothesis. This is because firms often decide to export and invest to export simultaneously, and hence that export experience matters in shaping a firm's future productivity. Based on Slovenian data he shows substantial productivity gain associated with export entry (up to 7.35%). Similarly Van Biesebroeck (2005) shows that exporters in nine sub-saharan African countries are more productive and increase their productivity on entry into the export market, where the key driver of the productivity differences is economies of scale through access to larger markets. Similarly positive LBE effects have been found by Hansson & Nan (2004) on Swedish firms, Serti & Tomasi (2008) for Italian firms, Cirera et al (2015) for Brazilian firms, and Manjon et al.(2013) for Spanish firms.

There is also a related literature on the diversification of firms' activities with respect to country and product extensive margins (see Mayer & Ottoviano, 2007). Lawless (2009) adapts the Melitz model to allow for differential fixed costs across markets, and then tests the model on Irish data and finds that more productive firms export to more countries. Trade is typically found to be concentrated within a few firms characterized by a high degree of product and geographical diversification (see Bernard et al., 2007 for the US; Muuls & Pisu, 2007 for Belgium; Eaton et al., 2004 for France; and Castellani et al., 2010 for Italy). A diversification premia is found by Andersson et al., (2008) and Castellani et al., (2010) who find a positive correlation between firm performance and geographical and product diversification.

Along with the number of foreign markets served there has been some work on the characteristics of these markets. This includes models with asymmetric countries and asymmetric sunk costs of entry. Helpman et al. (2007) and Chaney (2008) build on Melitz (2003) model and find that self-selection depends on the market that the firm operates in. Firms with lower productivity levels serve markets with low productivity thresholds (less developed markets) whereas higher productivity firms export to markets with high productivity thresholds (more developed markets). The empirical evidence indicates that exporters to more developed economies show ex-ante superior performance compared to less developed country exporters (Pisu, 2008 on Belgian firms; Serti & Tomasi, 2009 and Conti, 2010 with respect to Italian firms; Silva et al., 2012 for Portuguese firms).

There is however comparatively little evidence on LBE by destination. Conceptually this could occur as a result of greater competition in developed country markets (Damijan & Kostevc, 2006); greater interaction with firms/suppliers operating close to the technology frontier (Blalock & Gertler, 2004; Albornoz & Ercolani, 2007), and with improved techniques of quality control; greater possibilities to exploit economies of scale or scope arising from access to a larger market or from changes in the product mix; or from an improved understanding of foreign markets (Eaton, 2010).

With regard to evidence, De Loecker (2007) reports higher productivity gains for Slovenian firms exporting to higher income regions. Similarly, Damijan et al. (2004) reports evidence on Slovenian exporters that learning effects can arise only for the firms exporting to more advanced markets. Wilhelmsson and Kozlov (2007) find significant productivity gains upon entry for Russian manufacturing firms entering into OECD export markets. Using Belgian manufacturing data, Pisu (2008) finds no evidence of learning-by-exporting effects, irrespective of the characteristics of destination markets. Pisu suggests post-entry effects may also depend on the specific development path of origin countries, besides the characteristics of destination countries. Recent studies, including Yashiro and Hirano (2009), Damijan et al. (2010), Ito and Lechevalier (2010), and Ito (2011) identify the conditions under which LBE is at work and find that characteristics of export destinations matter as well as pre-exporting R&D intensity and firm size. Fernandes (2007) find strong evidence of learning by exporting for young Columbian plants, and in industries that export a larger proportion of their exports to high income countries. Trofimenko (2008) conceptually extends Clerides (1998) model by allowing for higher entry costs into more developed markets and assuming that the export learning rates differ by the level of development of the destination market. Based on Columbian data Trofimenko shows that the impact of exporting on productivity is higher with exports to richer countries.

3 Data and Preliminary Evidence

In this paper, we utilize a recent firm-level panel merging two different data sets collected by Turkish State Institute of Statistics (TURKSTAT) and described as follows:

The Annual Industry and Service Statistics is a census of firms with more than 19 employees and a representative survey for firms with less than 20 employees. For this study, we select the whole population of private Turkish manufacturing firms with 20 employees or more.[2] In the data set, firms are classified according to their main sector of activity, as identified by Eurostat's NACE Rev.1.1 standard codes for sectoral classification.[3] The database provides detailed information on a number of structural variables which are mainly seen on a firms' balance sheet such as revenues, value added, labor cost, intermediate inputs cost, tangible and intangible investment costs[4] together with information on industry and geographical location, foreign ownership and the number of employees. We calculate the capital stock series of firms by applying the perpetual inventory methodology and using the data on investment cost series for machinery and equipment, building and structure, transportation equipment and computer and programming. The *Foreign Trade Statistics* consists of the imports and exports at 12-digit GTIP classification the first 8 digits of whom correspond to CN classification whereas the last 4 digits are national. The information on the origin/destination countries of trade flows is also available in the data set.

After a cleaning procedure mainly inspired by Hall and Mairesse (1995), our unbalanced panel covers longitudinal data of 18,286 firms on average over the period 2003-2011. We removed abnormal observations (zero/negative) for the main variables such as output, intermediate inputs, labor cost etc.; and excluded observations where the main variables and ratios (e.g. employee, value added per employee, capital per employee) display excessive variation. Finally, we excluded firms in NACE sectors 16 (Manufacture of tobacco products), 23 (Manufacture of coke, refined petroleum products and nuclear fuel), 30 (Manufacture of office, accounting and computing machinery), 37 (Recycling) since they include a small number of firms.

