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When Immigrants Meet Exporters: A Reassessment of the Immigrant Wage Gap*

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Abstract

We use French employer-employee data for the manufacturing sector from 2005 to 2015 to reassess the wage gap between native and foreign workers. In line with previous evidence, we find that immigrants earn less than natives, white-collar workers earn more than blue-collar workers, and exporters pay higher wages. In a new contribution to this literature, we find that the immigrant wage gap varies with the export intensity of the firm and the occupational group of the worker. We present a theoretical model with heterogeneous firms and workers to show that our findings are consistent with white-collar immigrant workers capturing an informational rent, as they provide exporters with valuable information for accessing foreign markets. We provide evidence for this mechanism. First, we analyse how the immigrant wage gap varies with the complexity of the firm export activity. Second, we study how the average wage of immigrant workers from different origin groups varies with the export activity of the employing firm in those same origin regions.

Keywords: Export, Firm; Heterogeneity; Immigrant workers; Wage inequality

JEL Codes: F14, F22, F16

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1 Introduction

This article contributes to the discussion on trade and wage inequality by investigating whether the wage gap between native and immigrant workers depends on the export activity of the employing firm. On the one hand, labour economists have long shown that immigrant workers face wage inequality with respect to natives (Anderson et al., 2019). This wage gap is striking at arrival and reduces with time, although some immigrant groups never reach wage equality with natives. Using OECD data for 2005, Dustmann and Glitz (2011) estimate the median wage gap to be 21% in the United States and 10% in France. For the French manufacturing sector, the mean wage gap was equal to 4.3% in 2005 and 9.29% in 2015[1]. On the other hand, trade economists have found that exporting manufacturing firms pay higher wages than domestic firms (Bernard et al., 1995; Schank et al., 2007), although trade generates wage inequality within firms (Klein et al., 2013; Friedrich, 2015; Georgiev and Juul Henriksen, 2020). This article positions itself at the intersection between the two aforementioned strands of literature by studying whether the immigrant wage gap varies along the distribution of the export activity of the firm. We find that the immigrant wage gap is smaller and can turn in favour of immigrants for white-collar workers employed in exporting manufacturing firms.

Immigrant workers may gain more than native workers when the employing firm increases its export activity, due to the complementarity between their export-specific knowledge and the export activity of the firm. It is now well established that immigrant workers foster firm-level exports. A number of papers show that skilled and educated immigrants foster exports by reducing transaction costs, intended as cultural and institutional differences, and by easing integration into business networks. Using data on service firms in the U.K., Ottaviano et al. (2018) find that an increase in the supply of immigrant workers fosters bilateral exports for language-intensive and culture-specific services. Andrews et al. (2016) for Germany and Hiller (2013) for Denmark show that immigrants help firms reduce their trade costs and foster export sales thanks to their destination-specific knowledge. A related strand of literature shows that immigrant workers foster trade by improving firm integration in the global value chain through their networks and through their knowledge on input quality (Bastos and Silva, 2012; Hatzigeorgiou and Lodefalk, 2016; Egger et al., 2019; Ariu et al., 2019).

We posit that three effects shape the wage distribution between native and immigrant workers: an *immigrant discount*, an *export premium* and a *skill premium*. In addition, we propose that these effects interact such that wage inequality faced by skilled immigrants may be lower in exporting firms as these individuals can exploit an informational rent. Using French employer-employee data from 2005 to 2015, we confirm the existence of the three effects: (i) immigrant workers earn less than native workers (immigrant discount), (ii) exporting firms pay higher wages than non-exporting firms (export premium), and (iii) white-collar workers earn more than blue-collar workers (skill premium). In a new contribution to this literature, we find that the

[1] Authors' calculations using the DADS panel data.

immigrant wage gap varies with the export intensity of the firm and the occupational group of the worker within the firm.

We develop a theoretical model to rationalise these findings. We rely on a Diamond (1982)-Mortensen (1982)-Pissarides (1985) (DMP hereafter) search and matching setting that yields an immigrant discount when natives face better labour market conditions than immigrants, and a skill premium when a higher skill level translates into a higher marginal product for a certain type of labour. Firms are heterogeneous in productivity and face costs to exporting as in Melitz (2003), which allows the export activity to be concentrated in a subset of firms. The employment of high-skilled immigrants reduces the cost of exporting which creates a premium for that particular factor. This premium can be associated to an informational rent. In equilibrium, high-skilled immigrants can obtain higher wages than natives in the same occupational group, when the premium for this particular group overcompensates for the immigrant discount.

The closest theoretical work to ours has been proposed by Chassamboulli and Palivos (2014). This model features a DMP setting with two labour markets, for high-skilled and low-skilled workers, in which natives and immigrants compete for jobs. We build on this model by adding firm heterogeneity and trade, in order to have both individual and firm characteristics determining wage inequality. Other important works introducing Melitz-type trade with heterogeneous firms into models with labour market frictions are Helpman et al. (2010), Felbermayr et al. (2011) or Amiti and Davis (2012). However, labour is a homogeneous factor in most of this literature. A notable exception is Sampson (2014), who introduces labour heterogeneity in one dimension. In the model presented here, workers are heterogeneous in two key dimensions: origin and skill level.

We then evaluate the prediction of the model. Our empirical results are obtained from a standard wage equation in which we introduce variables indicating the status of workers (native or immigrant, blue- or white-collar) and the export activity of firms. To address endogeneity concerns regarding the export activity of the firm, we instrument the firm export share – our baseline measure of export activity – with the world import demand for varieties that the firm produces, as proposed by Hummels et al. (2014). We find that, on average, immigrant workers earn less than natives. This wage gap does not vary with the export intensity of firms for blue-collar immigrant workers. However, we obtain very different results for the sample of white-collar workers. When employed by firms with a low export intensity, white-collar immigrants earn less than their native counterparts. Yet, the gap reduces, or even reverses, for immigrants employed in high export-intensive firms. Our baseline specification allows us to quantify the exporting threshold: immigrant workers close their wage gap when working in firms that export more than 19%-40% of their total revenue, depending on the specification.

Our findings are compatible with the hypothesis that white-collar immigrant workers capture an informational rent because they provide exporters with valuable information for accessing

foreign markets.[2] We provide evidence for this mechanism in three ways. First, we show that the wage gap varies with the complexity of the export activity of the firm, measured by the number of markets served by the firm. As export costs increase with complexity, a positive relationship between the wages of immigrants and the export complexity lends support to the idea that immigrant workers capture an informational rent. Second, we show that the average wage of workers from different origins (EU and non-EU countries) in a firm is differently affected by the firm-level share of exports sold in EU and non-EU countries. Assuming that immigrants of a particular group (e.g., EU citizens) possess knowledge specific to their origin market (the European Union), they should be better positioned than members of the other groups (non-EU immigrants and natives) to capture an informational rent when their firm exports more to that market than to the rest of the world. Third, we exploit the population census data, and we identify, the main origin country of the immigrant workers in each French district (*département*) every year. We then show that the average wage of immigrant workers in a firm, increases with the firm export share in the main country of origin of the immigrant community in the firm district.

This article joins a growing empirical literature showing how trade affects wage inequality. The standard literature shows how the reward to different factors of production is differently affected by trade shocks, depending on the country's comparative advantage and how relative prices change (see for example Acemoglu, 2003). More recent literature has highlighted how trade together with workers' characteristics affect wage inequality. For example, Verhoogen (2008) links trade and wage inequality through quality upgrading where higher-quality goods require higher-quality workers, and higher-quality workers are paid higher wages. Then, our article is related to Bøler et al. (2018), finding that exporters are associated to a larger gender wage gap. This is because exporting requires greater flexibility and if women are (perceived as) less flexible than men, this increases the gender wage gap. Bonfiglioli and De Pace (2021) provide further evidence on the relationship between exporting and the gender wage gap, finding that an increase in the export activity widens the gender wage gap for blue-collar workers, while it reduces it for white-collar workers. This result corroborates the idea that exporting relies more on interpersonal skills, which reinforces female comparative advantage in white-collar positions.

Our results point to a new dimension through which trade can decrease wage inequality between high-skill native and immigrant workers. This policy implication is particularly relevant for economies where exporting is a major activity for the average firm. Further research on the effect of the export premium on wage inequality in alternative contexts should be welcomed.

[2]It is important to mention that immigrant workers may also affect firm-level performance through higher productivity (Peri and Sparber, 2009; Mitaritonna et al., 2017; Ottaviano et al., 2018). Yet, productivity gains are a collective outcome resulting from the presence of both natives and immigrants within a firm, so they could hardly translate into a wage premium specific to immigrant workers only. We therefore disregard productivity effects and focus on the informational rent only.

2 Data and Descriptive Evidence

2.1 Data Sources

We use three sources of confidential administrative data for French manufacturing firms from 2005 to 2015. We combine them using the *SIREN* code *(système d'identification du répertoire des entreprises)* which is a unique firm identifier used by the French administration.

Administrative data on employees. The first data source consists of annual employee declarations compiled by all wage-paying establishments located on the French mainland territory (*Déclarations Annuelles des Données Sociales*, DADS). All wage-paying legal entities established in France are required to fill payroll declarations.[3] The panel version of the DADS allows us to follow employee-contract-establishment spells of all employees born in October. The sample thus contains 1/12th of the working population and all firms that employ at least one worker born in October. The DADS contain information on the characteristics of the workers such as their administrative district of residence, gender, and immigration status (one can distinguish between French and foreign-born workers). Note that the dataset does not contain information on the country of birth of the immigrant worker. In this article, we refer to immigrant workers as foreign-born individuals. In an extension of the empirical analysis, we also use the citizenship of the workers (one can distinguish between French, other European, and non-European citizens). Additionally, the dataset contains information on the characteristics of the job spell such as the type of contract (full-time and part-time), the gross and net annualised wage in constant euros and the occupation.[4] The French classification of occupations *(Nomenclatures des professions et catégories socio-professionnelles)* allows us to identify blue- and white-collar workers. We define blue-collar workers as clerks and labourers, and white-collar workers as executives, higher intellectual professions and intermediate occupations (including, for instance, sales and business executives). Additional information about the occupational codes is provided in Appendix A. From now on, we use low-skill (high-skilled) and blue-collar (white-collar) workers interchangeably. Note that we do not observe the level of education of the workers in this dataset. However, the French population census of 2005 (*Recensement de la Population*) shows a clear positive correlation between the level of education and the occupation held by the individuals, for both groups of natives and immigrants (see Figure A.1 in Appendix C).

Tax records. We then use balance-sheet data featuring tax reports filled in by firms located in France. This dataset combines two administrative sources: the FICUS data from 2005 to 2007 *(Fichier de comptabilité unifié dans SUSE)* and the FARE data from 2008 to 2015 *(Fichier approché des résultats d'Esane)*. This dataset covers the manufacturing and the service sectors but excludes the agricultural and financial sectors. This dataset is exhaustive since there is no

[3] Only establishments employing civil servants are excluded from filling such declarations.
[4] Our sample starts in 2005 as information on part- and full-time contracts is available from 2005 onward.

firm cutoff set on the number of employees, and all firms report to the French tax administration. It contains information on firms' sales, main industry, debt, and other variables related to their accounting books. However, this dataset does not contain information on firm linkages such as their foreign affiliates.

Trade data. Information on the export activity of firms comes from the French customs data reporting shipments in value (euros) and in volume (tons) by NC8 product and origin/destination country.[5] The custom data provide information on the value of exports, as well as the number of products and destinations served by firms. Finally, to build the instrument approximating the world import demand faced by French firms, we use the Comtrade dataset that contains bilateral trade flows at the HS6 product level by origin and destination countries in U.S. dollars.[6]

2.2 Descriptive Statistics

Once all the data sources are combined, we obtain a sample of 1,821,525 worker-firm-year observations. We only keep workers with a full-time contract in order to avoid differences in wages due to differences in the number of hours worked in a year (full-time workers account for 86.66% of the initial sample). This choice could bias the estimations if, for example, immigrant workers were more likely to hold part-time positions than native workers. Yet, we find little difference between natives and immigrants. In that respect, 11.23% of natives and 12.43% of immigrants hold part-time positions.[7]

The baseline sample contains 45,037 manufacturing firms, 60.14% of which export at least once over the studied period. More precisely, out of 211,051 firm-year combinations, 125,360 display a positive export value. The sample confirms an important fact: exporters are large employers. Each year, approximately 83% of the workers are employed by an exporting firm. Table 1 presents an overview of the firm characteristics by export status. Not surprisingly, exporters are significantly larger along several dimensions, such as revenues and total assets. The average skill intensity of workers is also higher for exporting firms. Interestingly, exporters do not hire a different share of immigrant workers than non-exporters. Switching perspective, one can see how firms' export activity varies with the employment of immigrant workers (Table A.2, Appendix C). The data show that exporters employing immigrants display larger export values and larger export shares. They serve a larger number of export destinations and product varieties,

[5] Some thresholds apply for reporting to the customs office. Firms are required to report their shipments of goods to/from the EU only if larger than 150,000 euros and shipments to/from other countries only if larger than 1,000 euros or one ton. These thresholds eliminate only a small share of the total shipments (Berman et al., 2015).

[6] For more details, see: `https://comtrade.un.org`. To convert the Comtrade data in euros, we use the exchange rates from FRED that are available at `https://fred.stlouisfed.org/tags/series?t=exchange+rate`.

[7] Instead of relying on the yearly wage, one could use the hourly wage in order to keep part-time workers in the analysis. However, the information on the number of hours worked is often missing or misreported in the data.

as well as a significantly larger number of products-destination markets than their counterparts employing no immigrant workers.

Table 1: Summary Statistics by Firm Export Status.

	Non-Exporters			Exporters			
	Obs.	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**	Signif.
Total revenue	85,691	5.37e+06	1.61e+07	125,360	5.10e+07	4.04e+08	***
Assets	85,663	2.70e+06	2.74e+07	125,342	3.50e+07	2.83e+08	***
Average nr. of employees	85,691	30.72	55.67	125,360	150.90	478.48	***
Share of employees in high-skilled occupations	80,683	0.169	0.226	118,558	0.292	0.241	***
Share of foreign-born	85,691	0.098	0.212	125,360	0.098	0.173	

Notes: This table reports descriptive statistics for two groups of firm-year observations. In each year, we identify firms displaying a null export value and firms displaying a positive export value.

The sample includes 400,221 workers among whom 10.27% are immigrants. Immigrant workers represent 8.85% of the total employment of white-collar workers and 10.60% of blue-collar workers. The largest district is *Île-de-France* (Paris agglomeration) with 6,004 manufacturing firms and 12.42% of total employment. However, this number hides a significant degree of heterogeneity between native and immigrant workers: while 11.29% of the natives work in *Île-de-France*, this number rises to 24.36% for immigrants. Finally, we report a number of statistics on individuals by immigration status (Appendix C, Table A.3).

