NTMs, Income Inequality and Social Cohesion*

The effect of Non-Tariff Measures on Skills and Inequality

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Abstract

Is there a role for trade, over and above education and skills, in explaining wage inequality across and within countries? Until recently the consensus view was that trade could not explain inequality. This paper puts together two streams of literature – labor and trade – and uses new datasets to look at whether imports and Non-Tariff Measures (NTMs) affect the top and the bottom of the industry wage distribution.

In particular, the paper provides an empirical assessment of the effect of NTMs on the size of firm-level wage skill premia and on the skill composition of labor demand, making use of detailed firm level matched employer-employee data with information on exports by destination country and Specific Trade Concern (STC) data released by the WTO to measure trade restrictive non-tariff measures. We identify the effect of NTMs exploiting (unexpected) changes in bilateral NTMs in destination countries.

We find that NTMs have little impact on skill premia, while affecting the skill composition of employment. In particular, Technical Barriers to Trade (TBTs) raise the share of managers at the expense of white collars and professionals, while Sanitary and PhytoSanitary (SPS) measures raise the share of qualified blue collars and reduce the share of white collars.

Key words: skill premium, labor demand, employment composition, trade barriers

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1 Introduction

Economists have long known that international trade, while generating aggregate welfare gains, also creates losers. Yet, until recently, the consensus was that trade hadn't mattered much for labor-market outcomes. The conventional wisdom among economists until the mid 2000s was that (i) trade had not been a major contributor to declining manufacturing employment or rising wage inequality; (ii) workers employed in regions specializing in import-competing sectors could readily reallocate to other regions if displaced by trade; (iii) any labor market impacts of trade would be felt by low-skill workers generally, not by trade-exposed workers specifically. Recent evidence (Acemoglu et al., 2016; Autor et al., 2013) challenges this view showing that import competition from China provoked sizeable job losses in the US manufacturing sector: for each 1% increase in import penetration employment fell by 1.3%, with total manufacturing job losses from trade with China at 1 million (17% of the total for the period 1991-2011). Additionally, Autor, Dorn, Hanson, and Song (2014) show that workers more exposed to trade have lower earnings and higher job instability.[1]

During the same period, the worldwide proliferation of Preferential Trade Agreements limiting the use of tariff measures has induced policy-makers to increasingly rely on Non-Tariff Measures (NTMs) as a policy tool (Orefice, 2017; Francois et al., 2011). Indeed, Fontagné, Orefice, Piermartini, and Rocha (2015) show that NTMs do act as effective trade barriers: for instance, restrictive Sanitary and Phyto-Sanitary (SPS) measures have a negative effect on the extensive margin of trade by discouraging the presence of exporters in SPS-imposing foreign markets, as well as on the intensive margin. Thus, changes in NTMs, e.g. on safety/health-related issues, may affect both the level of the demand for labour (as exports fall) and its composition (in terms of skills), because they may require exporting firms to change the labor mix to adapt the production process to the new rules. This composition effect is likely stronger in larger firms, that have been found by Fontagné et al. (2015) to be less affected by NTMs, perhaps because of their ability to change the composition of the labour force and meet the new standards. The differential change in the demand for skills induced by NTMs may in turn also affect the returns to skills and ultimately inequality. Additionally, in response to changes in NTMs that force firms to tilt the composition of the workforce towards a more expensive labour mix, (in the longer-run) firms may substitute away expensive labour with relatively cheaper capital.

These facts motivate us to study the so far largely under-investigated nexus between NTMs and labor market outcomes. In particular, the paper provides an empirical assessment of the effect of NTMs on the size and skill composition of firm-level labor demand, on the relative wages of skilled and unskilled individuals and on the capital-labor ratio, making use of detailed firm level matched employer-employee data, with information on exports by destination country and on balance sheet items. We identify the effect of NTMs on the wage skill premia, the demand for labor, the composition of the workforce, and on the capital-labor ratio exploiting (unexpected) changes in bilateral NTMs between the EU and the destination countries.