The empirical analysis is based on estimates of firm level productivity, based

[2]Firms with 20 and more than 20 employees account for a large share of Turkish manufacturing industry. For example accounting for 87% of production in value and 75% of employment in 2009, with a similar pattern for other years.

[3]The economic activities that are included in the survey are NACE sections C to K, and M to O

[4]All nominal values are deflated using 4-digit NACE price indices with the base year 2003. For capital goods we use an aggregate investment deflator provided by the Ministry of Development. Wages are deflated by the consumer price index

on total factor productivity (TFP) estimates calculated by utilizing Levinsohn & Petrin's (2003) semi-parametric approach. Griliches & Mairesse (1995) criticize the ordinary least squares (OLS) estimation of production functions as firms' input demands might be correlated with unobserved productivity shocks. Hence, treating inputs as exogenous variables might create simultaneity bias in the OLS estimation of production functions while the unobserved shocks will be captured in the error term. Another problem that may arise by OLS estimation is selection bias as the capital stock responds to productivity shocks in lagged periods. Firms with a larger capital stock would expect higher future returns for any given productivity level and, hence, will continue to operate even if they observe low levels of productivity for the next period (Olley and Pakes, 1996). Firms with smaller amounts of capital stock may have to exit the market in such conditions. Thus a negative correlation between the disturbance term and capital stock is expected in OLS estimations and the resulting capital coefficients are likely to be downward biased.

To overcome these biases, Olley & Pakes (1996) and Levinsohn & Petrin (2003) suggest semi-parametric production function estimators. In order to eliminate the relationship between productivity shocks and variable inputs, Olley & Pakes (1996) proxy productivity shocks with firms' investment decision. Levinsohn & Petrin (2003) suggest that investment may not be monotonically increasing in productivity in data sets with a large number of zero observations on investment, and that deleting these zero observations might create loss in terms of efficiency. Hence Levinsohn & Petrin (2003) propose using material inputs as a proxy into the estimation as material inputs are generally reported in firm-level data sets. Since our data set shows a similar pattern (a large number of zero observations in the investment series) we to use the Levinsohn & Petrin's(2003) methodology in estimating TFP. We do so at the 2-digit sectoral level where TFP is measured as the residual of labor and capital over value added under a Cobb-Douglas technology, employing the firms' usage of intermediate inputs as a proxy variable for unobserved productivity shocks.

Before proceeding with the empirical analysis we first group traders according to their destination market. We use the World Bank's classification of countries according to gross national income per capita, and distinguish between two mutually exclusive groups of countries High-income countries (HI) and Medium-Low-income countries (MLI).[5] We define a firm selling all of its exports to HI regions as an only-HI-exporter, a firm directing all of its total export value to MLI countries as an only-MLI-exporter and firms exporting both to the HI and MLI countries as

[5]Medium-Low-income countries correspond to non high-income countries, defined by the World Bank as countries with 2007 per-capita gross national incomes lower than $11,456 com puted in U.S. dollars using the Atlas conversion factor.

both high and medium-low income exporters. In Table 1, we present the distribution of exporters in each group as well as total number of exporters in each year. We see that over the period between 50-55% of firms trade with more than one group of countries and that the share of firms exporting only to MLI countries rises 15.7% of firms to 26.2%, with a corresponding decline in the relative importance of firms exporting only to HI countries. This transition is driven by the decline of the EU and EFTA countries as export destinations and the development of new markets in the Middle East and North Africa (MENA) as well as in Europe and Central Asia.

Table 1: Distribution of firms by export orientation

Table 1: Distribution of Firms w.r.to Export Orientation

	ExpOnly_HI	ExpOnly_MLI	ExpBoth	ExpOnly_HI	ExpoOnly_MLI	ExpBoth	# Exporters
2003	2124	1041	3466	32.03%	15.70%	52.27%	6631
2004	2349	1262	4057	30.75%	16.52%	53.12%	7638
2005	2568	1783	4804	28.05%	19.48%	52.47%	9155
2006	2415	1955	5109	25.48%	20.62%	53.90%	9479
2007	2155	1893	5023	23.76%	20.87%	55.37%	9071
2008	1952	1925	5083	21.79%	21.48%	56.73%	8960
2009	1770	1820	4691	21.37%	21.98%	56.65%	8281
2010	1988	2596	5675	19.38%	25.30%	55.32%	10259
2011	1953	2710	5663	18.91%	26.24%	54.84%	10326

Motivated by the stylized facts in the literature that exporters to more developed economies show superior performance with respect to exporters to less developed countries, Table 2 provides some descriptive comparisons where we compare TFP, labour productivity (LP) defined as value added (gross output net of intermediate inputs) per employee, capital intensity (ratio of the capital stock to the number of employees), wage per employee (WAGE_L), total manufacturing sales (SALES) and number of employees (EMP). The table gives the means of these variables for firms exporting to destination markets according to destination country income levels. Our findings suggest that firms exporting to both kind of regions outperform others. That is both HI and MLI exporters are the most productive, most capital intensive and largest in terms of number of employees and sales, pay the highest wages. One can also see that only-HI-exporter show superior performance with respect to only-MLI-exporters.