2.3 Stylised Facts

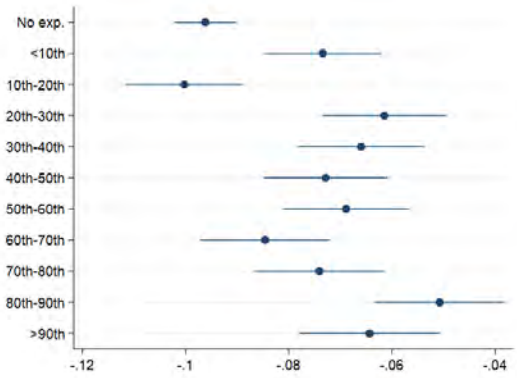
We provide some descriptive statistics on the wage distribution for the workers in our sample. First, wage differences are correlated with a number of characteristics of the firm, in particular the export status of the employing firm: individuals employed by non-exporting firms earn about 6,503 euros less than individuals employed by exporting firms (which is equivalent to 0.33 log percentage points). Second, wage differences are correlated with individual characteristics such as the gender, age, and occupation of the individual. On average, an individual in a white-collar position earns about 15,838 euros more than a blue-collar worker (about 0.66 log percentage points). Third, natives earn about 1,374 euros more than immigrants (about 0.06 log percentage points) which suggests the presence of an immigrant discount. Figure A.2 (Appendix C) shows a large heterogeneity in the immigrant wage gap across occupations for the group of white-collar workers, while it shows that immigrant workers earn less than natives in all the occupations for the group of blue-collar workers.

In this article, we argue that the wage gap faced by immigrant workers in white-collar positions is lower, if not reversed, when they are employed by exporting firms. Figure 1 plots the average wage differential between native and immigrant workers in each percentile of the distribution of export share. We distinguish between blue- and white-collar workers on the left- and right-hand side of the figure, respectively. For the sample of blue-collar workers, we find that compared

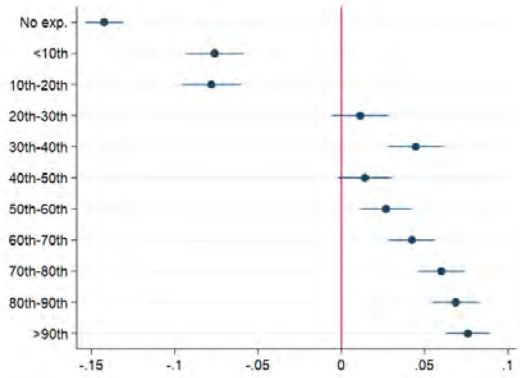
with native workers, immigrant workers earn consistently less along the entire distribution of firm export share. For the sample of white-collar workers, immigrant individuals earn a lower wage than natives at the beginning of the distribution, however, they earn higher wages than natives in firms whose export share belongs to the 30th percentile, and above. Therefore, the wage differential between white-collar natives and white-collar immigrants seems to be lower or even reversed (to the benefit of immigrants) when firms' export share increases.

Figure 1: Immigrant Wage Gap and Exports by Occupation Groups.

(a) Blue-Collar Workers



(b) White-Collar Workers



Notes: Each figure plots the average wage differential between native and foreign workers in each percentile of the distribution of export share. The distribution is computed within each industry-year. Wage differentials β_g are obtained from a wage equation, where we introduce a set of interaction terms between a dummy for immigrant individuals ($\mathbb{D}_i$) and another dummy indicating the percentile g of the distribution of export shares to which the firm employing the individual belongs: $\ln w_{i(j)t} = \mathbb{D}_i \times \sum_{g=1}^{G} \beta_g \mathbb{1}\left[Export_{jt} \in g\right] + X'_{it}\Gamma + X'_{jt}\Theta + \varphi_{dt} + \varphi_{st} + \varepsilon_{it}$. The regression includes individual characteristics denoted X'_{it} (gender, age, experience and experience squared), firm controls denoted X'_{jt} (firm size and age of the firm) as well as district-time and industry-time fixed effects. Coefficients are reported together with their 10 percent confidence interval.

3 Theoretical Framework

In this section, we present a theoretical framework highlighting the different effects driving the wage differential between native and immigrant workers. The model embeds a typical DMP search and matching setting and a trade model with monopolistic competition and heterogeneous firms *à la* Melitz (2003), extended to allow for multiple inputs.

The model rationalises a higher wage for natives, i.e., an *immigrant discount*, because native workers have a better outside option than immigrant workers. It also yields a *skill premium* when a higher skill level translates into a higher marginal product. The theoretical framework features the well-known self-selection of the most productive firms into exporting as in Melitz (2003). The model exhibits an *export premium* as firms that are bigger demand more of each

input, which increases input prices. In addition, it allows for a wage premium specific to one factor of production – here, high-skilled immigrants – when this factor contributes relatively more to increase export profits. This premium can be interpreted as an information rent. Our model allows for high-skilled immigrants to obtain higher wages than high-skilled natives when the informational rent they earn offsets the immigrant discount. All proofs are provided in Appendix B.

3.1 Model Set-Up

There is one economy open to international trade and closed to financial capital movements and migration.[8] The trading partner of the main economy is not explicitly modelled and is assumed to be symmetric in every way. Perfectly competitive firms produce intermediate inputs y_{ij} using only labour of type ij with $i = L, H$ (low-skilled and high-skilled respectively) and $j = I, N$ (immigrant and native respectively). Firms producing each intermediate input have access to the same technology and are homogeneous. Intermediates are combined with capital (K) to produce different varieties $y(\omega)$ of a final good Y that is consumed. Firms producing final goods operate under monopolistic competition and are heterogeneous in their productivity level. There is free trade in the final good sector, while intermediate inputs are not traded internationally. There is free entry into production of intermediate and final goods.

3.2 Consumers

Consumers are homogeneous in all economies. Preferences are CES across differentiated varieties ω and consumed as an aggregate good as follows:

$$Y = \left[\int_{\omega\in\Omega} y(\omega)^{\frac{\sigma-1}{\sigma}} d\omega\right]^{\frac{\sigma}{\sigma-1}} \tag{1}$$

with $\sigma > 1$ governing the elasticity of substitution across varieties, and Ω being the set of all varieties available. The following aggregate price can be derived:

$$P = \left[\int_{\omega\in\Omega} p(\omega)^{1-\sigma} d\omega\right]^{\frac{1}{1-\sigma}} \tag{2}$$

where $p(\omega)$ is the price of variety ω. The demand function for each variety takes the well-known expression:

$$y(\omega) = Y\left[\frac{p(\omega)}{P}\right]^{-\sigma} \tag{3}$$

Consumers of type ij work for a wage w_{ij}. All consumers obtain real returns ι over their savings. We normalise the mass of native workers to 1. Let λ be the exogenous share of native

[8] Allowing for factor flows would change the results quantitatively but not qualitatively as long as realistic frictions are in place.

workers that are low-skilled, and $(1-\lambda)$ be the exogenous share of native workers that are high-skilled. The masses of low-skilled and high-skilled immigrants are denoted by I_L and I_H, and are also exogenous to this model.

3.3 Firms

3.3.1 Final Good Producers

Final good producers pay a fixed cost ($f_E > 0$) to discover their productivity level ϕ in producing one single variety ω. Since each firm is characterised by a unique ϕ and a unique ω, we can identify firms with either parameter. The ex-ante distribution $g(\phi)$ and cumulative distribution $G(\phi)$ of firms are exogenous and known to all producers. Once their productivity is revealed, firms choose whether to enter the domestic market paying an additional fixed cost ($f_D > 0$).

A final good producer with productivity level ϕ operates according to the following production function:

$$y(\phi) = \phi \left[\sum_i \sum_j \alpha_{ij} y_{ij}(\phi)^\rho + \alpha_K K(\phi)^\rho \right]^{1/\rho} \tag{4}$$

with $0 < \rho < 1$, $0 < \alpha_{ij} < 1$ and $\alpha_K = 1 - \sum \alpha_{ij} > 0$. α_{ij} denotes the share of input ij used in production. This implies that the marginal cost function of a final good producer ϕ is:

$$c(\phi) = \frac{1}{\phi} \left[\sum_i \sum_j \left(\frac{\alpha_{ij}}{p_{ij}^\rho} \right)^{\frac{1}{1-\rho}} + \left(\frac{\alpha_K}{p_K^\rho} \right)^{\frac{1}{1-\rho}} \right]^{\frac{\rho-1}{\rho}} \tag{5}$$

where p_{ij} is the market price of intermediate input ij, $\forall i = L, H$ and $\forall j = I, N$, and p_K is the price of capital.

3.3.2 Firms Selling Domestically

Dixit-Stiglitz competition in final goods gives a constant markup over marginal costs which implies that the more efficient firms charge lower prices:

$$p(\phi) = \frac{\sigma}{\sigma - 1} c(\phi) \tag{6}$$

Profits in the domestic market for a firm with productivity ϕ are:

$$\pi(\phi) = p(\phi) y(\phi) - \sum_i \sum_j y_{ij}(\phi) p_{ij} - K(\phi) p_K - f_D \tag{7}$$

There is perfect competition in the market for each intermediate input, so a firm with productivity ϕ demands inputs following these marginal cost expressions:

$$c(\phi) \phi^{\rho-1} \alpha_{ij} \left[\frac{y(\phi)}{y_{ij}(\phi)} \right]^{1-\rho} = p_{ij} \tag{8}$$

$$c(\phi) \phi^{\rho-1} \alpha_K \left[\frac{y(\phi)}{K(\phi)} \right]^{1-\rho} = p_K = \iota \tag{9}$$

We can use these expressions to obtain the following conditional demand functions for intermediate inputs used to produce for the domestic market:

$$y_{ij}(\phi) = \frac{y(\phi)}{\phi}\left[\frac{\alpha_{ij}c}{p_{ij}}\right]^{\frac{1}{1-\rho}} \tag{10}$$

and

$$y_K(\phi) = \frac{y(\phi)}{\phi}\left[\frac{\alpha_K c}{p_K}\right]^{\frac{1}{1-\rho}} \tag{11}$$

where $c = c(\phi)\phi$ and is independent of ϕ according to Equation (5).

The previous conditions imply the following:

Lemma 1 *High productivity firms use all inputs with lower relative intensity, as they can use them with higher relative efficiency.*

$s(\phi)$ denotes the domestic market share of a firm ϕ and can be written as:

$$s(\phi) = \frac{1}{x}\left[\frac{\phi}{\tilde{\phi}}\right]^{\sigma-1} \tag{12}$$

where x represents the number of varieties available to domestic consumers and $\tilde{\phi}$ is the weighted average productivity level of firms operating in the market and will be further defined later on.

Using the above expression it is possible to see that more productive firms enjoy larger market shares. Larger shares, for a given size of the market, imply larger revenues. This, together with $p(\phi)$ being a decreasing function of ϕ, means that $y(\phi)$ depends positively on ϕ. We can also show that:

Lemma 2 *High productivity firms use all intermediate inputs in larger absolute quantities and produce larger volumes than low productivity firms.*

What this setting provides then is an environment where the more productive firms are also larger in all relevant respects.

3.3.3 Exporting Firms

Let us assume that a firm decision to serve a foreign market is separable from its decision to serve its domestic market. We use "$*$" to denote variables related to exporting activities. Then y^*_{ij} is the usage of intermediate input ij in the production of a final good y^* that is to be exported.

Shipping goods internationally entails costs. We model variable costs in the form of an iceberg cost $\tau > 1$, which means that τ units are shipped for one unit to arrive to the destination market. Additionally, selling abroad entails a fixed cost f_X, meant to include all costs that relate to accessing a foreign market but are independent of the level of sales.

In the current version of the model, let us assume the following:

Assumption 1 *Fixed costs to sell production abroad are firm-specific and depend negatively on the level of $y^*_{HI}(\phi)$ used by the firm, i.e., $\partial f_X(\phi)/\partial y^*_{HI}(\phi) = -\Psi$, where $\Psi > 0$ is a constant term.*

This assumption is in line with recent empirical literature showing that firms hiring immigrant workers in high-skilled positions are more likely to be exporters.[9]

Profits made in the foreign market by a firm with productivity ϕ are:

$$\pi^*(\phi) = p^*(\phi)y^*(\phi) - \sum_i \sum_j y^*_{ij}(\phi)p_{ij} - K^*(\phi)p_K - f_X(\phi)$$

where the price is:

$$p^*(\phi) = p(\phi)\tau = \frac{\sigma}{\sigma - 1}c(\phi)\tau \tag{13}$$

Similarly, the conditional demands for the intermediate inputs needed to produce for exporting resemble Equation (10). The only exception is for the conditional demand of y^*_{HI}, which is:

$$y^*_{HI}(\phi) = \frac{y^*(\phi)}{\phi}\left[\frac{\alpha_{HI}c}{p_{HI} - \Psi}\right]^{\frac{1}{1-\rho}} \tag{14}$$

The market share that a firm ϕ enjoys abroad is:

$$s^*(\phi) = \frac{1}{x}\left[\frac{\phi}{\tilde{\phi}\tau}\right]^{\sigma-1} \tag{15}$$

Equation (15) shows that a firm ϕ has a larger market share at home than abroad given the existence of an iceberg cost to export that increases the price it charges consumers.

Comparing Equations (10) and (14), it is straightforward to show that:

Lemma 3 *Exporting firms use intermediate inputs with the same intensity for exporting as for selling domestically. The only exception is for the intermediate input HI, which is used with a higher intensity for exporting.*

Intuitively, the fact that intermediate input HI can reduce fixed costs for exporting firms increases the value of its marginal product and creates an additional motive for demanding this input. This pushes up the demand for this input among exporting firms. Since there is no reason for non-exporters to demand less of this input at a given price, then at the aggregate level, the demand for the intermediate input produced with high-skill immigrant workers (y_{HI}), is higher than it would be in a situation where $\Psi = 0$. As a result, the input price (p_{HI}) is larger.

[9] The literature points to reduced market access costs as one of the main reasons why hiring immigrants in white-collar positions can boost the probability of exporting for a firm (Hiller, 2013; Andrews et al., 2016). This explains why we propose that it is fixed costs that are affected by the use of the intermediate input embedding HI-type workers in our model. Nevertheless, Appendix B shows that results are qualitatively similar if we consider that iceberg costs are a negative function of the use of the same input instead.

As usual with Melitz-type frameworks, there exists a productivity threshold for producing domestically (ϕ_D) and abroad (ϕ_X). The weighted average of active firms' productivity can be defined as:

$$\tilde{\phi} = \left[\frac{\int_{\phi_D}^{\infty} \phi^{\sigma-1} g(\phi) d\phi + \tau^{1-\sigma} \int_{\phi_X}^{\infty} \phi^{\sigma-1} g(\phi) d\phi}{2 - G(\phi_D) - G(\phi_X)} \right]^{\frac{1}{\sigma-1}} \tag{16}$$

Finally, we can define the following aggregate variables:

$$\begin{aligned} Y_{ij} = \int y_{ij}(\phi) d\phi = x y_{ij}(\tilde{\phi}) \quad , \quad K = \int K(\phi) d\phi = x K(\tilde{\phi}) \\ P = x^{\frac{1}{1-\sigma}} p(\tilde{\phi}) \quad , \quad R = x r(\tilde{\phi}) \end{aligned} \tag{17}$$

3.3.4 Intermediate Good Producers

All firms producing in each intermediate sector ij are homogeneous in productivity and produce one unit of output y_{ij} using one unit of labour input ij. No other input is used. Firms of type ij meet with workers of that type in a separate labour market. This effectively means that there are four labour markets in the model. In each labour market ij, unemployed workers (U_{ij}) and unfilled vacancies (V_{ij}) are matched through a stochastic matching technology denoted $M(U_{ij}, V_{ij})$. Function $M(.)$ is at least twice continuously differentiable, increasing in its arguments, satisfies the Inada conditions and is homogeneous of degree 1. Using the latter condition, we define the flow rate of a match for an unemployed worker as $M(U_{ij}, V_{ij})/U_{ij} = m(\theta_{ij})$. Similarly, the flow rate of a match for a vacancy is $M(U_{ij}, V_{ij})/V_{ij} = q(\theta_{ij})$. Here, $\theta_{ij} = V_{ij}/U_{ij} = m(\theta_{ij})/q(\theta_{ij})$ is a measure of the tightness prevailing in labour market ij. It can be shown that the properties of $M(.)$ result in $m'(\theta_i) > 0$ and $q'(\theta_i) < 0$.