[1] Galiani and Sanguinetti (2003) and Attanasio et al. (2004) provide estimates of the impact of trade liberalization on wage inequality in Argentina and Colombia, respectively.

Controlling for firm-level time-invariant unobserved heterogeneity, we find that NTMs have little impact on wage skill premia. Instead, they affect the skill composition of employment and they do so differently depending on the nature of the NTM. In particular, when focusing on the *intensive* margin, i.e. neglecting the impact due to firms entry/exit in export markets, we find that Technical Barriers to Trade (TBTs) raise the share of managers at the expense of white collars and professionals, while Sanitary and PhytoSanitary (SPS) measures raise the share of qualified blue collars and reduce the share of white collars.

The effect of TBTs is robust to accounting for firms entry and exit, while the inclusion of the extensive margin makes of SPSs more complex as it also raise the the share of managers.

2 Data description and sample selection

We use Specific Trade Concern (STC) data released by the WTO to identify trade restrictive non-tariff measures. When one or several WTO members raise a concern at the SPS/TBT WTO Committee over a non-tariff measure, they specify the country imposing the measure, the product of concern and the objective of the measure concerned.[2] All this information is recorded and made available by WTO.[3] As an example, in June 2005, the EU raised a concern at the SPS committee of the WTO on a measure imposed by the USA on border inspection of fruits and vegetables (conformity assessment). The measure consisted on US Animal and Plant Health Inspection Service testing the conformity of pesticides used in cultivation as only US produced pesticides were allowed. The aim of the measure was clearly to protect consumers from dangerous pesticides. But, as many of the US pesticides were not permitted in the EU, the measure was *de facto* preventing the export of EU agri-food firms into the USA. The measure was transparent and WTO-consistent, but, after the concern raised at WTO, the US accepted the imports of fruits and vegetable produced with extra-US pesticides but listed in the US environmental protection agency. As opposed to SPS, TBTs regulate mainly technical standards with only a marginal focus on consumers' health protection. For example, TBTs on packaging might hamper trade with no effect on welfare for the imposing countries. On 4 April 2012, Honduras requested consultations with Australia concerning certain Australian laws and regulations that impose trademark restrictions and other plain packaging requirements on tobacco products and packaging. Honduras challenged the following measures: (i) an Act to discourage the use of tobacco products, and for related purposes, Australia's Tobacco Plain Packaging Act 2011, and its implementing regulations; (ii) the Trade Marks Amendment (Tobacco Plain Packaging) Act 2011. According to the Honduras government such measures imposed by Australia were inconsistent with Australia's obligations under TRIPS and GATT agreement.[4] Many other countries joined Honduras on this trade concerns soon after in 2012 (Brazil, Guatemala, Nicaragua, New Zealand, Ukraine, European Union,

[2]SPS and TBT committees provide to WTO members a forum where discussing issues related to SPS and TBT measures imposed by other members.

[3]The STC dataset is available at `http://www.wto.org/english/res_e/publications_e/wtr12_dataset_e.htm`.

[4]Namely Articles 2.1, 3.1, 15.4, 16.1, 20, 22.2(b) and 24.3 of the TRIPS Agreement; Article 2.1 and 2.2 of the TBT Agreement; and Article III:4 of the GATT 1994.

Canada, Indonesia, Norway, Philippines) and a panel at the WTO was established to discuss this concern.[5] On 1 December 2016, the chair of the panel informed the dispute settlement body that, considered the legal complexity of this dispute, the panel expected to issue its final report to the parties not before May 2017.

A collection of all STCs provides a systematic set of all the SPS and TBT measures perceived as sizable trade barriers by exporters. Indeed, the measures has to be sufficiently important for exporting countries to raise a "concern" at the WTO. For this reason, we can fairly consider to rely on *barriers* to trade. This is an important advantage with respect to using other NTMs sources based on exhaustive list of measures in place. Indeed other datasets (as TRAINS or Perinorm), by listing all the measures imposed by a country, mix together measures that restrict trade with those that might even increase trade.[6] The objective of the present paper is to test whether an increase in the export cost affects the labor composition of workforce, so relying on non-tariff *barriers* rather than simple measures constitutes a key feature of STC data.