Table 2: Firm Performance according to export orientation

	TFP	LP	CAPINT	EMP	WAGE_L
ExporterOnly_HI	7,830	10,078	8.08	101,070	6.835
ExporterOnly_MLI	7,480	9,961	8.064	75,271	6.812
ExporterBoth	7,918	10,316	8.203	183,083	6.945

We also present the results of 'standard' premia regressions. These follow the oft-used methodology in the literature (eg. Pisu, 2008; Serti & Tomasi, 2009) where we estimate a dynamic panel model with fixed effects and using dummies for export market participation.

The dependent variable measures the logarithm of total factor productivity (TFP) where subscript i denotes individual firms and t indexes year. Dummies for the export market orientation are denoted by $Exporter_{it}^{Only-HI}$; $Exporter_{it}^{Only-HI}$ and $\beta_3 Exporter_{it}^{Both}$, respectively, dummy variables for a only-HI-exporters, only-HI-exporters and both HI and MLI exporters. The beta coefficients in front of the export orientation dummies represents the average trading premia for firms exporting to different countries, with respect to the baseline category of non-exporters. We utilize a series of control variables denoted by the vector of controls including the logarithm of the number of employees in each firm, a foreign ownership dummy, an import status dummy indicating whether a firm is an importer or not, two-digit sector dummies, region and year dummies. We also incorporate firm specific time invariant fixed effects.

$$\begin{aligned} TFP_{it} = \beta_0 + \alpha_i + TFP_{it-1} + \beta_1 Exporter_{it}^{Only-HI} + \beta_2 Exporter_{it}^{Only-MLI} \\ + \beta_3 Exporter_{it}^{Both} + \delta Controls + \varepsilon_{it} \end{aligned} \tag{1}$$

The results obtained from the fixed effects panel specification are shown in Table 3, where we report only on the export destination dummies. We find that firms exporting only to HI countries perform better than firms exporting only to MLI countries whereas non-exporters perform the worst. Firms exporting to both HI and MLI countries have the highest premia and this may reflect the fact that firm performance is increasing with firms' geographical scope. Note such a specification provides a correlation between firm productivity and exporters' status but does not satisfactorily deal with the issue of self-selection and the post-entry effects of exporting. It is to this that we now turn.

4 Empirical Analysis

4.1 Post-entry differentials: baseline specification

In this part of the study, we aim to identify whether there are productivity gains associated with exporting and whether there is heterogeneity in those gains arising from exporting to different destinations. In order to overcome the problems of self-selection bias in the standard regression equation as above, we use matching techniques by applying propensity score matching (PSM) and then look at the average treatment effects between our treatment and control groups. In addition

Table 3: Exporter premia by destination

VARIABLES	TFP
onlyhi_exporter	0.0432***
	(0.00958)
onlymli_exporter	0.0355***
	(0.00859)
both_himli_exporter	0.0717***
	(0.00920)
Observations	100955
R-squared	0.025

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

we use a difference-in-differences (DiD) approach which further removes the effects of common shocks and provide clear estimates of the treatment effect on the change in productivity differentials.

Our aim is to estimate the productivity gains associated with export entry separately for HI and MLI countries. In a baseline specification, to estimate the productivity gains associated with export entry separately for HI and MLI countries we establish two treatment models. Our treatment group consists of firms that do not export at time *t-1*, start exporting only to the HI countries (MLI countries) at time t and continue exporting only to the HI countries (MLI countries) at least until time *t+1*. Accordingly, we have seven cohorts each corresponding to a year between 2004 and 2010. Note that here we restrict our treated sample to firms that start exporting to only HI or only MLI countries. Although these firms constitute a smaller share of the sample, this restriction is necessary to accurately identify the differentials in productivity gains. In the third and fourth models, our treatment group consists of firms that were exporting only to the MLI countries (HI countries) at time *t-1* and start to export to HI countries (MLI countries) at time t and continue to export both types of markets at least until time *t+1*. Our control group covers the firms that continue exporting only to the MLI countries (HI countries) over the analysis period. We calculate the average treatment effects on the treated (ATT) as follows:

$$ATT = E(Y_{it}(1) - Y_{it}(0)|D_i = 1) = E(Y_{it}(1)|D_i = 1) - E(Y_{it}(0)|D_i = 1) \quad (2)$$

Equation (2) shows the difference between the productivity level after the firm, which is formerly non-exporter ($D_i = 1$), starts exporting only to the HI countries (MLI countries) ($Y_{it}(1)|D_i = 1$) and the potential productivity it would have if it would have never exported to HI countries (MLI countries) $(Y_{it}(0)|D_i = 1)$. The potential outcomes of both models are unknown. Nevertheless, we can calculate the outcome for control groups, which can be defined as $E(Y_{it}(0)|D_i = 0)$. However, as is well known, there can be selection bias in the calculation of the ATT. The bias is defined as:[6]

$$B(ATT) = E(Y_{it}(0)|D_i = 1) - E(Y_{it}(0)|D_i = 0)$$

To overcome the possible selection bias we apply PSM techniques jointly with difference-in-differences (DiD)[7]. Pioneered by Wagner (2002) in this context, the PSM methodology has been subsequently used by others (Arnold and Hussinger (2005) on German firms; Greenaway et al (2005) on Swedish firms; Damijan (2006) and Damijan & Kostevc (2008) on Slovenian data; Manjon et al (2013), on Spanish data, Hansson & Lundin (2009)). But as detailed below, in this paper we use improved control and treatment groups, as well as controlling for quality. The DiD approach removes the effect of common shocks and provides a clearer estimate of the treatment effect on the productivity differentials. We define the PSM-DID estimator as follows, where the resulting ATT gives the difference between average treatment effects of treated and non-treated groups in which time-invariant unobservables are eliminated:

$$\Delta^{PSM-DID} ATT = E(Y_{it}(1) - Y_{it}(0)|D_i = 1) - E(Y_{it}(1) - Y_{it}(0)|D_i = 0)$$