An intermediary firm of type ij can post at most one vacancy. A firm keeping a vacant position bears a recruitment cost in terms of output, C. For a worker ij, remaining unemployed implies receiving a flow of income b_{ij}, representing the opportunity cost of employment. Finally, matches dissolve at rate $0 < \epsilon_{ij} < 1, \forall ij$, and we assume that $\epsilon_{iN} < \epsilon_{iI}$. The latter assumption implies that job duration will tend to be shorter for immigrants, relative to native workers of the same skill level.[10]

3.4 Steady State

3.4.1 Final Producers' Entry and Exit

For final good producers, productivity thresholds to produce for the domestic and the export markets (ϕ_D and ϕ_X respectively) exist, are unique, and are obtained by use of the following cutoff conditions:

$$\frac{E}{\sigma} s(\phi_D) = f_D \tag{18}$$

$$\frac{E}{\sigma} s^*(\phi_X) = f_X(\phi_X) \tag{19}$$

[10] This assumption is in line with what is observed in our dataset (see Appendix C, Table A.3).

A customary assumption in heterogeneous firm models is to impose $\phi_D < \phi_X$, as this replicates the fact that exporting firms belong to the subset of the most productive firms in production. In our setting, such assumption requires the exporting threshold to be sufficiently high. In particular, it requires $\phi_X > f_D \tau^{1-\sigma}/f_X$.

Free entry in the production of final goods imposes the following condition:

$$\pi(\tilde{\phi}) = f_E \tag{20}$$

that is, ex-post expected profits are exactly equal to the cost of entry.

3.4.2 Value Functions of the Matching Process

At any time, workers can be either employed or unemployed, and positions either filled or vacant. Let us denote these states by $\kappa = E, U, F, V$. Define J_{ij}^{κ} as the present discounted value of state κ in labour market ij. The matching process requires that, at steady state, the flow value of each state κ must equal the expected value of remaining in that state for the corresponding agent. This gives the following value functions:

$$\iota J_{ij}^{V} = -C + q(\theta_{ij})[J_{ij}^{F} - J_{ij}^{V}] \tag{21}$$

$$\iota J_{ij}^{F} = p_{ij} - w_{ij} - \epsilon_{ij}[J_{ij}^{F} - J_{ij}^{V}] \tag{22}$$

$$\iota J_{ij}^{U} = b_{ij} + m(\theta_{ij})[J_{ij}^{E} - J_{ij}^{U}] \tag{23}$$

$$\iota J_{ij}^{E} = w_{ij} - \epsilon_{ij}[J_{ij}^{E} - J_{ij}^{U}] \tag{24}$$

Free-entry into production of intermediates imposes:

$$J_{ij}^{V} = 0 \tag{25}$$

3.4.3 Nash Bargaining

Once an unemployed worker and a vacant position of type ij are matched, a bargaining process establishes the wage rate paid to the worker such that the surplus created by the position is shared between the firm and the worker. Such surplus is known to all parties. As a result of Nash bargaining, the wage rate for a type-ij worker comes from the following condition:

$$(1-\beta)[J_{ij}^{E} - J_{ij}^{U}] = \beta[J_{ij}^{F} - J_{ij}^{V}] \tag{26}$$

where $0 < \beta < 1$ represents the bargaining power of workers. The above equation establishes that workers obtain a fraction β of the surplus created by a match. Employers obtain the remaining $(1-\beta)$.

3.4.4 Composition of the Labour Force

We focus on a steady state where the number of employed workers, unemployed workers, filled positions and vacant positions are all constant. This means that at equilibrium, the total number

of workers moving out of unemployment must equal the number of people going into such status in each market ij. Using this property, we obtain the following aggregate levels of employment and therefore production of intermediate inputs:

$$\begin{aligned} Y_{HN} &= \frac{m(\theta_{HN})(1-\lambda)}{\epsilon_{HN}+m(\theta_{HN})} \quad , \quad Y_{HI} = \frac{m(\theta_{HI})I_H}{\epsilon_{HI}+m(\theta_{HI})} \\ Y_{LN} &= \frac{m(\theta_{LN})\lambda}{\epsilon_{LN}+m(\theta_{LN})} \quad , \quad Y_{LI} = \frac{m(\theta_{LI})I_L}{\epsilon_{LI}+m(\theta_{LI})} \end{aligned} \tag{27}$$

Finally, using (21)-(26), we obtain the following expression for wages:

$$w_{ij} = (1-\beta)\iota J_{ij}^U + \beta p_{ij} \tag{28}$$

Wages are a weighted average of the outside option that a type-ij worker has (ιJ_{ij}^U) and the marginal product of the intermediate input y_{ij} that this type of worker produces (p_{ij}), with weights set by the bargaining power of firms and workers.

Expression (28) highlights the way in which the *immigrant discount* and the *skill premium* co-exist in this model, in a very straightforward way. The immigrant discount comes in the form of a better outside option for natives, which stems from matches lasting longer for them. More precisely, Equations (21)-(26) show that ϵ_{ij} has a negative effect on J_{ij}^U, described by $\iota J_{ij}^U = b_{ij} + \beta m(\theta_{ij})\left[(p_{ij}-b_{ij})/(\iota+\epsilon_{ij}+\beta+m(\theta_{ij}))\right]$. The skill premium is driven by high-skilled workers being more productive, which constitutes a force raising the marginal product of this factor (p_{Hj}) as shown by Equation (8). The wage expression also fits a premium specific to type-HI workers employed by exporting firms, that can be interpreted as an informational rent: because high-skill immigrants reduce fixed costs to export, the demand for that factor is pushed up by exporting firms which further increases the marginal product of this factor (p_{HI}) as shown by Equation (14).

Finally, the model also features an average *export premium*, i.e., the fact that exporters pay higher wages than non-exporters. This comes from the fact that exporting biases the composition of the labour force toward a relatively expensive factor, i.e., HI (Lemma 3).[11] Note that the model features exporters being more productive, and therefore using all inputs in larger quantities (Lemma 2). In a different set-up, where labour markets are fragmented and firms can offer different wages to workers within a certain type, the higher demand pressure that exporting brings as per Lemma 2 would suffice to generate an export premium. In the context of our model, however, this pressure goes entirely to quantities hired.

[11] To see this, one can compare firms with productivity just above and below the exporting threshold. An alternative comparison is between a firm with productivity level above the exporting threshold in two different situations: when the firm is engaged in exporting and when the firm is not. In both situations, exporting changes the workforce composition of firms that becomes relatively more intensive in HI-input, which in turn puts upward pressure on the average wage paid by this firm.

4 Empirical Strategy

4.1 Empirical Specification

Following the insights provided by the theoretical model, we now study whether the immigrant wage gap varies with the export activity of the firms and the occupation of the worker.[12] Our empirical strategy relies on a standard wage equation, where we relate the wage of workers employed in French manufacturing firms to the observed characteristics of both workers and firms as follows:

$$\begin{aligned}\ln \mathrm{w}_{i(j)t} =& \beta_0 + \beta_1 \mathrm{Foreign}_i + \beta_2 \mathrm{Export}_{jt} + \beta_3 \mathrm{White}_{it} \\ &+ \beta_4(\mathrm{Foreign}_i \times \mathrm{Export}_{jt}) + \beta_5(\mathrm{Foreign}_i \times \mathrm{White}_{it}) \\ &+ \beta_6(\mathrm{Export}_{jt} \times \mathrm{White}_{it}) + \beta_7(\mathrm{Foreign}_i \times \mathrm{Export}_{jt} \times \mathrm{White}_{it}) \\ &+ \Gamma X'_{it} + \Theta X'_{jt} + \mathrm{FE} + \varepsilon_{it} \end{aligned} \tag{29}$$

The dependent variable is the (log) annualised real wage of an individual i working in firm j at time t. $\mathrm{Foreign}_i$ equals one if worker i is foreign-born and zero otherwise. Export_{jt} denotes the export activity of firm j at time t and is measured by its export share. White_{it} is a dummy variable indicating whether the worker holds a white-collar position and zero if she holds a blue-collar position at time t.

This specification includes the triple interaction between the immigrant dummy, the export share and the white-collar dummy. It also includes the corresponding double interaction terms. Following our hypothesis, the wage gap should be lower in exporting firms because white-collar immigrant workers are able to capture an informational rent due to their superior knowledge of foreign destinations, which should, in turn, compensate the wage discount. Therefore, we expect a positive sign of β_7 in Equation (29), indicating that the immigrant wage gap is lower in export-intensive firms for white-collar occupations, while β_4 provides information on whether the wage gap is on average lower in exporting firms independently from the occupation group of the worker.

We include a number of time-invariant and time-varying individual characteristics (X'_{it}), namely the gender of individual i, their experience in the firm at time t and its squared term, as well as their age at time t. As for time-varying firm characteristics (X'_{jt}), we include the (log) average number of employees in firm j at time t in order to control for the size of the firm, as well as the age of the firm. Then, we include different fixed effects (FE) depending on the specification. District-year and district fixed effects control for unobserved time-varying factors at the district level, such as search costs, typically higher in less dense districts. They

[12] A literal interpretation of the model would read that final producers (i.e., exporting and domestic firms) are not employing any type of worker *directly*, but only the the inputs y_{ij} produced by type-ij workers. Nevertheless, final producers can be viewed as production units performing tasks within more broadly defined and vertically-integrated entities. This makes it clear that it is really final good producers – that we define as firms – paying wages and that both worker and firm characteristics play a role in the wage setting.

also control for the fact that some districts pay systematically higher wages. Depending on the specification, we include industry-year fixed effects that account for systematic variations in wages across industries. Exploiting the within-industry variation allows one to control for the fact that exporters may be concentrated in native- or immigrant-intensive industries. We include firm-year (or firm) fixed effects to control for time-varying (or time invariant) unobserved characteristics of firms. Finally, we use occupation-year fixed effects to compare the wage differential between individual in the same 2-digit occupation. Errors are clustered at the firm-level to account for correlations across workers employed in the same firm.

4.2 Endogeneity Concerns

The coefficients in Equation (29) may be biased due to unobserved firm-level demand shocks as well as technological shocks that could simultaneously affect trade and wage decisions (Hummels et al., 2014; Georgiev and Juul Henriksen, 2020) – even though we include firm-year fixed effects which already control for unobserved demand and technological shocks at the firm-year level in some specifications. Reverse causality could be an issue if firms select higher ability workers as they intensify their export activity. For example, firms might hire from an international labour market pool as they intensify their export activity, because the high-productivity workers they need are hard to find in the domestic market. In this case, our estimation would reflect differences in the workforce composition of exporting firms and would not capture an informational rent.

Instrumental Variable Strategy We tackle these identification concerns by means of an instrumental strategy. We follow the literature to instrument the firm export share with the world import demand faced by the firm (Georgiev and Juul Henriksen, 2020; Hummels et al., 2014; Berman et al., 2015). We build the world import demand faced by a firm j at time t as follows:

$$\text{WID}_{jt} = \sum_{pc} \bar{\omega}_{jpc} \times M_{pct} \forall c \neq \text{France} \tag{30}$$

where M_{pct} denotes the total imports of product p by country c at time t observed in the Comtrade database, excluding imports from France. Following Berman et al. (2015), $\bar{\omega}_{jpc}$ is a time-invariant weight computed using the average share that the product-destination pair pc represents in firm j's total exports over the studied period.

As Hummels et al. (2014) point out, a rise in the world import demand may result from demand shocks on product p in country c, or from a loss of comparative advantage by country c in serving product p. Therefore, the instrument is correlated with the firm's export activity but not with its productivity or wage-setting decisions. The effect of the firm's export activity on wages (as well as the effect of its interaction with the immigrant and the occupation dummies), is then identified by an increase in import demand, and a consequent increase in the export activity of the firm.

Endogenous mobility patterns. We perform a diagnostic test to show that our sample is not subject to endogenous mobility patterns, following the studies by Card et al. (2013) and Bombardini et al. (2019). The purpose of this test is to attenuate concerns related to selection of more productive workers into export-oriented firms. For instance, exporters may be better at screening and hire workers that prove to be valuable for exporting after they gain more experience and reveal their productivity. In that case, they may benefit from higher wages (reflecting their higher productivity) and eventually move to more export-intensive firms. The self-selection of better (and thus better paid) workers into exporting firms would confound the effect of exporting on wages. Therefore, this test consists in assessing whether any mobility pattern can be associated with the variation in wages incurred by individuals around the time they change employer.

We analyse the wage dynamic of individuals before and after they switch firm. We split firms into four bins based on their export share, within their industry of main activity. We are interested in analysing wage changes for workers switching from firms in a lower bin to firms in a higher bin of the export distribution, to understand whether workers joining firms with higher export share are those that are already paid more (before joining). Results are presented in Appendix C, Figure A.3. We do not observe that individuals joining higher export-intensive firms experience a systematic wage gain prior the job switch. This finding holds true for both samples of native and foreign-born workers (see Appendix C, Figures A.4 and A.5 respectively). We can therefore conclude that our sample does not seem to be subject to endogenous mobility, thus alleviating any remaining concerns related to reverse causality suggesting that the main driver of firms export is the ability of the individual worker.

5 A Reassessment of the Immigrant Wage Gap

Before diving into the main results, we present a set of preliminary results aimed at corroborating that (i) immigrants earn, on average, less than natives if they are blue-collar workers, while the opposite is true for white-collar workers, that (ii) exporters pay higher wages, especially to white-collar workers, and that iii) white-collar workers are paid on average more. We then build upon these results to investigate how the immigrant wage gap varies with firm export intensity by broad occupation groups.

5.1 Preliminary Results

We start by studying the relationship between wages and the characteristics of individuals as well as the export status of firms. We present the results of Equation (29) without any interaction term in Table 2. We find that foreign-born workers earn 4.9% less than their native counterparts (column 1). When introducing firm-year or firm fixed effects into the specification, the wage differential remains significant. We find that foreign-born workers earn 2.5% less than natives using firm-year fixed effects (column 2), and 2.7% using firm fixed effects (column 3). The wage gap amounts to 4.2% when we exploit the within-occupation dimension (column 4). Overall,

the wage gap is negative and significant. In addition, exporters pay higher wages, white-collar workers earn higher wages, male workers earn more than female workers, experience shows a bell-shaped relationship with wages and bigger firms pay higher wages. OLS results are reported in Appendix D, Table A.4.