Overall, the SPS and TBT STCs databases contain information respectively on 312 and 318 specific trade concerns raised over the period 1995-2011. For each concern, we have information on: (i) the country raising the concern, (ii) the country imposing the measure, (iii) the product codes (HS 4-digit) involved in the concern, (iv) the year in which the concern has been raised to the WTO and (iv) whether it has been resolved and how. So we build two panel datasets tracking the presence of an ongoing STC (on SPS and TBT respectively) for a specific country pair (imposing-complaining country) and product combination over time. Then we disentangle the STCs raised by EU (which are the relevant ones for French firms) from those raised by non-EU countries (used as an instrumental variable in what follows). Finally, we collapse these datasets by HS 4-digit, destination and year, keeping the information on whether a given product-destination combination has at least one ongoing STC raised by EU and/or extra-EU member (in a given year).

The STC datasets are then used to compute the number of non-tariff barriers faced by each French firm. To this end we matched STC data with French Custom data providing information on the list of product-destination served by a given French exporter over the period 1995-2010.[7] For each firm we have information on the export value into a given product-destination. The dataset classifies product categories using Combined Nomenclature at 8 digits (CN8) but it has been aggregated here at HS 4-digit level to be consistent with STCs dataset. Then we merge individual exports with STCs datasets by HS 4-digit and destination, so that for each firm we computed the number of exported varieties (i.e. product-destination combinations) under TBT or SPS STC. Each firm has a unique identification code (called SIREN) that allows us to match custom/STC data with DADS data.

We next measure the composition of the workforce in French exporting firms exploiting the DADS (Déclarations Annuelles des Données Sociales), a matched employer-employee large-scale administrative database. These data

[5] See `https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds435_e.htm`.

[6] Technical standards might reveal the taste of consumer at destination.

[7] Provided by the DGDDI (*Direction Dénérale Des Douanes et Droits Indirects*), these data are subject to statistical secrecy and are quasi exhaustive of the universe of French exporters. There is only a declaration threshold of 1000 euros that applies to any extra-EU destinations (for European countries such threshold is higher and around 150000 euros).

are based upon mandatory employer reports of the earnings of each employee subject to French payroll taxes which essentially apply to all employed persons in the economy (including self-employed). Each observation in DADS corresponds to a unique individual-plant combination in a given year, with detailed information about the plant-individual relationship, including the number of days during the calendar year that individual worked in that plant, the (gross and net) wage, the type of occupation (classified according to socio-professional categories), the full time/part time status of the employee. Moreover, it provides the fiscal identifier of the firm that owns the plant, the geographical location of both the employing plant and firm, as well as the industry classification of the activity undertaken by the plant/firm.

The data span the 1995-2010 period. We restrict the analysis to companies having at least 5 employees after removing workers with -missing and zero gross wages.

Finally, information on firms' capital expenditure is obtained from firms' balance sheets and income statements (FICUS/FARE). FICUS is constructed from administrative fiscal data, based on mandatory reporting to tax authorities for all French tax schemes, and it covers the universe of French firms, with about 2.2 million firms per year. FICUS contains accounting information on each firm's assets, leverage and cash holdings, as well as capital expenditure, cash flows and interest payments.

2.1 Descriptive statistics

Tables 1 to 3 show descriptives on the employment composition. In these tables we report the average share of employees by qualification, defined as the number of workers for each qualification over the total number of employees in each firm. Table 2 shows the average share using full time equivalent workers. Table 3 reports the same statistics in terms of hours worked. Qualified blue collars are the most represented group and they are on average around 30% of total number of employees within the firms; the share of non-qualified blue collars is decreasing, while the share of managers is increasing over time, reaching almost 20% in 2010. The share of professionals and white collars changed very little, however, respectively decreased and increased between 2008 and 2010.