In order to find the control units to be matched with the treated units we first estimate probit models from which we recover the propensity scores. The dependent variable in the probit specifications is the probability to start to export HI countries (MLI countries) at time t and the vector of covariates consists of the logarithms of TFP, wage per employee, number of employees, capital intensity, foreign ownership as well as year, sector, import status and region dummies. All of the independent variables are in their one period lagged value. We include the lagged values of the covariates since current values of these variables can also be affected by the exporting behavior of the firms. Making use of the propensity scores resulting from the probit estimates, we apply kernel matching.[8] For the

[6]Dehajia & Wahba (2002) suggest that comparing a treatment group with a non-experimental control group can give biased results because of problems such as self-selection or some form of systematic judgment by the researcher in selecting treatment units.

[7]See Blundel & Costa Dias (2000) for a discussion of the use of matching techniques with DiD in order to improve the quality of non-experimental evaluations.

[8]There are alternative matching methods that could be used, such as nearest neighborhood

quality of the matching we check whether the means of covariates are significantly different in the matched and unmatched samples. Our results (see Appendix, Table A1) show that the matching procedure eliminates the inequality for means of covariates and significant differences disappear in the matched sample.

The resulting average treatment effects (ATTs) in Panel A of Table 4 provides us with a productivity comparison between export starters and never-exporters some years before entry. The first column of the table give the ATTs for non-exporters who start to export only to HI, and the second column for non-exporters who start to export only to MLI; and the subsequent two columns then give those that were exporting to HI (MLI) and then also start exporting to MLI (HI). The top panel of the table gives the ATTs prior to exporting; the middle panel gives the ATTs once firms start to export; and the bottom panel gives the results for the difference-in-difference estimations.

From Table 4, Panel A we we see that prior to exporting there is an increase in the productivity difference between export starters and non-exporters. This suggests that before starting to export, export starters are becoming increasingly more productive than non-exporters signalling some preparation for exporting. This effect is more pronounced for non-exporter firms that start to export to HI countries (HI-starters) in comparsion to firms that start to export to MLI countries (MLI-starters). For example, the difference in productivity between non-exporters and export-starters in period *t-2* is considerably higher with regard to HI exporters (42 percentage points) as opposed to MLI exporters (13 percentage points).

In Panels B and C we identify the impact of starting to export only to the HI countries (MLI countries) on the productivity of formerly non-exporting firms. Hence the first column gives the ATTs and the DiD coefficient for firms that were previously non-exporters and now export only to high income countries. What is clear from the table is that the productivity of export starters is higher than those that remain non-exporters, and that exporting to HI or MLI countries improves the productivity of the previously non-exporter firms. This can be seen from the increase in the PSM coefficients over time, and from the DiD coefficient. When the unobserved time-invariant effects are eliminated with the DiD methodology, the increase in productivity between *t-1* and *t+1* for exporters to HI is 4.1% and for

matching, stratification matching and radius. No particular method is unambiguously preferred (Becker and Ichino, 2002). Asymptotically all estimators should give similar results, since in large samples they all boil down to comparing only exact matches (Smith, 2000). However, the performance of different matching estimators might change in smaller samples depending on the data structure (Zhao, 2000; Heckman et al, 1997). For instance, where there are a lot of comparable untreated individuals using more than one nearest neighbor (either by oversampling or kernel matching) may be advised for increased precision in the estimates, as this exploits as much of the information as possible from the control groups (Caliendo and Kopeinig, 2008). Hence in our context, owing to the smaller number of observations in our treatment groups, we utilize kernel matching methodology

MLI it is 3.4%. Note also that the difference in productivity between non-exporters and export-starters in period t is considerably higher with regard to HI exporters (53 percentage points) as opposed to MLI exporters (16 percentage points).

Table 4: Average treatment effects from PSM-DiD

	Non-Exporter to HI	Non-Exporter to MLI	Only MLI to HI	Only HI to MLI
PSM: PANEL A				
TFPt-3	0.231***	0.122***		
	(0.071)	(0.041)		
TFPt-2	0.423***	0.137***		
	(0.042)	(0.042)		
TFPt-1	0.493***	0.149***		
	(0.043)	(0.042)		
PSM: PANEL B				
TFPt	0.533***	0.158***	0.365***	0.192**
	(0.046)	(0.047)	(0.119)	(0.094)
TFPt+1	0.550***	0.195***		
	(0.045)	(0.05)		
TFPt+2	0.606***	0.204***		
	(0.061)	(0.062)		
DiD: PANEL C				
TFPt+1-TFPt-1	0.041*	0.034*	0.229*	0.133*
	(0.023)	(0.018)	(0.134)	(0.076)
TFPt+2-TFPt-1	0.054**	0.035**		
	(0.027)	(0.018)		
TFPt+3-TFPt-1	0.054*	0.039**		
	(0.029)	(0.017)		
No. of starters	1044	1104		
No of obs in control	58740	58740		