We then introduce the double interaction terms. We start by analysing the immigrant wage gap for blue- and white-collar workers in the French manufacturing sector. Results are reported in Table 3, columns (1) to (4). In all columns, we find that foreign-born individuals exhibit a wage discount when they hold blue-collar positions. Within-industry, blue-collar immigrant workers earn on average 9.1% less than their native counterparts. White-collar immigrants, however, earn on average 3.8% more than their native counterparts (column 1). In the within-firm specification, we estimate that blue-collar workers earn between 6.3% and 6.4% less than the native counterpart, while there is a wage premium of 4.6%-4.2% for white-collar immigrants (columns 2 and 3). Finally, when we exploit the occupation-year dimension (column 4), the wage discount of blue-collar immigrants amounts to 6.1% and the wage discount reduces to 0.2% for white-collar immigrant workers. Overall, this set of results points toward the presence of a wage discount for blue-collar immigrants, and a wage premium for white-collar immigrants within the industry, within the firm and within occupations.

We pursue the analysis by studying the magnitude of the wage export premium, and how it differs across blue- and white-collar workers. Results are reported in Table 3, columns (5) to (8). In column (5), we find that, within an industry, the higher the export intensity of the employing firm, the higher the individual wage. In addition, the magnitude of the export premium is larger for white-collar workers. Blue-collar workers earn on average 21.3% more when employed by an exporting firm, and white-collar workers earn on average 28.1% more when employed by an exporting firm. The introduction of firm fixed effects in column (7) corroborates the presence of a wage export premium for white-collar workers.

For each IV-2SLS regression, the Kleibergen-Paap F statistic is large enough to infer that the instruments are not weak. First-stage results show that the world import demand positively and significantly predicts firm export intensity. Once interacted with the white-collar dummy or the export intensity, the instrumental variable correctly predicts the interaction term of interest.

Table 2: Wages and the Characteristics of Individuals and Firms.

	$\ln w_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
Foreign_i	-0.049***	-0.025***	-0.027***	-0.042***
	(0.004)	(0.004)	(0.004)	(0.003)
Export_{jt}	0.228***		0.113*	0.148***
	(0.026)		(0.059)	(0.023)
White_{it}	0.518***	0.495***	0.489***	
	(0.004)	(0.005)	(0.004)	
Gender_i (male)	0.201***	0.169***	0.170***	0.201***
	(0.003)	(0.002)	(0.002)	(0.003)
Age_i	0.012***	0.011***	0.011***	0.010***
	(0.000)	(0.000)	(0.000)	(0.000)
Seniority_i	0.059***	0.059***	0.058***	0.059***
	(0.001)	(0.001)	(0.001)	(0.001)
Seniority_i^2	-0.185***	-0.182***	-0.180***	-0.182***
	(0.003)	(0.004)	(0.003)	(0.003)
(log) Size_{jt}	0.040***		0.141***	0.041***
	(0.003)		(0.009)	(0.002)
Age_{jt}	-0.001***		-0.000	-0.001***
	(0.000)		(0.001)	(0.000)
First-stage coefficient				
WID_{jt}	0.011***		0.003***	0.011***
	(0.000)		(0.000)	(0.000)
Observations	1,822,463	1,822,462	1,822,463	1,822,461
Method	IV-2SLS	OLS	IV-2SLS	IV-2SLS
R-squared		0.486		
K-Paap Stat.	1,206.17		592.89	1,272.96
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports IV-2SLS and OLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

Table 3: Nativity Gap and Export Premium.

	$\ln w_{i(j)t}$							
	The nativity wage gap				The wage export premium			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Estimation results								
Foreign_i	-0.091***	-0.063***	-0.064***	-0.061***	-0.050***	-0.025***	-0.028***	-0.042***
	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)
Export_{jt}	0.228***		0.113*	0.148***	0.213***		0.088	0.141***
	(0.026)		(0.059)	(0.023)	(0.028)		(0.060)	(0.024)
White_{it}	0.508***	0.486***	0.481***		0.497***	0.483***	0.464***	
	(0.004)	(0.004)	(0.004)		(0.006)	(0.006)	(0.005)	
$\text{Foreign}_i \times \text{White}_{it}$	0.129***	0.109***	0.106***	0.059***				
	(0.008)	(0.008)	(0.008)	(0.006)				
$\text{Export}_{jt} \times \text{White}_{it}$					0.068***	0.034	0.079***	0.029
					(0.025)	(0.024)	(0.023)	(0.019)
First-stage coefficients								
WID_{jt}	0.011***		0.003***	0.011***	0.010***		0.003***	0.010***
	(0.000)		(0.000)	(0.000)	(0.000)		(0.000)	(0.003)
$\text{WID}_{jt} \times \text{White}_{it}$					0.021***	0.021***	0.020***	0.020***
					(0.005)	(0.005)	(0.005)	(0.005)
Observations	1,822,463	1,822,462	1,822,463	1,822,461	1,822,463	1,822,462	1,822,463	1,822,461
Method	IV-2SLS	OLS	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS
R-squared		0.486						
K-Paap Stat.	1,206.68		592.87	1,273.53	649.77	1401.14	295.91	674.55
Controls	yes	yes	yes	yes	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports IV-2SLS and OLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

5.2 Baseline Results

In Table 4, we present the results of the baseline specification (Equation 29) analysing whether the immigrant wage gap varies with the export intensity of the firm and the occupational group of the worker. In columns (1) to (4), the triple interaction term (β_7) is positive and significant. Therefore, the magnitude of the immigrant wage gap depends on both the occupation group of the workers and the export intensity of the employing firm. The wage gap can be expressed by means of the partial derivative of Equation (29) with respect to the immigrant dummy (Foreign_i) for blue- and white-collar workers separately. Using these wage elasticities, we can determine, for each occupation group, an export threshold below which immigrant workers earn less than native workers, and above which immigrant workers earn more than native workers.[13]

We start by analysing the results for blue-collar workers. In columns (1) to (4), we find that the immigrant discount persists along the entire distribution of export activity, as the export threshold to reach wage parity for blue-collar workers is above unity (or not significant). Regarding white-collar workers, we find that immigrants employed by firms that export less than 27.4% of their total revenue earn less than natives, while immigrants employed in firms that export more than 27.4% earn a wage premium (column 1). In columns (2) and (3), we introduce firm-year and firm fixed effects and find a threshold equal to 19.4% and 22.3% respectively. Finally, in column (4), we include occupation-year fixed effects and find a threshold for the export share equal to 40.1%.

In columns (1) to (4), the Kleibergen-Paap F statistic is high enough to infer that the instrumental variables are not weak. First-stage results show that the world import demand and its interactions positively and significantly predict firm export intensity and its interactions.

Overall, we find that blue-collar immigrant workers face a wage discount with respect to their native counterparts, irrespective of the export intensity of their employing firm. For this occupation group, exporting has no beneficial impact on the wage inequality across immigrants and natives. Then, the wage differential between immigrant and native white-collar workers depends on the export intensity of the employing firm. Immigrants earn less than natives at the lower end of the export distribution, while they earn more than natives at the upper end of it. The export share at which the wage differential changes sign ranges from 19.4% to 40.1%, depending on the specification. Hence, exporting does play a role in the determination of wage inequality between immigrant and native white-collar workers.

[13] The threshold for blue-collar workers is given by $-\beta_1/\beta_4$. The threshold for white-collar workers is given by $-(\beta_1+\beta_5)/(\beta_4+\beta_7)$.

Table 4: A Reassessment of the Nativity Wage Gap.

	$\ln w_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
(β_1) Foreign_i	-0.107***	-0.057***	-0.059***	-0.076***
	(0.007)	(0.007)	(0.007)	(0.007)
(β_2) Export_{jt}	0.204***		0.091	0.133***
	(0.028)		(0.060)	(0.025)
(β_3) White_{it}	0.493***	0.481***	0.462***	
	(0.006)	(0.006)	(0.005)	
(β_4) $\text{Foreign}_i \times \text{Export}_{jt}$	0.064**	-0.023	-0.022	0.062**
	(0.027)	(0.026)	(0.026)	(0.026)
(β_5) $\text{Foreign}_i \times \text{White}_{it}$	0.019	0.014	0.006	0.005
	(0.015)	(0.015)	(0.015)	(0.013)
(β_6) $\text{Export}_{jt} \times \text{White}_{it}$	0.050**	0.016	0.060***	0.022
	(0.024)	(0.024)	(0.023)	(0.019)
(β_7) $\text{Foreign}_i \times \text{Export}_{jt} \times \text{White}_{it}$	0.258***	0.247***	0.259***	0.115***
	(0.045)	(0.045)	(0.044)	(0.038)
First-stage coefficients				
WID_{jt}	0.010***		0.003***	0.010***
	(0.000)		(0.000)	(0.000)
$\text{WID}_{jt} \times \text{Foreign}_i$	0.018***	0.019***	0.018***	0.018***
	(0.000)	(0.000)	(0.000)	(0.000)
$\text{WID}_{jt} \times \text{White}_{it}$	0.021***	0.021***	0.020***	0.021***
	(0.001)	(0.001)	(0.001)	(0.001)
$\text{WID}_{jt} \times \text{White}_{it} \times \text{Foreign}_i$	0.024***	0.024***	0.024***	0.024***
	(0.001)	(0.001)	(0.001)	(0.001)
Bootstrapped export thresholds				
Threshold for blue-collar workers	1.682***	-2.537	-2.745	1.232***
	(0.546)	(8.559)	(15.143)	(0.377)
Threshold for white-collar workers	0.274***	0.194***	0.223***	0.401***
	(0.011)	(0.031)	(0.021)	(0.013)
Observations	1,822,463	1,822,462	1,822,463	1,822,461
Method	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS
K-Paap F Stat.	325.36	426.32	147.95	337.76
Controls	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports IV-2SLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

Finally, we present the results obtained with a specification analogous to the baseline one but that does not distinguish between blue- and white-collar workers, in Appendix D, Table A.5. This specification provides information on the *average* wage differential along the distribution of firm export intensity. In column (1), we find that foreign-born workers employed in firms that do not export earn on average 16.9% less than native workers. However, this wage gap is reduced when firms increase their export intensity, and is reversed to a wage premium when the export share is above 67.4%. This threshold is similar (65.2%) when we focus on the within-occupation dimension in column (4). Columns (2) and (3), where we exploit the within-firm dimension present a threshold of 79%-81.3%, respectively.

Workforce composition of firms. We cannot exclude that exporters, which tend to be the most productive firms, may demand relatively more foreign workers because those workers possess characteristics (other than their place of birth) that firms find valuable for their export activity. In that case, the estimates would reflect differences in the workforce composition across exporters and non-exporters, instead of wage differences across natives and immigrants.

To tackle this issue, we modify the baseline estimation by replacing the export activity variable with a dummy variable taking value one if the firm is an exporter at time t. We instrument this dummy variable with the world import demand faced by the firm, as in the baseline specification. In addition, we use firm fixed effects which enable us to focus on firms that change their export status over time. In doing so, we study the change in immigrants' wages compared to the change in natives' wages as a firm becomes an exporter.[14]

Results are reported in Table A.6. We first reproduce column (1) of Table 4 using an export dummy. The results are in line with the baseline findings in which we use the export share of the firm (column 1). We then focus on the within-firm specification which allows us to better tackle the threat to identification described above (column 2). We find that blue-collar immigrant workers face a wage discount that does not vary with the export status of the firm (as the coefficient associated with $Foreign_i \times Export_{jt}$ is not significant). As for white-collar workers, the results suggest that immigrant workers benefit from a wage premium with respect to their native counterpart when they are employed by a firm that exports. This last set of results lends support to the idea that the baseline results are not driven by differences in workforce composition between exporters and non-exporters.

[14] Bøler et al. (2018) offers a similar discussion on identification of the gender wage gap in relation to firms' export activity.

5.3 Robustness Tests

In this section, we investigate the robustness of the estimation of Equation (29). We use an alternative dependent variable, an alternative instrumental variable for the export intensity of the firm, an alternative classification of occupations, and alternative samples. All results are presented in Appendix D and confirm that baseline findings are robust.

Alternative dependent variable. We start by using an alternative dependent variable, i.e., the (log) *daily* wage of the individual. This test accounts for the fact that some individuals do not work for the entire year. Using the daily wage allows us to control for differences in wage arising from differences in the number of days worked by an individual.

Results obtained with this alternative dependent variable are reported in Table A.7. The magnitude, sign and significance of the coefficients are in line with the baseline findings. Slightly differently from the baseline specification, we find that export thresholds for blue-collar workers is significant and feasible in column (4). However, this threshold is equal to 96.3% which is very high and higher than the threshold for white-collar workers obtained with this specification (14.1%). As for white-collar workers, we find significant export thresholds in all columns but column (2), ranging from 7.1% to 14.1%, depending on the specification.

Alternative instrumental variable. We pursue the analysis by using an alternative variable to instrument the export intensity of the firm. We build the world import demand faced by a firm j at time t as follows:

$$\text{WID}_{jt} = \sum_{pc} \omega_{jpct_0} \times M_{pct} \forall c \neq \text{France} \tag{31}$$

where ω_{jpct_0} denotes the share that the product-destination pair pc represents in firm j's total exports in 2004. Using the pre-sample year instead of an average over the studied period allows us to further ensure the exogeneity of the instrumental variable, yet it reduces the number of observations.

Results obtained with this alternative IV are reported in Table A.8 and are in line with the baseline findings and the previous robustness test. In columns (1) to (4), we find that blue-collar immigrants earn less than their native counterparts along the entire distribution of export intensity. Then, we find that white-collar immigrants employed by firms that export less than 26.1% of their total revenue earn less than their native counterparts (column 1). Other specifications are also in line with the baseline findings as we find an export threshold between 17.3% and 39.4% of the firm total revenue.

Finally, we also replicate the baseline specification excluding from the sample firms that never export and that therefore do not have any variation in the instrumental variable. Results are reported in Table A.9. For blue-collar workers, we find an export threshold which is either non feasible or not significant. For white-collar workers, depending on the specification, we find that

immigrants employed by firms that export less than 18.9%-45.1% of their total revenue earn less than natives, while immigrants employed in firms that export more, earn a wage premium.

Alternative definition of occupation groups. We now use an alternative classification of occupations to identify blue- and white-collar workers. We follow the International Standard Classification of Occupations (ISCO) proposed by the International Labour Organization (ILO).[15] We aim at checking the validity of the baseline results obtained with the French classification of occupations *(Nomenclatures des professions et catégories socio-professionnelles)* with respect to an international and broadly used classification of occupations in the field of labour economics. After matching French occupation codes (PCS-ESE codes are first converted to PCS 2003) to ISCO 08 codes, we are able to use the four ISCO skill levels defined by the ILO to define blue-collar workers (levels 1 and 2) and white-collar workers (levels 3 and 4). We report the results obtained with the IV-2SLS strategy in Table A.10. Columns (1) to (4) confirm the baseline results.[16] For blue-collar workers, we find an export threshold which is feasible and significant in column (4). This threshold is equal to 88% which is higher than the threshold for white-collar workers obtained with this specification (41.8%). For white-collar workers, depending on the specification, we find that immigrants employed by firms that export less than 23.8%-41.8% of their total revenue earn less than natives, while immigrants employed in firms that export more, earn a wage premium.