Tables 4 and 5 show descriptives on wages and wage differentials. The first table shows the log of hourly wages by qualification. The last table shows the wage differentials between one qualification and the one just below (ranked by average hourly wages): managers vs professionals, professionals vs white collars, white vs qualified blue collars, and qualified vs non-qualified blue collars. This last table shows two main patterns: a decrease in the difference between managers and professionals and a decrease in the difference between qualified and non-qualified workers which stops in 2009.

Table 6 shows descriptives on the specific trade concerns raised by EU countries. Interestingly, the table shows that the share of exports in markets where TBTs are present grows over time (column 1), while the share of exports in markets where SPSs are present is fairly stable, ranging between about 2 and 4% (column 2).

TABLE 1. Share of employees

Year	Management	Professionals	Non Qualified Blue Collars	Qualified Blue Collars	White Collars
1994	0.1280	0.1952	0.1659	0.2765	0.2056
1995	0.1322	0.1947	0.1686	0.2819	0.2022
1996	0.1365	0.1994	0.1605	0.2799	0.2014
1997	0.1357	0.2024	0.1573	0.2742	0.2006
1998	0.1355	0.2043	0.1528	0.2780	0.1997
1999	0.1349	0.2069	0.1490	0.2793	0.1998
2000	0.1326	0.2095	0.1482	0.2806	0.2000
2001	0.1358	0.2114	0.1443	0.2820	0.1981
2002	0.1520	0.2294	0.1334	0.2965	0.1885
2003	0.1511	0.2312	0.1329	0.2963	0.1882
2004	0.1567	0.2341	0.1293	0.2928	0.1868
2005	0.1555	0.2263	0.1284	0.2939	0.1956
2006	0.1546	0.2243	0.1281	0.2925	0.2003
2007	0.1598	0.2244	0.1242	0.2875	0.2039
2008	0.1571	0.2267	0.1230	0.2922	0.2007
2009	0.1700	0.1771	0.1308	0.2796	0.2423
2010	0.1722	0.1797	0.1263	0.2751	0.2464

TABLE 2. Share of full-time employees

Year	Management	Professionals	Non Qualified Blue Collars	Qualified Blue Collars	White Collars
1994	0.1515	0.2041	0.1406	0.2851	0.1971
1995	0.1550	0.1974	0.1459	0.2934	0.1937
1996	0.1583	0.2030	0.1391	0.2909	0.1926
1997	0.1574	0.2064	0.13560	0.2855	0.1918
1998	0.1568	0.2098	0.1309	0.2886	0.1903
1999	0.1559	0.2131	0.1267	0.2901	0.1900
2000	0.1535	0.2188	0.1246	0.2897	0.1898
2001	0.1563	0.2213	0.1214	0.2906	0.1875
2002	0.1662	0.2375	0.1135	0.3053	0.1773
2003	0.1640	0.2399	0.1127	0.3057	0.1774
2004	0.1680	0.2432	0.1097	0.3023	0.1767
2005	0.1677	0.2340	0.1090	0.3040	0.1852
2006	0.1660	0.2334	0.1084	0.3027	0.1893
2007	0.1706	0.2338	0.1051	0.2968	0.1934
2008	0.1665	0.2353	0.1045	0.3028	0.1907
2009	0.1824	0.1787	0.1152	0.2892	0.2342
2010	0.1847	0.1827	0.1135	0.2844	0.2344

TABLE 3. Share of hours worked

Year	Management	Professionals	Non Qualified Blue Collars	Qualified Blue Collars	White Collars
1994	0.1500	0.2027	0.1426	0.2876	0.1952
1995	0.1551	0.1974	0.1457	0.2940	0.1932
1996	0.1586	0.2020	0.1392	0.2919	0.1923
1997	0.1577	0.2056	0.1356	0.2866	0.1915
1998	0.1586	0.2029	0.1307	0.2921	0.1923
1999	0.1581	0.2049	0.1266	0.2939	0.1922
2000	0.1560	0.2082	0.1252	0.2940	0.1929
2001	0.1591	0.2091	0.1222	0.2953	0.1912
2002	0.1671	0.2376	0.1132	0.3051	0.1767
2003	0.1648	0.2400	0.1124	0.3056	0.1769
2004	0.1687	0.2433	0.1094	0.3022	0.1762
2005	0.1684	0.2340	0.1087	0.3040	0.1847
2006	0.1668	0.2334	0.1081	0.3027	0.1887
2007	0.1712	0.2339	0.1049	0.2969	0.1928
2008	0.1670	0.2353	0.1043	0.3030	0.1901
2009	0.1837	0.1806	0.1143	0.2884	0.2327
2010	0.1861	0.1848	0.1125	0.2835	0.2328