Note: asterisks denote significance levels (***p<1%; **p<5%; p<10%)

In the third and fourth columns of the table, we give the results where the treatment group consists of firms that were exporting only to the MLI countries (HI countries) at time *t-1* and start to export to HI countries (MLI countries) at time t and continue to export both types of markets at time $t + 1$. Our control group covers the firms that continue to export only to the MLI countries (HI countries) over the analysis period. Thus, we present the differential impact of starting to export to HI (MLI) countries on the productivity of firms who were formerly exporting only to the MLI (HI) countries. In this way we control for the previous exporting status of firms and see whether productivity gains still differ between HI and MLI markets. Once again we observe positive and significant productivity gains from starting to export to HI (MLI) and as before the gain in productivity is greater for firms that start to export HI destination markets in comparison to those that start to export MLI destinations. The increase in productivity from the PSM-DiD estimates suggests that switching from being an

MLI exporter to also being an HI exporter increases productivity by nearly 23 percent, and conversely switching from being an HI exporter to also being a MLI exporter increases productivity by just over 13 percent[9].

Note that while the preceding table and discussion identifies the positive impact of exporting on productivity the results are potentially problematic in two dimensions. First, and as discussed earlier our productivity estimates are revenue based measures and it is possible that the observed change in productivity does not reflect changes in real productivity, but instead is a result of changes in quality or markups. There is also a second concern, to do with the quality of the matching procedure. Although our procedure suggests that the matching eliminates the inequality for means of covariates and significant differences disappear in the matched sample, it is still possible that in some other unobserved dimension the export starters are different to the non-exporters and that selection issues remain.

We deal with each of these in the following manner. Our rich trade data set gives us the exports of each firm up to the 12-digit level. For each exporting firm we therefore calculate the weighted average unit-value based on the value of exports.[10] We then re-run the PSM matching routine where our treatment group is as before - non-exporting firms that start to only export to HI(MLI); but this time our control group are those firms that always only export to HI(MLI) throughout our sample period. This procedure, therefore neatly handles both the issue of quality (and to a large extent therefore mark ups as these are typically highly correlated with quality) and the issue of selection, as we are now comparing export starters with always exporters. To our knowledge applying the PSM by comparing export starters with always exporters has not been previously done, neither has the literature controlled for quality in this way.

The results for this are given in Table 5, where the first three columns give the PSM results and the last three columns the DiD results. If, ceteris paribus, exporting leads to higher productivity then, over time, for exporting firms productivity should rise. Therefore if we compare the productivity of firms previously

[9]We also conducted sensitivity analysis on our definition of being a HI (MLI) exporter firm, we redefine an HI (MLI) exporter as a firm selling more than 50 percent of its exports to HI (MLI) countries. We alternatively define two different cut-offs of 75 percent and 90 percent. By doing so, we aim to see the effect of starting to export to HI (MLI) countries with a share of more than 50/75/90 percent while being a non-exporter formerly. Results from the new sets of specifications corroborate our previous findings. First of all, post entry productivity gains of starting to export to HI countries are always greater than that of MLI countries. Further, the more countries are HI (i.e. the higher the share of HI-countries within a firm's total exports/ the higher the cut-offs) as opposed to MLI, the bigger are the coefficients (i.e. treatment effects). Consistently, as the share of exports to MLI countries within a firm rises, ATTs decrease. The results are available upon request.

[10]Note we only have this information for firms that export and we do not have this for the non-exporters

exporting with the productivity of export starters we would expect the ATT to be negative - which is what we find. The PSM results in the first three columns are negative, declining over time, but only statistically significant for exporters to HI for the first two periods. This indicates that firms exporting to HI destinations see the productivity gap between themselves and the always exporters diminish over time. In turn this is confirmed by the DiD results, which suggest a real productivity increase for the HI export starters of 11.1%. Note that this suggests that once we control for quality, the impact of exporting on productivity is larger than in the preceding table. The DiD results further suggest that productivity improvement takes place mainly in the first year although we do find on-going productivity gains as much as three years after from export entry. Finally, what is interesting from this table is that once we control for quality/markups and for the possible remaining selection problems associated with our first set of control groups, there is no evidence of an increase in real productivity for exporters to MLI destinations. In other words, with respect to MLI exports the observed productivity increase seen previously in Table 4 might arise from either a quality or mark-up effect.

Table 5: ATTs from PSM-DiD with alternative control group

	PSM			**DID**		
	t	t+1	t+2	(t+1)-(t-1)	(t+2)-(t-1)	(t+3)-(t-1)
Non-Exporter HI	-0.178**	-0.141*	-0.063	0.111*	0.122*	0.128*
	(0.086)	(0.080)	(0.224)	(0.067)	(0.069)	(0.069)
No. of Starters	1044	1044	1044	1044	1044	1044
No. of Obs. in Control	3603	3603	3603	3603	3603	3603
Non-Exporter to MLI	-0.065	-0.047	-0.036	0.072	0.072	0.083
	(0.173)	(0.189)	(0.211)	(0.089)	(0.098)	(0.133)
No. of Starters	1104	1104	1104	1104	1104	1104
No. of Obs. in Control	3235	3235	3235	3235	3235	3235

Note: asterisks denote significance levels (***p<1%; **p<5%; p<10%)

4.2 Post-entry differentials by factor intensity and product sophistication

Post-entry productivity differentials between exporting to HI and MLI markets may emerge due to the fact that HI countries have a greater demand for more sophisticated products which in turn may be associated with more learning effects. Thus, we proceed by further exploring whether the post-entry effects on productivity are driven by changes in real productivity and whether the differentials between exporting to different markets still remain. To do so we utilize the product level information in our data set and categorize firms' exports by the type of the product being exported. We perform PSM-DiD estimations over sub-samples where we classify firms according to their export composition in terms of their export products.