The last part of the robustness analysis uses an alternative breakdown of workers into broad occupational groups. We now identify occupational groups for which individuals are likely to take decisions affecting trade activities, rather than the baseline white- *vs.* blue-collar distinction. More precisely, we include company directors (occupation 23), occupations related to commercial activities (white-collar occupations 37 and 46), occupations related to the sale and transport of merchandise (blue-collar occupations 54, 55 and 62), and occupations in the craft industry (blue-collar occupation 63). We therefore group workers into trade-related and non-trade-related occupational groups (see column 2 in Table A.1). We report the results obtained with the IV-2SLS strategy in Table A.11. Columns (1) to (4) show that immigrant workers employed in non-trade related occupations earn less than their native counterparts along the entire distribution of export activity. On the contrary, immigrant workers employed in trade-related occupations see their wage gap reversed into a wage premium as soon as the firm exports at least 37.1% of its total revenues (column 1). Other columns provide similar results.

Alternative samples. Finally, we test the robustness of the results to alternative samples. We start by excluding the region of Paris that exhibits a very high concentration of immigrant workers. We report the results in Table A.12. We find that blue-collar immigrant workers earn less than their native counterparts along the whole distribution of export shares. The results

[15] See the ILO ISCO08 Volume I *International Standard Classification of Occupations.*

[16] In columns (4) the triple interaction term is not significant. However, there still is a positive and significant export threshold above which white-collar immigrant workers earn a wage premium.

confirm that white-collar immigrant workers see their wage gap reversed into a wage premium as soon as their firm exports at least 26.3% of its total revenues (column 1). Other columns provide similar thresholds.

We then reproduce the baseline specifications using a sample of only male workers. Excluding female workers allows us to test the robustness of the results on a set of workers who are less likely to hold part-time contracts. The results are reported in Table A.13 and are fully in line with the baseline findings.

6 Underpinning Mechanisms

In this section, we explore the mechanisms behind the relationship of interest. Our working hypothesis is that white-collar immigrant workers experience a lower wage discount, if not a wage premium, in exporting firms because they provide valuable information on the foreign market served by the firm. For this reason, they capture an *informational rent* that translates into higher wages. We perform two different exercises that provide evidence supporting this hypothesis.

6.1 Export Complexity

Our first exercise is based on the idea that export costs increase with the complexity of the export activity. We expect white-collar immigrant workers to be more valuable to firms that face high costs of exporting due to a complex structure of products-destinations markets served. Therefore, we the wage of white-collar immigrant workers should increase with the level of the export complexity. We modify the baseline specification by replacing the measure of export intensity with a proxy of export complexity (denoted Complexity_{jt}). Following Bøler et al. (2018), we characterise the export complexity of the firm by the (log) number of product-destination pairs served by the firm.

OLS estimates obtained using the number of markets served by the firm as a proxy for the export complexity are reported in Table 5. Regarding blue-collar workers, we find that immigrants earn less than their native counterparts, and that this wage discount does not depend on the export complexity of their employing firm as none of the thresholds are significant or feasible across the four specifications (columns 1 to 4). As for white-collar workers, we find that immigrants earn (less) more than natives when they are employed by firms serving (less) more than 13 markets ($e^{2.613}$) (column 1). This threshold ranges from 13 to 79 markets (columns 1 to 4). Note that we find similar results when we use the number of destinations served by the firm and the number of products served by the firm (results are available upon request to the authors).

Overall, we find that the immigrant wage gap observed among white-collar workers does not only vary with the export intensity of the firm, but also with its export complexity. We interpret

this set of results as evidence supporting the hypothesis that white-collar immigrants help firms overcome export costs that increase with the complexity of their export activity.

Table 5: Nativity Wage Gap and Export Complexity - Number of markets.

	$\ln w_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
(β_1) Foreign_i	-0.078***	-0.041***	-0.043***	-0.040***
	(0.012)	(0.012)	(0.012)	(0.011)
(β_2) Complexity_{jt}	0.003		0.003	0.002
	(0.003)		(0.002)	(0.002)
(β_3) White_{it}	0.500***	0.476***	0.468***	
	(0.010)	(0.011)	(0.010)	
(β_4) $\text{Foreign}_i * \text{Complexity}_{jt}$	-0.003	-0.007*	-0.006*	-0.005
	(0.004)	(0.003)	(0.003)	(0.003)
(β_5) $\text{Foreign}_i * \text{White}_{it}$	0.012	-0.009	-0.014	-0.030*
	(0.019)	(0.020)	(0.019)	(0.016)
(β_6) $\text{Complexity}_{jt} * \text{White}_{it}$	0.004	0.003	0.004	-0.001
	(0.003)	(0.003)	(0.003)	(0.002)
(β_7) $\text{Foreign}_i * \text{Complexity}_{jt} * \text{White}_{it}$	0.028***	0.028***	0.028***	0.021***
	(0.005)	(0.005)	(0.005)	(0.004)
Bootstrapped export thresholds				
Threshold for blue-collar workers	-26.439	-6.231	-6.782**	-8.602
	(78.594)	(3.165)	(2.928)	(6.258)
Threshold for white-collar workers	2.613***	2.389***	2.606***	4.377***
	(0.183)	(0.286)	(0.223)	(0.175)
Observations	1,519,351	1,519,351	1,519,351	1,519,350
Method	OLS	OLS	OLS	OLS
R-squared	0.339	0.453	0.410	0.414
Controls	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports OLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. Complexity_{jt} denotes the (log) number of markets. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

To further lends support to the idea that the informational rent of immigrant workers depends on the trade costs faced by the firm to serve foreign markets, we perform a placebo test, where we replicate the baseline specification using the (log) domestic sales, instead. In addition, we focus non-exporting firms only. As there are no trade costs to serve the domestic market, immigrant workers should *not* capture any informational rent associated to the domestic sales of their

employing firms. Consistently, the results reported in Appendix, Table A.14 show that the triple interaction term is not significant.

6.2 Destination-Specific Export Costs

Our second exercise studies how the average wage of immigrant workers from different origin groups varies with the export activity of the employing firm in those same origin regions. We proceed in two different ways.

First, we analyse how the average wage of EU and non-EU citizen workers changes with the export share of the employing firm toward EU and non-EU countries (excluding French citizens from the group of EU workers). If immigrant workers are able to capture an informational rent thanks to a better knowledge of specific foreign markets such as their countries of origin, we should observe that the average wage of immigrant workers from EU (non-EU) countries increases, or increases more, with the export share to EU (non-EU) countries.

To test this hypothesis, we cannot rely on the French administrative panel data at the individual level (the DADS Panel) because it does not contain information on the region of origin of the immigrant workers. We therefore use the DADS *Poste*, which consists of pooled cross-sectional administrative data that allow following firms over time (but not workers). This dataset contains individual-level information on wages, type of contract, occupations, birthplace (France or abroad) and citizenship (French, EU or non-EU). We are therefore able to count, for each firm, the number of foreign-born workers who have an EU citizenship and those who have a non-EU citizenship. We impose the same restrictions as for the baseline analysis performed with the individual panel data, by keeping only full-time workers in manufacturing firms, who work for the entire year. We then compute the average firm-level wage by foreign citizenship (EU, non-EU) and by occupational groups (white-collar *vs.* blue-collar). We estimate the following specification for each occupational group:

$$\ln \text{aw}_{jt}^{o} = \beta_0 + \beta_1 \text{Export}_{jt}^{\text{EU}} + \beta_2 \text{Export}_{jt}^{\text{non-EU}} + \Gamma X'_{jt} + \zeta_{dt} + \zeta_{st} + \varepsilon_{jot} \tag{32}$$

where aw_{jt}^{o} is the average wage of type-o workers with $o = \{\text{EU}, \text{non-EU}\}$ in firm j at time t, and $\text{Export}_{jt}^{\text{EU}}$ and $\text{Export}_{jt}^{\text{non-EU}}$ denote the firm j's share of exports to EU and non-EU countries respectively. As with the baseline specification, we instrument the export intensity of the firm following Equation (30), modified to consider the export share toward a subset of destinations (EU or non-EU countries).[17] Vector X'_{jt} includes the (log) number of employees in the firm, and the age of the firm. This specification includes district-year and industry-year fixed effects, and errors are clustered at the firm level.

[17] The weights have been computed to reflect the average importance of the destination-product pair pc in firm j's total export toward EU or non-EU countries separately.

Table 6: Average Wage by Origin Group.

	White-collar workers		Blue-collar workers		White-collar workers	Blue-collar workers
	$\ln \text{aw}_{jt}^{\text{EU}}$	$\ln \text{aw}_{jt}^{\text{non-EU}}$	$\ln \text{aw}_{jt}^{\text{EU}}$	$\ln \text{aw}_{jt}^{\text{non-EU}}$	$\ln \text{aw}_{jt}^{\text{for}}$	$\ln \text{aw}_{jt}^{\text{for}}$
	(1)	(2)	(3)	(4)	(5)	(6)
Estimation results						
$\text{Export}_{jt}^{\text{EU}}$	0.350***	0.243***	0.029	0.035*		
	(0.049)	(0.049)	(0.025)	(0.018)		
$\text{Export}_{jt}^{\text{non-EU}}$	0.175**	0.402***	0.096**	0.073**		
	(0.085)	(0.072)	(0.047)	(0.033)		
$\text{Export}_{jt}^{\text{main}}$					1.040***	-0.526**
					(0.243)	(0.262)
$\text{Export}_{jt}^{\text{other}}$					0.329***	0.062***
					(0.030)	(0.015)
First-stage coefficients						
$\text{WID}_{jt}^{\text{EU}}$	0.012***	0.012***	0.011***	0.011***		
	(0.000)	(0.000)	(0.000)	(0.000)		
$\text{WID}_{jt}^{\text{non-EU}}$	0.007***	0.009***	0.006***	0.006***		
	(0.000)	(0.000)	(0.000)	(0.000)		
$\text{WID}_{jt}^{\text{main}}$					0.002***	0.001***
					(0.000)	(0.000)
$\text{WID}_{jt}^{\text{other}}$					0.011***	0.009***
					(0.000)	(0.000)
Observations	38,809	34,864	76,531	110,033	89,373	193,721
Method	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS
K-Paap F Stat.	305.419	332.895	493.912	759.042	250.791	306.174
Controls	yes	yes	yes	yes	yes	yes
FE	st-dt	st-dt	st-dt	st-dt	st-dt	st-dt

Notes: This table reports IV-2SLS estimations. The dependent variable in columns (1) and (3) and in columns (2) and (4) is the average wage of EU and non-EU immigrant workers, respectively, working in a firm j at time t. The dependent variable in columns (5) and (6) is the average firm-level wage of immigrant workers. Note that we distinguish between white-collar (columns 1, 2 and 5) and blue-collar workers (columns 2, 4 and 6). ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. Controls include the (log) number of employees in the firm and the age of the firm. st and dt indicate industry-time and district-time fixed effects respectively.

IV-2SLS results are reported in Table 6, columns (1) to (4). We find that an increase in the share of exports toward EU countries is positively associated with the average wage of white-collar workers from both origin regions, but the effect is higher for the group of immigrant workers from EU countries (column 1) than for immigrant workers from non-EU countries (column 2). When focusing on the share of exports toward non-EU countries, we obtain a very similar picture: there is a positive relationship between the share of exports sold in these countries and the average wage of non-EU immigrants, and this is larger than for the other group of immigrant workers. In addition, column (3) and column (4) show that only the share of exports toward non-EU countries has a small impact on the average wage of immigrant blue-collar workers, independently of their origin group. In particular, even though column (3) shows that the wage of blue-collar workers from EU countries react more to an increase in the export share toward non-EU countries, this coefficient is smaller than in column (1), where the sample focuses on white-collar workers. This result lends support to our working hypothesis, since blue-collar immigrants are less likely to provide valuable information regarding export markets than white-collar workers and are therefore unable to capture any informational rent.

Second, we perform an alternative exercise consisting in analysing whether the average wage of immigrants in a French district increases with the export activity of firms operating in that district, especially when the destination of exports coincides with the origin country of the main immigrant community in that district. To do so, we use the population census (*Recensement de la Population*). Every year, this census covers 20% of the municipalities having less than 10,000 inhabitants, and 8% of the households of the municipalities having more than 10,000 inhabitants. Over a five-year period, the census covers all the small municipalities and 40% of the households of the large ones. From the population census, we obtain yearly information on the share of immigrant workers by country of origin and broad occupational group (white- and blue-collar workers) at the district level. We are then able to identify the most important origin country for each district, every year. Note that at most, we observe that 35.2% of white-collar immigrants and 70.7% of blue-collar immigrants come from the same origin country in a given district-year cell (white-collar Algerians in Bouches-du-Rhône and blue-collar Portuguese in Lozère). We then assume that the immigrant workers we observe in a firm located in a given district have a high probability to come from the same origin country as the largest group of immigrants observed in the district of the firm.

If immigrants possess export knowledge specific to their origin countries, then their average wage should respond more to an increase in exports toward the main origin country of the immigrant population in the district of their firm, than to an increase in exports to other destination countries. We estimate the following specification for each occupation group:

$$\ln \mathrm{aw}_{jt}^{\mathrm{for}} = \beta_0 + \beta_1 \mathrm{Export}_{jt}^{\mathrm{main}} + \beta_2 \mathrm{Export}_{jt}^{\mathrm{other}} + \Gamma X'_{jt} + \zeta_{dt} + \zeta_{st} + \varepsilon_{jot} \tag{33}$$

where $\mathrm{aw}_{jt}^{\mathrm{for}}$ is the average wage of immigrant workers (for akin to *foreign*) in firm j at time t, $\mathrm{Export}_{jt}^{\mathrm{main}}$ denotes the share of exports to the main origin country of immigrants in the district of firm j at time t, and $\mathrm{Export}_{jt}^{\mathrm{other}}$ is the share of exports to other destinations served by firm j

at time t. The export intensity of the firm is instrumented as in Equation (30), modified as to consider the export share toward a subset of destinations (main origin country of immigrants and other countries).[18] This specification includes district-year and industry-year fixed effects, and errors are clustered at the firm level.

Results are presented in columns (5) and (6) of Table 6. We find that the average wage of white-collar immigrants responds more to an increase in exports toward the main origin country of white-collar immigrants in the district of their firm, than to an increase in exports toward other destination countries (column 5). For blue-collar workers, the results point again toward the lack of an informational rent, as the coefficient on the export activity toward the main origin country of the immigrants in the district-year of the firm has a negative sign (column 6).

7 Conclusions

This article contributes to the literature on trade and wage inequality by investigating whether the wage gap between native and immigrant workers depends on the export activity of the employing firm and the occupation of the workers. Existing literature shows that white-collar immigrant workers provide valuable information on the foreign markets served by their employing firms. For this reason, we posit that they might be able to capture an *informational rent* that translates into higher wages, hence into a lower wage gap with respect to their native counterparts.

We propose that three effects – the skill premium, the immigrant discount and the export premium – co-exit and interact to shape the distribution of wages. These effects interact such that wage inequality faced by skilled immigrants may be lower in exporting firms as these individuals can exploit an informational rent. We use a model embedding a typical Diamond (1982)-Mortensen (1982)-Pissarides (1985) search and matching setting into a trade model with monopolistic competition and heterogeneous firms à la Melitz (2003), extended to allow for multiple inputs. This model highlights how the wage of workers of different occupational groups and different origins varies with the export activity of the employing firms.

We use employer-employee data on the French manufacturing sector from 2005 to 2015 to show that the magnitude and sign of the immigrant wage gap depend on firms' and workers' characteristics. We find that the wage differential of white-collar workers varies with the export activity of the employing firm: White-collar immigrants employed by high (low)-exporting firms earn more (less) than their native counterparts. The same is not true for blue-collar workers, with immigrant workers earning less than native workers along the entire distribution of export activity.