TABLE 4. Log hourly wage

Year	Management	Professionals	Non Qualified Blue Collars	Qualified Blue Collars	White Collars
1995	8.603	7.822	7.027	7.476	7.442
1996	8.578	7.815	7.010	7.456	7.444
1997	8.566	7.806	7.014	7.466	7.443
1998	8.566	7.819	7.005	7.465	7.445
1999	8.570	7.822	6.996	7.463	7.447
2000	8.570	7.826	6.971	7.444	7.438
2001	8.583	7.854	6.997	7.472	7.463
2002	8.630	7.888	6.996	7.460	7.431
2003	8.626	7.899	6.993	7.492	7.455
2004	8.603	7.895	6.988	7.500	7.462
2005	8.611	7.914	6.996	7.523	7.482
2006	8.613	7.926	7.007	7.544	7.497
2007	8.607	7.933	7.012	7.543	7.498
2008	8.616	7.944	7.035	7.575	7.526
2009	8.590	7.941	7.223	7.651	7.600
2010	8.595	7.945	7.228	7.621	7.566

TABLE 5. Log hourly wage differentials

Year	Management vs Professionals	Professionals vs White Collars	White Collars vs Qualified Blue Collars	Qualified Blue Collars vs non Qualified Blue Collars
1995	0.7850	0.3736	-0.0182	0.4413
1996	0.7713	0.3669	0.0037	0.4377
1997	0.7684	0.3601	-0.0034	0.4438
1998	0.7560	0.3718	0.0005	0.4499
1999	0.7545	0.3737	0.0058	0.4615
2000	0.7498	0.3887	0.0179	0.4681
2001	0.7363	0.3894	0.0141	0.4652
2002	0.7286	0.4489	-0.0059	0.4628
2003	0.7104	0.4345	-0.0100	0.4947
2004	0.6953	0.4247	-0.0091	0.5118
2005	0.6814	0.4206	-0.0118	0.5264
2006	0.6724	0.4187	-0.0191	0.5367
2007	0.6619	0.4253	-0.0154	0.5303
2008	0.6564	0.4100	-0.0187	0.5386
2009	0.6411	0.3303	-0.0304	0.4143
2010	0.6376	0.3691	-0.0370	0.3995

TABLE 6. Specific trade concerns raised by EU countries

	Share of Exports	
Year	TBT	SPS
1995	0.0268644	0.0050225
1996	0.0412008	0.0111614
1997	0.0100342	0.0191006
1998	0.0226202	0.0284885
1999	0.0141486	0.0313973
2000	0.0025684	0.0311679
2001	0.005614	0.0315569
2002	0.0244277	0.0429013
2003	0.0953962	0.0453702
2004	0.0241423	0.0348584
2005	0.0254882	0.0378943
2006	0.0325546	0.0394451
2007	0.0285242	0.0436628
2008	0.0350403	0.0455226
2009	0.0594562	0.0477127
2010	0.0643985	0.0348393