One way of looking at the different types of goods with different sophistication levels is to classify them according to Hinloopen and Marrewijk (2008) classification. Hinloopen and Marrewijk (HM, 2008) decompose trade into six categories: primary products; natural resource intensive products; unskilled labor intensive products; technology intensive products; human capital intensive products; and other. Using the HM classification, we distinguish between three types of exporters: primary/resource/unskilled labor-intensive (P/R/U) goods exporters, technology intensive goods exporters, and skilled-labour (human capital) intensive goods exporters. To define a firm's export sophistication level in terms of HM classification, we rank export products of different types based on their share within a firm's total exports value. A firm is defined to be "skilled-labour intensive goods exporter" if the skilled-labour intensive goods exports has the largest share in a firm's total value of exports. We define the other categories similarly. As an alternative to HM classification in defining firms' export composition, we adopt the Rauch (1999) classification where differentiated products represent the products of the sector with greater degree of quality differentiation.

Here, we employ the PSM matching procedure over the sub-samples constructed upon HM and Rauch classifications where our treatment group is as before - non-exporting firms that start to only export to HI(MLI) and our control group consists of those firms that always only export to HI(MLI) throughout our sample period. For instance, for the technology intensive goods exporters sub-sample our treatment group comprises of non-exporting firms that start to export technology intensive goods[11] only to HI(MLI) countries whereas the control group are those firms that always export technology intensive goods only to HI(MLI) throughout our sample period.

In Panel A and B of Table 6 we present the ATT estimates for the HM and Rauch classifications respectively. Once again we find a negative ATT for period t, which corroborates the results found earlier. Secondly we find that starting to export to HI countries is found to improve the productivity of non-exporter firms even after controlling for the composition of exports as well as the quality proxied by unit values for high-tech/skill-intensive products. For instance, for HI export starters, ATTs from the DiD estimates for the period $t+3$ suggest a real productivity increase for the technology intensive good exporters of 13.2%, for skill-intensive goods exporters of 12.2%, while the coefficient is not significant for

[11] Note again that, we define a firm to be a technology-intensive-good-exporter if technology intensive goods have the largest share in that firms' export basket. Thus, a given firm does not have to export only technology intensive goods.

Table 6: ATTs from PSM-DiD with respect to export composition

	PSM			DID		
	TFPt	TFPt+1	TFPt+2	TFPt+1-TFPt-1	TFPt+2-TFPt-1	TFPt+3-TFPt-1
PANEL A: HM						
P/R/U Intensive						
Non-Exporter to HI	-0.177	-0.131	-0.133	0.104	0.102	0.096
	(0.126)	(0.080)	(0.081)	(0.097)	(0.091)	(0.099)
Non-Exporter to MLI	-0.063	-0.039	-0.023	0.002	0.009	0.190
	(0.299)	(0.339)	(0.387)	(0.197)	(0.236)	(0.341)
Technology Intensive						
Non-Exporter to HI	-0.201***	-0.171**	-0.061**	0.123*	0.129*	0.132*
	(0.062)	(0.065)	(0.023)	(0.067)	(0.066)	(0.069)
Non-Exporter to MLI	-0.077*	-0.071	-0.068	0.091	0.096	0.098
	(0.046)	(0.080)	(0.101)	(0.102)	(0.108)	(0.094)
Human-Capital Intensive						
Non-Exporter HI	-0.189**	-0.143*	-0.063	0.121**	0.124**	0.122**
	(0.088)	(0.080)	(0.204)	(0.059)	(0.055)	(0.061)
Non-Exporter to MLI	-0.067	-0.057	-0.056	0.077	0.064	0.091
	(0.114)	(0.164)	(0.167)	(0.099)	(0.098)	(0.128)
PANEL B: RAUCH						
Differentiated						
Non-Exporter to HI	-0.194**	-0.166**	-0.084*	0.118**	0.120*	0.121***
	(0.089)	(0.080)	(0.044)	(0.050)	(0.068)	(0.032)
Non-Exporter to MLI	-0.064	-0.031	-0.039	0.094	0.092*	0.103*
	(0.188)	(0.235)	(0.288)	(0.087)	(0.053)	(0.054)
Non-differentiated						
Non-Exporter to HI	-0.104**	-0.107**	-0.053	0.081*	0.089*	0.091*
	(0.041)	(0.046)	(0.056)	(0.047)	(0.054)	(0.053)
Non-Exporter to MLI	-0.027	-0.026	-0.047	0.96	0.117	0.049
	(0.251)	(0.274)	(0.368)	(0.151)	(0.203)	(0.229)

Note: asterisks denote significance levels (***p<1%; **p<5%; p<10%)

the unskilled labour-intensive/primary/resource intensive exporters. Given that we are controlling for quality/price markup effects, these results suggest strongly that the productivity gains we find are associated either with some form of technology/managerial spillovers from interactions with foreign buyers, or from economies of scale. We also find that the productivity gains appear to be primarily in the first year of exporting, with only a very modest subsequent increase in productivity for technology intensive goods. Finally, it is also worth noting that there are no statistically significant productivity gains for MLI-starters for any of the HM categories.