Our results also show that the white-collar immigrant premium is positively related to complexity (approximated by the number of markets served by the firm). In addition, the relative

[18] The weights have been computed to reflect the average importance of the destination-product pair pc in firm j's total export toward the main origin country or other countries, separately.

wage of workers from a certain origin responds positively to the export activity of the firm in those specific markets. We interpret these results as supporting the hypothesis that immigrant workers capture an informational rent when they are closer to the decision-level positions in exporting firms.

From a policy perspective, our findings show that both the occupation of individuals and the export intensity of their employers are important in assessing the magnitude and scope of the wage gap in the French manufacturing sector. Linking the micro evidence provided in this article to aggregate outcomes should be welcome for future research avenues. Our results also imply that, to some extent, trade reduces wage inequality across workers. This last result is important given that trade is often decried as a vector of inequality.

References

D. Acemoglu. Patterns of skill premia. *Review of Economic Studies*, 70(2):199–230, 2003.

M. Amiti and D. R. Davis. Trade, Firms, and Wages: Theory and Evidence . *The Review of Economic Studies*, 79(1):1–36, 2012.

K. H. H. Anderson et al. Can immigrants ever earn as much as native workers? *IZA World of Labor*, 2019.

M. J. Andrews, T. Schank, and R. Upward. Do foreign workers reduce trade barriers? Microeconomic evidence. *The World Economy*, 2016.

A. Ariu, K. N. Hakkala, J. B. Jensen, and S. Tamminen. Service imports, workforce composition, and firm performance: Evidence from finnish microdata. Working paper 26355, NBER, 2019.

P. Bastos and J. Silva. Networks, firms, and trade. *Journal of International Economics*, 87(2): 352–364, 2012.

N. Berman, A. Berthou, and J. Héricourt. Export dynamics and sales at home. *Journal of International Economics*, 96(2):298–310, 2015.

A. B. Bernard, J. B. Jensen, and R. Z. Lawrence. Exporters, jobs, and wages in u.s. manufacturing: 1976-1987. *Brookings Papers on Economic Activity. Microeconomics*, 1995:67–119, 1995.

E. A. Bøler, B. Javorcik, and K. H. Ulltveit-Moe. Working across time zones: Exporters and the gender wage gap. *Journal of International Economics*, 111:122–133, 2018.

M. Bombardini, G. Orefice, and M. D. Tito. Does exporting improve matching? evidence from french employer-employee data. *Journal of International Economics*, 117:229–241, 2019.

A. Bonfiglioli and F. De Pace. Export, female comparative advantage and the gender wage gap. Discussion Paper DP15801, CEPR, 2021.

D. Card, J. Heining, and P. Kline. Workplace heterogeneity and the rise of west german wage inequality. *The Quarterly Journal of Economics*, 128(3):967–1015, 05 2013.

A. Chassamboulli and T. Palivos. A search-equilibrium approach to the effects of immigration on labor market outcomes. *International Economic Review*, 55(1):111–129, 2014.

P. A. Diamond. Wage determination and efficiency in search equilibrium. *The Review of Economic Studies*, 49(2):217–227, 1982.

C. Dustmann and A. Glitz. Migration and education. In *Handbook of the Economics of Education*, volume 4, pages 327–439. Elsevier, 2011.

P. H. Egger, K. Erhardt, and A. Lassmann. Immigration and firms integration in international production networks. *European Economic Review*, 111:1 – 34, 2019.

G. J. Felbermayr, J. Prat, and H. J. Schmerer. Globalization and labor market outcomes: Wage bargaining, search frictions, and firm heterogeneity. *Journal of Economic Theory*, 146(1): 39–73, 2011.

B. Friedrich. Trade shocks, firm hierarchies and wage inequality. Technical report, Department of Economics and Business Economics, Aarhus University, 2015.

B. Georgiev and J. Juul Henriksen. Within-firm wage inequality and firm-level exports. *Review of International Economics*, 28(1):1–34, 2020.

A. Hatzigeorgiou and M. Lodefalk. Migrants' influence on firm-level exports. *Journal of Industry, Competition and Trade*, 16(4):477–497, 2016.

E. Helpman, O. Itskhoki, and S. Redding. Inequality and unemployment in a global economy. *Econometrica*, 78(4):1239–1283, 2010.

S. Hiller. Does immigrant employment matter for export sales? Evidence from Denmark. *Review of World Economics*, 149(2):369–394, 2013.

D. Hummels, R. Jørgensen, J. Munch, and C. Xiang. The wage effects of offshoring: Evidence from danish matched worker-firm data. *American Economic Review*, 104(6):1597–1629, 2014.

M. W. Klein, C. Moser, and D. M. Urban. Exporting, skills and wage inequality. *Labour Economics*, 25:76 – 85, 2013.

M. J. Melitz. The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica*, 71(6):1695–1725, 2003.

C. Mitaritonna, G. Orefice, and G. Peri. Immigrants and firms outcomes: Evidence from France. *European Economic Review*, 96:62–82, 2017.

D. T. Mortensen. The matching process as a noncooperative bargaining game. In J. J. McCall, editor, *The Economics of Information and Uncertainty*. University of Chicago Press, Chicago, 1982.

G. I. Ottaviano, G. Peri, and G. C. Wright. Immigration, trade and productivity in services: Evidence from UK firms. *Journal of International Economics*, 112:88–108, 2018.

G. Peri and C. Sparber. Task specialization, immigration, and wages. *American Economic Journal: Applied Economics*, 1(3):135–169, 2009.

C. A. Pissarides. Short-run equilibrium dynamics of unemployment, vacancies, and real wages. *The American Economic Review*, 75(4):676–690, 1985.

T. Sampson. Selection into trade and wage inequality. *American Economic Journal: Microeconomics*, 6(3):157–202, 2014.

T. Schank, C. Schnabel, and J. Wagner. Do exporters really pay higher wages? first evidence from german linked employer-employee data. *Journal of International Economics*, 72(1):52–74, 2007.

E. A. Verhoogen. Trade, Quality Upgrading, and Wage Inequality in the Mexican Manufacturing Sector. *The Quarterly Journal of Economics*, 123(2):489–530, 05 2008.

Appendix

A Additional Information on the Data

Table A.1: French Classification of Occupations.

CS code	Occupation (French)	Occupation (English)	(1)	(2)
1	**Agriculteurs exploitants**	**Farmers**		
11	Agriculteurs sur petite exploitation	Farmers on small farms	-	-
12	Agriculteurs sur moyenne exploitation	Farmers on medium-sized farms	-	-
13	Agriculteurs sur grande exploitation	Farmers on large farms	-	-
2	**Artisans, commerçants et chefs d'entreprise**	**Craftsmen, traders and business leaders**		
21	Artisans	Craftsmen	-	-
22	Commerçants et assimilés	Traders and similar persons	-	-
23	Chefs d'entreprise de 10 salariés ou plus	Entrepreneurs with 10 or more employees	-	T
3	**Cadres et professions intellectuelles supérieures**	**Executives and Higher Intellectual Professions**		
31	Professions libérales	Liberal professions	W	-
33	Cadres de la fonction publique	Public Service executives	W	-
34	Professeurs, professions scientifiques	Professors, scientific professions	W	-
35	Professions de l'information, des arts et des spectacles	Information, arts and entertainment occupations	W	-
37	Cadres administratifs et commerciaux d'entreprise	Corporate administrative and commercial executives	W	T
38	Ingénieurs et cadres techniques d'entreprise	Engineers and business technical executives	W	-
4	**Professions Intermédiaires**	**Intermediate Occupations**		
42	Professeurs des écoles, instituteurs et assimilés	School Teachers, other teachers and assimilated	W	-
43	Professions intermédiaires de la santé et du travail social	Intermediate health and social work occupations	W	-
44	Clergé, religieux	Clergy, religious	W	-
45	Professions intermédiaires administratives de la fonction publique	Intermediate administrative professions in the public service	W	-
46	Professions intermédiaires administratives et commerciales des entreprises	Intermediate administrative and commercial professions in companies	W	T
47	Techniciens	Technicians	W	-
48	Contremaîtres, agents de maîtrise	Foremen, supervisors	W	-
5	**Employés**	**Clerical occupationss**		
52	Employés civils et agents de service de la fonction publique	Civilian employees and public service employees	B	-
53	Policiers et militaires	Police and military	B	-
54	Employés administratifs d'entreprise	Corporate Administrative Employees	B	T
55	Employés de commerce	Commercial employees	B	T
56	Personnels des services directs aux particuliers	Direct service personnel to individuals	B	-
6	**Ouvriers**	**Labourers**		
62	Ouvriers qualifiés de type industriel	Industrial Skilled Workers	B	T
63	Ouvriers qualifiés de type artisanal	Skilled craft workers	B	T
64	Chauffeurs	Drivers	B	-
65	Ouvriers qualifiés de la manutention, du magasinage et du transport	Skilled workers in handling, storage and transport	B	-
67	Ouvriers non qualifiés de type industriel	Unskilled industrial workers	B	-
68	Ouvriers non qualifiés de type artisanal	Unskilled craft workers	B	-
69	Ouvriers agricoles	Agricultural workers	B	-

Column (1) classifies occupations into blue- and white-collar occupations (respectively denoted B and W). Column (2) denotes occupations that are possibly related to trade activities (T).

B Theory Proofs

B.1 Proof of Lemma 1

Consider one single input ij and two firms with different productivity levels $\phi \neq \phi'$. Divide Equation (10) by the production function to show that:

$$\frac{\phi'}{\phi} = \frac{y_{ij}(\phi)/y(\phi)}{y_{ij}(\phi')/y(\phi')}, \text{ so } \frac{y_{ij}(\phi)}{y(\phi)} < \frac{y_{ij}(\phi')}{y(\phi')} \iff \phi > \phi' \blacksquare$$

B.2 Proof of Lemma 2

Using Equations (4) and (6), we obtain the following expression for revenues:

$$r(\phi) = \frac{\sigma c}{\sigma - 1}\frac{y(\phi)}{\phi}$$

When revenues are increasing in ϕ, this mechanically means that $y(\phi)/\phi$ also is. Then, inspection of Equation (10) shows that the level of usage of any intermediate input by a final good producer depends positively on their productivity level ϕ.$\blacksquare$

B.3 Iceberg costs as a negative function of the use of high-skilled immigrants

Let us replace Assumption 1 by the following:

Assumption 2 *Selling production abroad entail firm-specific iceberg costs that depend negatively on the level of $y^*_{HI}(\phi)$ used by the firm, i.e., $\partial\tau(\phi)/\partial y^*_{HI}(\phi) = -\Phi$, where $\Phi > 0$ is a constant term.*

Under this new setting the profit function for the exporting firm is:

$$\pi^*(\phi) = p^*(\phi)y^*(\phi) - \sum_i \sum_j y^*_{ij}(\phi)p_{ij} - K^*(\phi)p_K - f_X$$

with price:

$$p^*(\phi) = p(\phi)\tau(\phi) = \frac{\sigma c(\phi)\tau(\phi)}{\sigma - 1}$$

The first order conditions for a profit maximising exporter give the demand functions for all their inputs. For all $ij \neq HI$ we obtain 10, while for $ij = HI$ we obtain

$$y^*_{HI}(\phi) = \frac{y^*(\phi)}{\phi}\left[\frac{\alpha_{HI}c}{p_{HI} - \Phi c\frac{y^*}{\phi}}\right]^{\frac{1}{1-\rho}}$$

Again, the new term brought about by the relationship between trade costs and y^*_{HI}, highlights that there is an additional motive for using this input, besides its contribution to the production process: its power to reduce trade costs. This pushes the relative demand for this input up, and consequently its relative return. The rest of the conclusions of the model remain unchanged in this case.

B.4 Existence and uniqueness of productivity thresholds to produce domestically and to export

Equation (18) gives a parametric expression for the unique value of the productivity threshold to produce domestically:

$$\phi_D = \tilde{\phi}\left[\frac{f_D \sigma x}{E}\right]^{\frac{1}{\sigma-1}}$$

Both sides in equality (19) depend on productivity. The operating profit function on the left-hand side is a linear function, starting at the origin and increasing in ϕ. The fixed cost function on the right-hand side is a decreasing function of ϕ. This can be shown as follows:

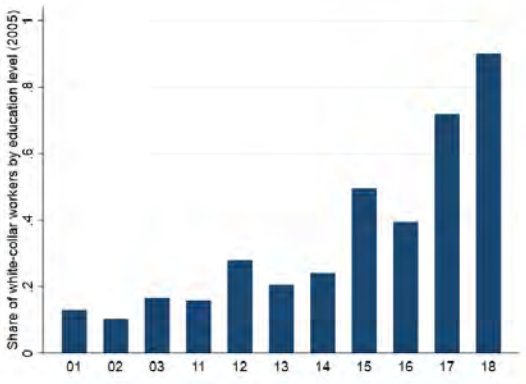
$$\frac{\partial f_X(\phi)}{\partial \phi} = \frac{\partial f_X(\phi)}{\partial y^*_{HI}(\phi)} \frac{\partial y^*_{HI}(\phi_X)}{\partial \phi_X} < 0 \text{ when } \frac{\partial f_X(\phi)}{\partial y^*_{HI}(\phi)} < 0 \text{ and } \frac{\partial y^*_{HI}(\phi)}{\partial \phi} > 0$$

This means that both functions intersect only once at ϕ_X, so threshold ϕ_X exists and is unique.■

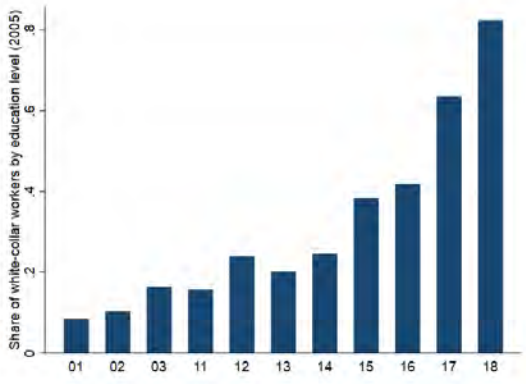
C Additional Descriptive Statistics

Figure A.1: Share of White-Collar Workers by Education Level.

(a) Native Workers



(b) Immigrant Workers



Notes: This figure displays the share of white-collar workers for each education level, for natives (left-side graph) and immigrants (right-side graph) respectively. The level of education refers to the highest degree declared by the individual. The classes of degree used are as follows: 01 - No qualifications - did not attend school or no tuition or schooling completed before the end of primary school; 02 - No qualifications - attended school until primary or secondary school; 03 - No qualifications - full schooling; 11 - Certificate of primary education; 12 - Junior secondary education certificate, lower school certificate; 13 - Certificate of professional competence (CAP); 14 - Diploma of occupational studies (BEP); 15 - General baccalaureate, higher certificate; 16 - Technological or vocational baccalaureate, vocational, technical or educational certificate, or equivalent diploma; 17 - University Technology Diploma, Health or social diploma bac+2 equivalent, License, professional license, equivalent to bac+3 or bac+4; 18 - Master, high school diploma level bac+5, Health PhD; Research Doctorate.

Table A.2: Firm Export Activity by Employment of Immigrant Workers.