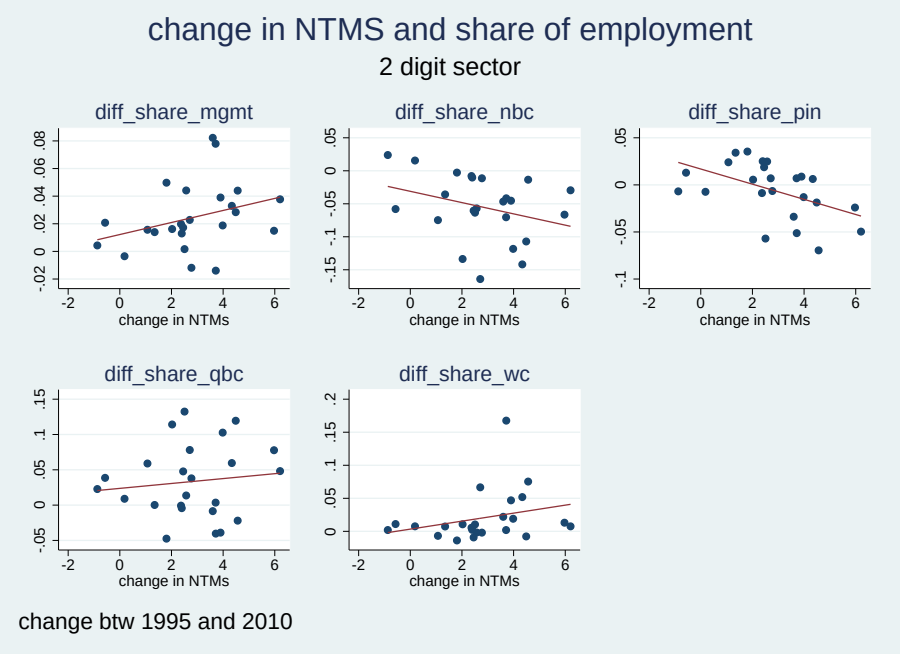

FIGURE 1. NTMs and employment

Figure 1 plots the change in NTMs against the change in the average share of employees by qualification. The figure shows that, unconditionally, rising NTMs are associated with a larger increase in the share of managers, qualified blue collars and white collars (panel 1, 4 and 5), and a lower increase in the share of non-qualified blue collars and professionals (panels 2 and 3). In the next section, we are going to investigate the causalty of these relationships.

3 Empirical strategy and preliminary results

Our basic empirical specification borrows from Fontagné et al. (2015) with the caveat that the impossibility to attribute workers (and capital) to the production of a specific good for a specific export market forces us to work at the firm/year level:

$$y_{i,s,t} = \alpha_i + \gamma_{s,t} + \beta_1 NTM_{i,t-1} + \beta_2 \text{Tariffs}_{i,k,t-1} + \varepsilon_{i,s,t} \tag{1}$$

where $y_{i,t}$ is either firm-level employment or a measure that captures the skill composition (e.g. the share of blue collars) or wage differentials firm i at time t; α_i is a firm fixed effect; $\gamma_{s,t}$ is a set of (1-digit) sector $\times$ year dummies.

The variable $NTM_{i,t-1}$ measures the concerns faced by firm i up to time $t-1$. This is measured either as the sum of the concerns faced in all products/markets pairs in which the firm exports, or as a weighted average using as weights the initial export shares, i.e. the average export shares in the first three years in which the firm is observed in the custom data described above. Thus, in the first case, the variable $NTM_{i,t-1}$ varies both

when a concern is raised on a market in which the firm is already present, and when the firm enters or exits a market in which a concern exists. In the second case, given that the export shares are fixed at the initial level, the entry/exit margin is shut down.

Our coefficient of interest is β_1 that measures the impact of NTMs on the dependent variable. Of course, the validity of this specification relies on the exogeneity of NTMs. While our rich set of firm-level fixed effects (α_i) plus time-varying sector effects ($\gamma_{s,t}$) control for any time invariant firm-level factor and time varying sector-specific factor that may jointly affect NTMs and labor market outcomes, one may still worry about the residual endogeneity of NTMs. For this reason, we complement the above specification with an IV strategy, instrumenting NTMs raised by EU countries on a specific product/destination, with the concern raised by an extra EU countries on the same product/destination.

We run the above specification on two different samples. The first is a sample of firms continuously exporting over the 16 year period of our sample. The second is the full sample of exporting firms selected from the Custom data as described in section 2; results from estimates on these samples are presented in section 3.1 (using unweighted NTMs) and 3.2 (using weighted NTMs).