In Panel B with the ATTs over sub-samples by Rauch classification, one can observe that there are again significant real productivity gains for HI-starters. However, differentiated products have greater productivity impact with respect to non-differentiated goods. For instance, the increase in productivity from the PSM-DiD estimates suggests that switching from being an non-exporter to being an HI exporter of differentiated goods increases productivity by just over 12%, and switching from being an non-exporter to being an HI exporter of mainly non-differentiated goods increases productivity by just over 9%. What we find is that when looking at MLI starters we only observe significant productivity growth for the differentiated products, and where the effect is slightly lower than that for the HI starters. There is no evidence for the MLI export starters of a positive productivity impact for any of the HM classification categories. Overall therefore, the findings from Table 6 indicate that there exist differential effects of exporting across HI and MLI countries even for the same types of products suggesting that where a firm exports does matter for productivity growth.

4.3 Post-entry differentials by extensive margins

So far, we have shown that the real productivity effect is at work primarily for HI exporters while controlling for quality/mark-up effects and sophistication of the exporting. Now, we aim to investigate whether there may be economies of scope at work leading to ex-post productivity improvements across different markets. Hence, here we examine whether there are any changes in real productivity associated either with exporting to more countries, or with exporting more products, as well as investigating how these changes differ across markets.

Once again utilizing the detailed information on export flows inherent in our data set we categorize firms according to their product and country extensive margins (NPE/NCE). We define the cutoff for the number of products / countries as one and distinguish between sub-samples for each margin as follows: firms that export only one product, firms that export more than one product; and firms that export to only one country, firms that export to more than one country. By employing these cut-off, in particular with regard to the number of products we can check whether the productivity effects outlined earlier derive from changes in the product mix. We employ our matching routine for each sub-sample where our treatment group is - non-exporting firms that start to only export to HI(MLI) and our control group consists of those firms that always only export to HI(MLI) throughout our sample period. E.g., for exporters of only one product, our treatment group comprises of non-exporting firms that start to export to HI(MLI) countries with only 1 product while the control group are those firms that always export to HI(MLI) only with one product throughout our sample period.

Table 7: ATTs by product and country extensive margin

	PSM			DID	DID	DID
	TFPt	TFPt+1	TFPt+2	TFPt+1-TFPt-1	TFPt+2-TFPt-1	TFPt+3-TFPt-1
PANEL A: No. of Products						
NPE: 1						
Non-Exporter to HI	-0.165*	-0.135*	-0.061	0.083	0.091	0.093
	(0.093)	(0.072)	(0.178)	(0.103)	(0.072)	(0.075)
Non-Exporter to MLI	-0.041	-0.032	-0.031	0.050	0.061	0.066
	(0.234)	(0.238)	(0.308)	(0.234)	(0.195)	(0.209)
NPE: 1+						
Non-Exporter to HI	-0.159**	-0.095**	-0.066	0.116*	0.121*	0.131*
	(0.072)	(0.044)	(0.157)	(0.067)	(0.068)	(0.074)
Non-Exporter to MLI	-0.096	-0.076	-0.047	0.064	0.076	0.093
	(0.227)	(0.258)	(0.283)	(0.151)	(0.194)	(0.227)
PANEL B: No of Countries						
NCE: 1						
Non-Exporter to HI	-0.168*	-0.127*	-0.082	0.115	0.119*	0.125*
	(0.091)	(0.068)	(0.165)	(0.097)	(0.069)	(0.073)
Non-Exporter to MLI	-0.045	-0.039	-0.036	0.071	0.074	0.079
	(0.262)	(0.258)	(0.365)	(0.118)	(0.092)	(0.065)
NCE: 1+						
Non-Exporter to HI	-0.197**	-0.197*	-0.091*	0.117*	0.125*	0.128*
	(0.089)	(0.108)	(0.053)	(0.070)	(0.069)	(0.071)
Non-Exporter Firms to MLI	-0.055	-0.057	-0.056	0.077	0.062	0.074
	(0.202)	(0.224)	(0.296)	(0.112)	(0.142)	(0.197)

Note: asterisks denote significance levels (***p<1%; **p<5%; p<10%)

The resulting ATTs in Table 7 first show that differentials in productivity gains across different type of markets is again apparent with statistically insignificant ATTs for MLI countries. When we examine the number of products we find no increase in productivity gains for firms that export only one product - either to HI or MLI destinations. In contract we find that exporters to HI do experience productivity gains when they export more than one product. This suggests either the presence of economies of scale and/or productivity gains arising from changes in the product mix. This could be, for example, that firms choose to specialise in certain more successful goods over time. If this was the case we would expect to find an increase in productivity over time, and not just in period *t*. Whilst there is a modest increase in subsequent periods the principle gain in productivity appears to be in the first period. This suggests that it is more likely that there are gains associated with economies of scope, as opposed to changes in the product mix. We also find a positive impact on productivity associated with exporting to more countries - once again this maybe because of economies of scope associated with multiple destinations - especially if those destinations may have similar characteristics and possibly standards, such as exporting to EU markets.