	No immigrant worker			**At least 1 immigrant worker**			
	Obs.	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**	Signif.
Export value in euros	75,570	4.34e+06	1.95e+07	49,790	3.47e+07	2.24e+08	***
Export sh.	75,570	0.223	0.270	49,790	0.305	0.302	***
Nr. of destinations	75,570	11.54	13.92	49,790	20.40	22.61	***
Nr. of products	75,570	9.96	15.56	49,790	21.20	36.94	***
Nr. of markets	75,570	33.79	83.04	49,790	97.67	293.52	***

Notes: This table reports descriptive statistics for the full sample of firm-year observations as well as for two subsamples. In each year, we identify firms employing no immigrant worker and firms employing at least one immigrant worker.

Table A.3: Worker Characteristics by Nativity Status.

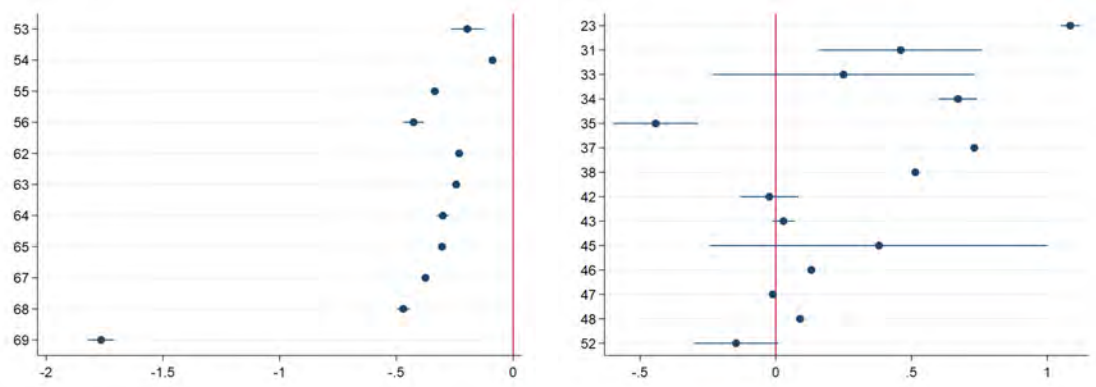
	Native workers			**Foreign-born workers**			
	Obs.	**Mean**	**Std. Dev.**	**Obs.**	**Mean**	**Std. Dev.**	Signif.
(log) Annualised wage	1,663,506	9.99	0.740	158,019	9.93	0.842	***
Age	1,663,506	41.27	10.72	158,019	44.36	10.31	***
Sh. of male workers	1,663,506	0.731	0.443	158,019	0.729	0.444	***
Sh. of white-collar workers	1,663,506	0.378	0.485	158,019	0.316	0.465	***
Job spell	1,663,506	6.50	6.51	158,019	5.65	6.18	***
Job spell of white-collar workers	628,801	6.70	6.48	49,955	5.90	6.30	***
Job spell of blue-collar workers	1,142,769	6.38	6.53	108,064	5.54	5.50	***

Notes: This table reports descriptive statistics for the full sample of worker-year observations as well as for native-year and immigrant-year observations.

Figure A.2: Immigrant Wage Gap by Occupation Groups.

(a) Blue Collar Workers

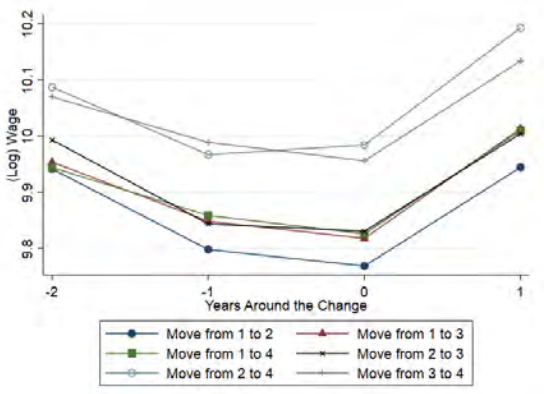
(b) White Collar Workers



Notes: Each figure plots the average wage gap by two-digit occupation, measured by the coefficient β_{cs} obtained from the following wage equation: $\ln w_{i(j)t} = \mathbb{D}_i \times \sum_{cs \in CS} \beta_{cs} \mathbb{1}\left[cs_{it} \in CS\right] + X'_{it}\Gamma + X'_{jt}\Theta + \varphi_{dt} + \varphi_{st} + \varepsilon_{it}$ where CS denotes the set of 2-digit occupations listed in Table A.1. The regression includes individual characteristics denoted X'_{it} (gender, age, experience and experience squared), firm controls denoted X'_{jt} (firm size and age of the firm) as well as district-time and industry-time fixed effects. Coefficients are reported together with their 10 percent confidence interval.

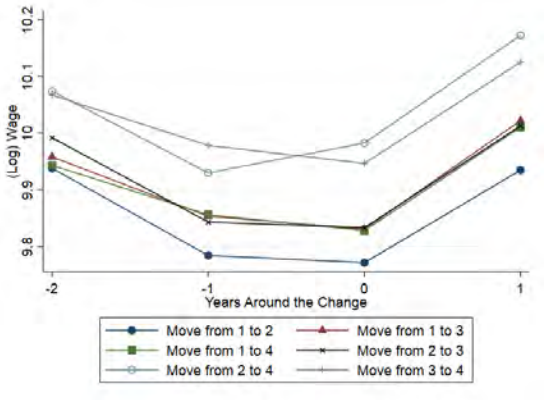
D Additional Results

Figure A.3: Wage Changes for Firm Switchers Along the Distribution of Export Intensity.



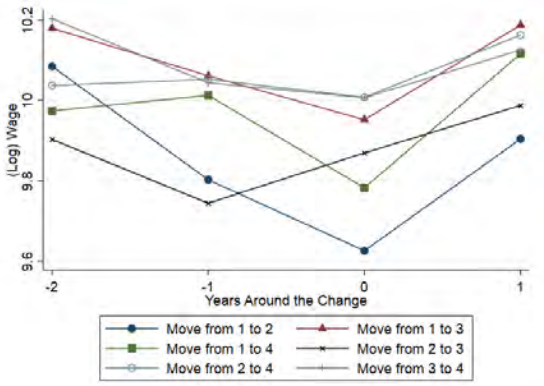
Notes: This figure shows the wage dynamic of individuals (immigrants and natives) before and after they switch firm. We split firms into four bins based on their export share, within their industry of main activity. The figure reports changes for workers switching from firms in a lower bin to firms in a higher bin of the export distribution.

Figure A.4: Wage Changes for Native Firm Switchers Along the Distribution of Export Intensity.



Notes: This figure shows the wage dynamic of native individuals before and after they switch firm. We split firms into four bins based on their export share, within their industry of main activity. The figure reports changes for workers switching from firms in a lower bin to firms in a higher bin of the export distribution.

Figure A.5: Wage Changes for Immigrants Firm Switchers Along the Distribution of Export Intensity.



Notes: This figure shows the wage dynamic of immigrant individuals before and after they switch firm. We split firms into four bins based on their export share, within their industry of main activity. The figure reports changes for workers switching from firms in a lower bin to firms in a higher bin of the export distribution.

Table A.4: Wages and the Characteristics of Individuals and Firms - OLS estimations.

	$\ln w_{i(j)t}$		
	(1)	(2)	(3)
Estimation results			
Foreign_i	-0.048***	-0.027***	-0.041***
	(0.004)	(0.004)	(0.003)
Export_{jt}	0.095***	0.043***	0.087***
	(0.010)	(0.008)	(0.008)
White_{it}	0.520***	0.489***	
	(0.004)	(0.004)	
Gender_i (male)	0.200***	0.170***	0.201***
	(0.003)	(0.002)	(0.003)
Age_i	0.012***	0.011***	0.010***
	(0.000)	(0.000)	(0.000)
Seniority_i	0.059***	0.058***	0.059***
	(0.001)	(0.001)	(0.001)
Seniority_i^2	-0.186***	-0.180***	-0.182***
	(0.003)	(0.003)	(0.003)
(log) Size_{jt}	0.047***	0.140***	0.044***
	(0.002)	(0.009)	(0.002)
Age_{jt}	-0.000***	-0.000	-0.001***
	(0.000)	(0.001)	(0.000)
Observations	1,822,463	1,822,463	1,822,461
Method	OLS	OLS	OLS
R-squared	0.342	0.431	0.408
FE	st-dt	f-dt-st	st-dt-ot

Notes: This table reports OLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses.s t, dt, f, and ot indicate industry-time, district-time, firm and occupation-time fixed effects respectively.

Table A.5: A Reassessment of the Nativity Wage Gap - Reduced model.

	$\ln w_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
Foreign_i	-0.169***	-0.099***	-0.101***	-0.075***
	(0.007)	(0.007)	(0.007)	(0.006)
Export_{jt}	0.304***		0.134**	0.135***
	(0.030)		(0.060)	(0.023)
$\text{Foreign}_i \times \text{Export}_{jt}$	0.249***	0.125***	0.123***	0.115***
	(0.026)	(0.025)	(0.025)	(0.020)
First-stage coefficients				
WID_{jt}	0.011***		0.003***	0.011***
	(0.000)		(0.000)	(0.000)
$\text{WID}_{jt} \times \text{Foreign}_i$	0.020***	0.021***	0.020***	0.020***
	(0.000)	(0.000)	(0.000)	(0.000)
Bootstrapped export thresholds				
	0.674***	0.790***	0.813***	0.652***
	(0.022)	(0.055)	(0.061)	(0.042)
Observations	1,822,463	1,822,462	1,822,463	1,822,461
Method	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS
K-Paap F Stat.	608.83	1,714.31	296.46	636.96
Controls	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports IV-2SLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

Table A.6: A Reassessment of the Nativity Wage Gap - Export dummy.

	$\ln w_{i(j)t}$	
	(1)	(2)
Estimation results		
$Foreign_i$	-0.111***	-0.059***
	(0.008)	(0.008)
$ExportD_{jt}$	0.034***	-0.001
	(0.006)	(0.004)
$White_{it}$	0.481***	0.462***
	(0.007)	(0.006)
$Foreign_i \times ExportD_{jt}$	0.026***	-0.007
	(0.009)	(0.009)
$Foreign_i \times White_{it}$	-0.003	-0.011
	(0.017)	(0.017)
$ExportD_{jt} \times White_{it}$	0.033***	0.022***
	(0.010)	(0.009)
$Foreign_i \times ExportD_{jt} * White_{it}$	0.151***	0.129***
	(0.020)	(0.020)
First-stage coefficients		
WID_{jt}	0.053***	0.054***
	(0.000)	(0.000)
$WID_{jt} \times Foreign_i$	0.051***	0.051***
	(0.000)	(0.000)
$WID_{jt} \times White_{it}$	0.049***	0.049***
	(0.000)	(0.000)
$WID_{jt} \times White_{it} \times Foreign_i$	0.048***	0.048***
	(0.000)	(0.000)
Observations	1,821,525	1,821,525
Method	IV-2SLS	IV-2SLS
K-Paap F Stat.	6,059.55	4,779.73
Controls	yes	yes
FE	dt-st	f-dt-st

Notes: This table reports IV-2SLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. $ExportD_{jt}$ denotes a dummy equal to one if firm j exports at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, dt and f indicate industry-time, district-time and firm fixed effects respectively.

Table A.7: A Reassessment of the Nativity Wage Gap - Alternative dependent variable.

	$\ln \mathrm{dw}_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
(β_1) $\mathrm{Foreign}_i$	-0.065***	-0.043***	-0.044***	-0.043***
	(0.004)	(0.003)	(0.003)	(0.004)
(β_2) Export_{jt}	0.083***		-0.008	0.042***
	(0.018)		(0.025)	(0.015)
(β_3) White_{it}	0.399***	0.408***	0.389***	
	(0.005)	(0.004)	(0.004)	
(β_4) $\mathrm{Foreign}_i \times \mathrm{Export}_{jt}$	0.057***	0.014	0.016	0.044***
	(0.013)	(0.011)	(0.011)	(0.012)
(β_5) $\mathrm{Foreign}_i \times \mathrm{White}_{it}$	0.029**	0.032***	0.028***	0.023***
	(0.011)	(0.011)	(0.010)	(0.008)
(β_6) $\mathrm{Export}_{jt} \times \mathrm{White}_{it}$	0.136***	0.056***	0.095***	0.081***
	(0.019)	(0.018)	(0.017)	(0.013)
(β_7) $\mathrm{Foreign}_i \times \mathrm{Export}_{jt} \times \mathrm{White}_{it}$	0.226***	0.202***	0.207***	0.096***
	(0.032)	(0.031)	(0.030)	(0.023)
First-stage coefficients				
WID_{jt}	0.010***		0.003***	0.010***
	(0.000)		(0.000)	(0.000)
$\mathrm{WID}_{jt} \times \mathrm{Foreign}_i$	0.018***	0.019***	0.018***	0.018***
	(0.000)	(0.000)	(0.000)	(0.000)
$\mathrm{WID}_{jt} \times \mathrm{White}_{it}$	0.021***	0.021***	0.020***	0.021***
	(0.001)	(0.001)	(0.001)	(0.001)
$\mathrm{WID}_{jt} \times \mathrm{White}_{it} \times \mathrm{Foreign}_i$	0.024***	0.025***	0.024***	0.024***
	(0.001)	(0.001)	(0.001)	(0.001)
Bootstrapped export thresholds				
Threshold for blue-collar workers	1.150***	3.168	2.462***	0.963***
	(0.082)	(67.484)	(0.902)	(0.110)
Threshold for white-collar workers	0.128***	0.038	0.071***	0.141***
	(0.013)	(0.029)	(0.021)	(0.023)
Observations	1,821,525	1,821,525	1,821,525	1,821,523
Method	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS
K-Paap F Stat.	325.37	426.53	147.91	337.58
Controls	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports IV-2SLS estimations. The dependent variable is the (log) real daily wage of an individual i working in a firm j at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

Table A.8: A Reassessment of the Nativity Wage Gap - Alternative instrumental variable.

	$\ln w_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
(β_1) Foreign_i	-0.108***	-0.059***	-0.060***	-0.076***
	(0.007)	(0.007)	(0.008)	(0.007)
(β_2) Export_{jt}	0.175***		0.149**	0.119***
	(0.025)		(0.066)	(0.022)
(β_3) White_{it}	0.495***	0.482***	0.465***	
	(0.006)	(0.006)	(0.006)	
(β_4) $\text{Foreign}_i \times \text{Export}_{jt}$	0.055**	-0.023	-0.023	0.053**
	(0.026)	(0.025)	(0.026)	(0.025)
(β_5) $\text{Foreign}_i \times \text{White}_{it}$	0.027*	0.023	0.013	0.010
	(0.016)	(0.016)	(0.016)	(0.013)
(β_6) $\text{Export}_{jt} \times \text{White}_{it}$	0.051**	0.020	0.058**	0.020
	(0.025)	(0.025)	(0.024)	(0.019)
(β_7) $\text{Foreign}_i \times \text{Export}_{jt} \times \text{White}_{it}$	0.253***	0.232***	0.250***	0.114***
	(0.046)	(0.046)	(0.045)	(0.038)
First-stage coefficients				
WID_{jt}	0.013***		0.004***	0.013***
	(0.000)		(0.000)	(0.000)
$\text{WID}_{jt} \times \text{Foreign}_i$	0.020***	0.021***	0.020***	0.020***
	(0.000)	(0.000)	(0.000)	(0.000)
$\text{WID}_{jt} \times \text{White}_{it}$	0.023***	0.022***	0.022***	0.022***
	(0.001)	(0.001)	(0.001)	(0.001)
$\text{WID}_{jt} \times \text{White}_{it} \times \text{Foreign}_i$	0.025***	0.025***	0.025***	0.025***
	(0.001)	(0.001)	(0.001)	(0.001)
Bootstrapped export thresholds				
Threshold for blue-collar workers	1.968	-2.578	-2.569	1.441***
	(2.290)	(54.755)	(5.016)	(0.386)
Threshold for white-collar workers	0.261***	0.173***	0.207***	0.394***
	(0.015)	(0.039)	(0.028)	(0.015)
Observations	1,663,736	1,663,736	1,663,736	1,663,734
Method	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS
K-Paap F Stat.	402.81	241.10	84.50	416.70
Controls	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports IV-2SLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

Table A.9: A Reassessment of the Nativity Wage Gap - Excluding non-exporting firms.