Additionally, we use an alternative approach to address the impossibility to attribute workers (and capital) to the production of a specific good for a specific export market, by focusing on the *core* product/market of each firm, i.e. on the product/market pair that displays the highest average export share in the first three years in which the firm is observed in the custom data. This allows us to work again at the firm/core product/year level:

$$y_{i,k,t} = \alpha_i + \gamma_{k,t} + \beta_1 NTM_{i,k,t-1} + \beta_2 \text{Tariffs}_{i,k,t-1} + \varepsilon_{i,k,t} \tag{2}$$

The above specification is a modified version of equation (1), with the subindex k denoting the core product of firm i. Results from this specification are presented in section 3.3

3.1 Unweighted NTMs

In this section we first consider a sample of companies that are observed in the exporting dataset for the entire period (1995-2010). The sample includes over 7,000 companies. In Table 7 we report the results from a regression of the effects of NTMs on the employment shares by qualification.[8] In particular, we look at the effect of TBT (Panel A) and SPS (Panel B) on the share of managers, professionals, white collars, qualified and non-qualified blue collars. Each column represents the share of a different measure of employment: FTE (full-time equivalent), heads and hours. The measure of NTMs is the (1-year lagged) total number of concerns faced by each company, all regressions include firm fixed effects and the interaction between industry and year dummies. The results on the right hand side of the table are from the IV estimation.

Table 7 shows strong and significant results for managers: an increase of one concern in one of the markets

[8]Results on employment levels are discussed in appendix A.

TABLE 7. Exporters sample: employment shares and NTMs

Dependent variable: Employment shares	FTE	Heads	Hours	FTE	Heads	Hours
	Firm FE			Firm FE+IV		
			Panel A: TBT			
Management	0.00172***	0.00160***	0.00169***	0.00367***	0.00321***	0.00391***
	(0.000439)	(0.000422)	(0.000443)	(0.000720)	(0.000674)	(0.000732)
Professionals	-0.000482	-9.39e-05	-0.000348	-0.000701	-0.000108	-0.000970
	(0.000487)	(0.000498)	(0.000483)	(0.000698)	(0.000723)	(0.000707)
White Collars	-0.00139***	-0.00138***	-0.00144***	-0.00186***	-0.00159**	-0.00191***
	(0.000389)	(0.000400)	(0.000388)	(0.000681)	(0.000695)	(0.000680)
Qualified Blue Collars	-9.00e-05	-0.000342	-6.77e-05	-0.00207***	-0.00230***	-0.00203***
	(0.000444)	(0.000415)	(0.000443)	(0.000745)	(0.000707)	(0.000744)
Non-qualified Blue Collars	0.000342	0.000574	0.000261	0.00102	0.00122*	0.00107*
	(0.000351)	(0.000373)	(0.000353)	(0.000625)	(0.000686)	(0.000623)
			Panel B: SPS			
Management	0.00269***	0.00168*	0.00267***	0.00382***	0.00248**	0.00344***
	(0.000986)	(0.000896)	(0.000995)	(0.00133)	(0.00123)	(0.00130)
Professionals	0.00149	0.00166	0.00150	0.000156	0.000421	0.00130
	(0.00151)	(0.00148)	(0.00149)	(0.00193)	(0.00194)	(0.00197)
White Collars	-0.00362**	-0.00280*	-0.00353**	-0.00434**	-0.00311	-0.00461**
	(0.00155)	(0.00152)	(0.00154)	(0.00215)	(0.00207)	(0.00217)
Qualified Blue Collars	6.94e-06	-0.000294	-3.38e-05	-0.000237	-0.00107	-0.000411
	(0.00137)	(0.00126)	(0.00138)	(0.00164)	(0.00151)	(0.00165)
Non-qualified Blue Collars	-0.000575	-0.000229	-0.000622	0.000360	0.000970	4.30e-05
	(0.00138)	(0.00143)	(0.00135)	(0.00170)	(0.00182)	(0.00166)
N	98,815	98,816	98,816	98,815	98,816	98,816
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