5 Concluding Remarks

Using a rich firm level data set for the Turkish manufacturing firms over 2003-2011, this paper integrates and extends the existing empirical literature on the relationship between exports and productivity and sheds light on differentials in post-entry effects arose by involvement in export markets with different income levels. We employ PSM methodology together with a DiD methodology. PSM allows us to control for the self-selection whereas DiD estimates further removes effects of common shocks to the productivity. We build upon the existing literature that relied on matching between non-exporters and export starters, but we redefine the control groups as always-exporters. In so doing we are able to incorporate information on export quality proxied by average weighted unit values into our analysis. Therefore, we explore whether the post-entry effects on productivity are driven by changes in real productivity, as opposed to quality/price mark up effects. Redefining such control groups also improves the quality of the matching procedure since it is still possible that in some other unobserved dimension the export starters are different to the non-exporters and that selection issues may remain. Secondly, we distinguish between several sub-samples of firms using classifications on types of products exported and, use this categorization to control firms' export composition. Finally, we categorize firms upon their product and country extensive margins to investigate whether the differentials between productivity gains across different types of markets is impacted by firms' export margins.

The core results of the analyses indicate that exporting can lead to positive real productivity gains, particularly so for exports to high income (HI) countries as opposed to middle low income (MLI) countries. Once we control for quality effects and for the possible remaining selection problems associated with the control group definitions, learning-by-exporting effects are larger for HI countries. Further, there is little evidence of an increase in real productivity for exporting to MLI destinations. For HI destinations we find bigger impact on productivity for high-technology, skill-labour intensive products as well as differentiated products. Although this could be consistent both with a learning-by-export hypothesis, but also with changes in mark-ups and/or quality, given that we have controlled for quality through the use of unit values, these results suggest that the increase is more likely to be driven by learning by exporting. In terms of MLI starters we also some impact on productivity with regard to differentiated products. Overall, these findings indicate that there exist differential effects of exporting across HI and MLI countries even for the same types of products suggesting that where a firm exports does matter. In terms of HI-starters the positive impact of exporting gets larger the greater the number of products exported, and countries exported to, indicating economies of scope.

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8 Appendix

Table A1. Comparison of Treatment and Control Groups: Matched vs. Unmatched

Panel A						
Treatment Group: Firms that start exporting only to the HI countries						
Control Group: Never-exporters						
	Matched Sample			**Unmatched Sample**		
Lagged values	**Starter**	**Never-exporter**	**T-Test for Mean Diffs**	**Starter**	**Never-exporter**	**T-Test for Mean Diffs**
TFP	8.1346	8.0401	0.9	8.1299	7.1763	11.51
LP	10,154	10.06	1.69	10,144	9.7217	11.7
WAGE_L	8.6837	8.6622	0.65	8.6904	8.5472	6.92
EMP	4.1204	4.1156	0.09	4.1198	3.7389	12.93
CAPINT	10,663	10,557	1.14	10,597	10,239	6.03
Sample Size	691	15.472		1.044	58.74	
Panel B						
Treatment Group: Firms that start exporting only to the MLI countries						
Control Group: Never-exporters						
	Matched Sample			**Unmatched Sample**		
Lagged values	**Starter**	**Never-exporter**	**T-Test for Mean Diffs**	**Starter**	**Never-exporter**	**T-Test for Mean Diffs**
TFP	7.4697	7.3492	1.17	7.4495	7.1763	2.73
LP	9.9757	9.9394	0.7	9.9593	9.7217	6.63
WAGE_L	8.6077	8.5972	0.41	8.6021	8.5472	2.87
EMP	3.8496	3.8137	0.82	3.8434	3.7389	2.53
CAPINT	10,633	10,592	0.4	10,621	10,206	4.96
Sample Size	734	15.308		1.104	58.74	
Panel C						
Treatment Group: MLI exporters start to export to HI countries						
Control Group: Always MLI exporters						
	Matched Sample			**Unmatched Sample**		
	Starter	**Always MLI-exporter**	**T-Test for Mean Diffs**	**Starter**	**always MLI-exporter**	**T-Test for Mean Diffs**
TFP	7.7317	7.5546	1.01	7.7241	7.4367	2.92
LP	10,222	10,221	0.02	10,295	9.9566	3.17
WAGE_L	8.7129	8.6237	0.47	8.7006	8.5852	2.55
EMP	4.0893	4.0511	0.9	4.1062	3.6067	5.24
CAPINT	10,814	10,681	1.4	10,799	10,413	3.2
Sample Size	852	110		1.255	1.632	
Panel D						
Treatment Group: HI exporters start to export to MLI countries						
Control Group: Always HI exporters						
	Matched Sample			**Unmatched Sample**		
	Starter	**Always Hi-exporter**	**T-Test for Mean Diffs**	**Starter**	**Always Hi-exporter**	**T-Test for Mean Diffs**
TFP	7.9142	7.8749	0.96	7.8925	7.6704	3.09
LP						
WAGE_L	8.7645	8.7383	1.25	8.7645	8.5655	5.29
EMP	4.2876	4.1783	0.91	4.2876	3.8905	5.42
CAPINT	10,828	10,841	-1.26	10,836	10,446	6.42
Sample Size	1.127	201		1.602	1.565	

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