	$\ln w_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
(β_1) Foreign_i	-0.092***	-0.058***	-0.061***	-0.057***
	(0.010)	(0.009)	(0.010)	(0.010)
(β_2) Export_{jt}	0.139***		0.118*	0.103***
	(0.028)		(0.061)	(0.025)
(β_3) White_{it}	0.503***	0.502***	0.486***	
	(0.009)	(0.008)	(0.008)	
(β_4) $\text{Foreign}_i \times \text{Export}_{jt}$	0.010	-0.023	-0.018	-0.000
	(0.034)	(0.031)	(0.032)	(0.034)
(β_5) $\text{Foreign}_i \times \text{White}_{it}$	0.016	0.017	0.019	-0.014
	(0.021)	(0.021)	(0.020)	(0.017)
(β_6) $\text{Export}_{jt} \times \text{White}_{it}$	0.027	-0.039	-0.004	0.004
	(0.031)	(0.029)	(0.027)	(0.023)
(β_7) $\text{Foreign}_i \times \text{Export}_{jt} \times \text{White}_{it}$	0.286***	0.243***	0.232***	0.176***
	(0.058)	(0.056)	(0.055)	(0.047)
First-stage coefficients				
WID_{jt}	0.011***		0.003***	0.011***
	(0.000)		(0.000)	(0.000)
$\text{WID}_{jt} \times \text{Foreign}_i$	0.019***	0.021***	0.019***	0.019***
	(0.000)	(0.001)	(0.001)	(0.000)
$\text{WID}_{jt} \times \text{White}_{it}$	0.023***	0.023***	0.021***	0.022***
	(0.001)	(0.001)	(0.001)	(0.001)
$\text{WID}_{jt} \times \text{White}_{it} \times \text{Foreign}_i$	0.026***	0.027***	0.026***	0.026***
	(0.001)	(0.001)	(0.001)	(0.001)
Bootstrapped export thresholds				
Threshold for blue-collar workers	8.959	-2.510	-3.449	-287.297***
	(15.686)	(23.929)	(428.609)	(9.053)
Threshold for white-collar workers	0.258***	0.189***	0.198***	0.451***
	(0.019)	(0.038)	(0.035)	(0.008)
Observations	1,648,100	1,648,100	1,648,100	1,648,098
Method	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS
K-Paap F Stat.	315.74	278.83	145.35	314.46
Controls	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports IV-2SLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

Table A.10: A Reassessment of the Nativity Wage Gap - ISCO classification.

	$\ln w_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
(β_1) Foreign_i	-0.104***	-0.058***	-0.059***	-0.092***
	(0.008)	(0.008)	(0.008)	(0.008)
(β_2) Export_{jt}	0.127***		0.004	0.082***
	(0.030)		(0.061)	(0.025)
(β_3) White_{it}	0.348***	0.364***	0.350***	
	(0.006)	(0.005)	(0.005)	
(β_4) $\text{Foreign}_i \times \text{Export}_{jt}$	0.067**	-0.014	-0.013	0.104***
	(0.029)	(0.027)	(0.027)	(0.028)
(β_5) $\text{Foreign}_i \times \text{White}_{it}$	-0.003	0.008	0.001	0.051***
	(0.014)	(0.015)	(0.014)	(0.013)
(β_6) $\text{Export}_{jt} \times \text{White}_{it}$	0.310***	0.191***	0.226***	0.102***
	(0.024)	(0.023)	(0.022)	(0.016)
(β_7) $\text{Foreign}_i \times \text{Export}_{jt} * \text{White}_{it}$	0.255***	0.221***	0.234***	-0.007
	(0.044)	(0.044)	(0.043)	(0.038)
First-stage coefficients				
WID_{jt}	0.010***		0.003***	0.010***
	(0.000)		(0.000)	(0.000)
$\text{WID}_{jt} \times \text{Foreign}_i$	0.018***	0.019***	0.018***	0.018***
	(0.000)	(0.000)	(0.000)	(0.000)
$\text{WID}_{jt} \times \text{White}_{it}$	0.021***	0.021***	0.020***	0.019***
	(0.000)	(0.001)	(0.000)	(0.000)
$\text{WID}_{jt} \times \text{White}_{it} \times \text{Foreign}_i$	0.024***	0.024***	0.024***	0.024***
	(0.001)	(0.001)	(0.001)	(0.001)
Bootstrapped export thresholds				
Threshold for blue-collar workers	1.557**	-4.144	-4.653	0.880***
	(0.622)	(7.618)	(12.594)	(0.098)
Threshold for white-collar workers	0.332***	0.238***	0.264***	0.418***
	(0.010)	(0.028)	(0.015)	(0.030)
Observations	1,767,927	1,764,587	1,767,504	1,767,926
Method	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS
K-Paap F Stat.	305.74	493.18	138.92	321.69
Controls	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports IV-2SLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. Blue- and white-collar workers are defined using the ISCO classification. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

Table A.11: A Reassessment of the Nativity Wage Gap - Trade related occupations.

	$\ln w_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
(β_1) Foreign_i	-0.111***	-0.066***	-0.068***	-0.077***
	(0.007)	(0.007)	(0.007)	(0.007)
(β_2) Export_{jt}	0.158***		0.040	0.116***
	(0.028)		(0.059)	(0.054)
(β_3) Info_{it}	0.380***	0.404***	0.387***	
	(0.006)	(0.006)	(0.006)	
(β_4) $\text{Foreign}_i \times \text{Export}_{jt}$	0.044*	-0.027	-0.028	0.067***
	(0.026)	(0.024)	(0.025)	(0.024)
(β_5) $\text{Foreign}_i \times \text{Info}_{it}$	0.001	0.007	-0.002	0.003
	(0.018)	(0.019)	(0.019)	(0.016)
(β_6) $\text{Export}_{jt} \times \text{Info}_{it}$	0.429***	0.303***	0.342***	0.108***
	(0.025)	(0.024)	(0.023)	(0.021)
(β_7) $\text{Foreign}_i \times \text{Export}_{jt} * \text{Info}_{it}$	0.252***	0.242***	0.259***	0.139***
	(0.050)	(0.051)	(0.051)	(0.044)
First-stage coefficients				
WID_{jt}	0.011***		0.003***	0.011***
	(0.000)		(0.000)	(0.000)
$\text{WID}_{jt} \times \text{Foreign}_i$	0.019***	0.020***	0.019***	0.019***
	(0.000)	(0.000)	(0.000)	(0.000)
$\text{WID}_{jt} \times \text{Info}_{it}$	0.020***	0.021***	0.020***	0.020***
	(0.000)	(0.001)	(0.001)	(0.000)
$\text{WID}_{jt} \times \text{Info}_{it} \times \text{Foreign}_i$	0.024***	0.025***	0.024***	0.024***
	(0.001)	(0.001)	(0.001)	(0.001)
Bootstrapped export thresholds				
Threshold for blue-collar workers	2.551	-2.501	-2.375	1.160***
	(2.685)	(31.383)	(6.817)	(0.272)
Threshold for white-collar workers	0.371***	0.277***	0.304***	0.363***
	(0.013)	(0.037)	(0.022)	(0.014)
Observations	1,821,525	1,821,525	1,821,525	1,821,523
Method	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS
K-Paap F Stat.	301.49	262.52	148.18	320.34
Controls	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports IV-2SLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. Info_{it} is a dummy equal to one if the individual holds a trade-related job. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

Table A.12: A Reassessment of the Nativity Wage Gap - Excluding the region of Paris.

	$\ln w_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
(β_1) Foreign_i	-0.115***	-0.066***	-0.069***	-0.089***
	(0.008)	(0.008)	(0.008)	(0.008)
(β_2) Export_{jt}	0.192***		0.097	0.123***
	(0.029)		(0.063)	(0.026)
(β_3) White_{it}	0.491***	0.478***	0.460***	
	(0.006)	(0.006)	(0.006)	
(β_4) $\text{Foreign}_i \times \text{Export}_{jt}$	0.080***	-0.001	0.003	0.086***
	(0.031)	(0.028)	(0.028)	(0.029)
(β_5) $\text{Foreign}_i \times \text{White}_{it}$	0.044***	0.032*	0.026	0.028*
	(0.017)	(0.017)	(0.017)	(0.015)
(β_6) $\text{Export}_{jt} \times \text{White}_{it}$	0.040*	0.015	0.054**	0.034*
	(0.022)	(0.023)	(0.022)	(0.018)
(β_7) $\text{Foreign}_i \times \text{Export}_{jt} * \text{White}_{it}$	0.191***	0.201***	0.206***	0.056
	(0.047)	(0.047)	(0.046)	(0.041)
First-stage coefficients				
WID_{jt}	0.010***		0.003***	0.010***
	(0.000)		(0.000)	(0.000)
$\text{WID}_{jt} \times \text{Foreign}_i$	0.018***	0.019***	0.018***	0.018***
	(0.000)	(0.000)	(0.000)	(0.000)
$\text{WID}_{jt} \times \text{White}_{it}$	0.021***	0.021***	0.020***	0.021***
	(0.000)	(0.001)	(0.000)	(0.000)
$\text{WID}_{jt} \times \text{White}_{it} \times \text{Foreign}_i$	0.025***	0.025***	0.026***	0.025***
	(0.001)	(0.001)	(0.001)	(0.001)
Bootstrapped export thresholds				
Threshold for blue-collar workers	1.452***	-128.067	20.627	1.038***
	(0.225)	(297.014)	(19.292)	(0.264)
Threshold for white-collar workers	0.263***	0.171***	0.204***	0.430***
	(0.017)	(0.033)	(0.029)	(0.023)
Observations	1,581,661	1,581,661	1,581,661	1,581,659
Method	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS
K-Paap F Stat.	275.69	521.15	148.84	287.55
Controls	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports IV-2SLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

Table A.13: A Reassessment of the Nativity Wage Gap - Males only.

	$\ln w_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
(β_1) Foreign_i	-0.101***	-0.043***	-0.047***	-0.072***
	(0.008)	(0.008)	(0.009)	(0.008)
(β_2) Export_{jt}	0.213***		0.084	0.150***
	(0.029)		(0.064)	(0.025)
(β_3) White_{it}	0.484***	0.485***	0.463***	
	(0.006)	(0.007)	(0.006)	
(β_4) $\text{Foreign}_i \times \text{Export}_{jt}$	0.063**	-0.054*	-0.043	0.057**
	(0.029)	(0.030)	(0.030)	(0.029)
(β_5) $\text{Foreign}_i \times \text{White}_{it}$	0.010	-0.007	-0.012	0.005
	(0.016)	(0.017)	(0.016)	(0.014)
(β_6) $\text{Export}_{jt} \times \text{White}_{it}$	0.046*	-0.011	0.041	0.008
	(0.026)	(0.028)	(0.027)	(0.020)
(β_7) $\text{Foreign}_i \times \text{Export}_{jt} * \text{White}_{it}$	0.283***	0.312***	0.313***	0.132***
	(0.048)	(0.050)	(0.049)	(0.042)
First-stage coefficients				
WID_{jt}	0.010***		0.003***	0.011***
	(0.000)		(0.000)	(0.000)
$\text{WID}_{jt} \times \text{Foreign}_i$	0.018***	0.019***	0.018***	0.018***
	(0.000)	(0.001)	(0.000)	(0.000)
$\text{WID}_{jt} \times \text{White}_{it}$	0.021***	0.021***	0.020***	0.020***
	(0.001)	(0.001)	(0.001)	(0.000)
$\text{WID}_{jt} \times \text{White}_{it} \times \text{Foreign}_i$	0.024***	0.025***	0.024***	0.024***
	(0.001)	(0.001)	(0.001)	(0.001)
Bootstrapped export thresholds				
Threshold for blue-collar workers	1.608**	-0.795*	-1.095	1.268
	(0.716)	(0.445)	(25.829)	(0.832)
Threshold for white-collar workers	0.265***	0.194***	0.218***	0.354***
	(0.013)	(0.027)	(0.021)	(0.016)
Observations	1,331,460	1,298,363	1,327,892	1,331,454
Method	IV-2SLS	IV-2SLS	IV-2SLS	IV-2SLS
K-Paap F Stat.	288.24	363.12	132.44	294.06
Controls	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports IV-2SLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.

Table A.14: Nativity Wage Gap and Export Complexity - Placebo test.

	$\ln w_{i(j)t}$			
	(1)	(2)	(3)	(4)
Estimation results				
(β_1) Foreign_i	-0.188***	-0.149***	-0.142**	-0.186***
	(0.063)	(0.071)	(0.070)	(0.063)
(β_2) Dom_{jt}	0.039***		0.009***	0.032***
	(0.003)		(0.002)	(0.003)
(β_3) White_{it}	0.478***	0.484***	0.364***	
	(0.048)	(0.050)	(0.046)	
(β_4) $\text{Foreign}_i \times \text{Dom}_{jt}$	0.007	0.006	0.006	0.008*
	(0.004)	(0.005)	(0.005)	(0.004)
(β_5) $\text{Foreign}_i \times \text{White}_{it}$	-0.033	0.086	0.012	-0.001
	(0.122)	(0.124)	(0.122)	(0.108)
(β_6) $\text{Dom}_{jt} \times \text{White}_{it}$	-0.001	-0.002	0.005	0.007**
	(0.003)	(0.003)	(0.003)	(0.003)
(β_7) $\text{Foreign}_i \times \text{Dom}_{jt} * \text{White}_{it}$	0.003	-0.005	-0.001	0.000
	(0.008)	(0.008)	(0.008)	(0.007)
Observations	302,033	302,033	302,033	302,028
Method	OLS	OLS	OLS	OLS
R-squared	0.290	0.554	0.463	0.321
Controls	yes	yes	yes	yes
FE	st-dt	ft-d	f-st-dt	st-dt-ot

Notes: This table reports OLS estimations. The dependent variable is the (log) annualised real wage of an individual i working in a firm j at time t. Dom_{jt} denotes the (log) domestic sales of firm j at time t. ***, ** and * respectively denote significance at the 1%, 5% and 10% level. Robust standard errors clustered at the firm level are reported in parentheses. When compatible with our set of fixed effects, controls include the gender, age, experience and experience squared of the individual, and the (log) number of employees and age of the firm. st, d, dt, f, ft, and ot indicate industry-time, district, district-time, firm, firm-time and occupation-time fixed effects respectively.