Note: Each entry represents the coefficient from separate regressions of (lagged) NTMs on employment shares (by occupation). NTMs can either be the total number of TBT or SPS each company suffers from, lagged one year. Each regression includes firm fixed effects and 1-digit sector × year dummies. The instrumental variable used is the number of concerns raised to the WTO by extra EU countries on the same product. Standard errors reported in parentheses are clustered at the firm level. (***) indicates significance at the 1% level, (**) indicates significance at the 5% level and (*) indicates significance at the 10% level.

where the firm was present in the previous year, increases the share of managers by 0.17-0.4 percentage points in the case of TBT and between 0.2 and 0.3 percentage points in the case of SPS [9]. No effects are found for professional workers using both measures of NTMs. The share of white collars decrease as a consequence of the number of NTMs and this decrease is higher for TBTs: an increase in the number of NTMs, decreases the share of white collars by 0.13-0.4 percentage points. IV estimates show a decrease of the share of qualified blues collars for qualified blue collar however, it is precisely estimated only in the case of technical barriers.

Effects on wage differentials are small and marginally significant only in few cases. Table 8 shows these results. We find that the manager -professional wage differential increases by 0.8 percentage points because of the TBTs, while the SPSs are associated with a drop in the differentials between qualified and non qualified blue collars.

We next estimate equation (1) on a different sample of companies. We look at all companies that have

[9] In terms of standard deviation, an increase in 1 standard deviation in the number of NTMs (sd=0.5) the year before, increases the share of managers by 0.08-0.2 percentage points for TBTs and 0.1-0.15 for SPSs.

TABLE 8. Exporters sample: hourly wages differentials and NTMs

Dependent variable:	TBT		SPS	
	Firm FE	Firm FE + IV	Firm FE	Firm FE + IV
Management vs Professionals	0.00317	0.00837**	0.00140	0.00407
	(0.00221)	(0.00340)	(0.00474)	(0.00601)
	87,274	87,261	87,274	87,261
Professionals vs White Collars	0.00360	0.00279	0.000545	0.00547
	(0.00229)	(0.00369)	(0.00478)	(0.00649)
	87,268	87,252	87,268	87,252
White Collars vs Q Blue Collars	-0.00380*	-0.00486	0.00244	-0.00187
	(0.00221)	(0.00352)	(0.00418)	(0.00549)
	81,873	81,817	81,873	81,817
Qualified Blue Collars vs NQ Blue Collars	0.00609	0.0104*	-0.0117*	-0.0177**
	(0.00418)	(0.00591)	(0.00682)	(0.00878)
	73,209	73,041	73,209	73,041
Firm FE	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES

Note: Each entry represents the coefficient from separate regressions of (lagged) NTMs on the log hourly wages (by occupation). NTMs can either be the total number of TBT or SPS each company suffers from, lagged one year. Each regression includes firm fixed effects and 1-digit sector × year dummies. The instrumental variable used is the number of concerns raised to the WTO by extra EU countries on the same product. Standard errors reported in parentheses are clustered at the firm level. Observations for each regression are reported below the standard errors. (***) indicates significance at the 1% level, (**) indicates significance at the 5% level and (*) indicates significance at the 10% level.

exported at least once between 1995 and 2010, therefore we are now using a much larger sample of over 160,000 companies.

We investigate the effect on the employment composition, by looking at the share of workers by qualification as reported in Table 9. As before, results are very strong and robust for managers using both fixed effect and IV specifications, the only difference being that the effect is higher, especially for TBT, when using IVs. TBT negatively affects the share of professionals, by 0.12 to 0.25 percentage points, while no effect is found for SPSs. As with the sample of continuous exporters, the effects of TBT on qualified blue collars are negative, only when using the IV, while they are positive but imprecisely estimated when using SPS. Results for non-qualified blue collars are negative in fixed effects however they do not survive the IV estimation. Table 10 reports the results of NTMs on wage differentials: no systematic patterns show up.

These estimates potentially capture two different mechanisms. First, the *intensive* margin of NTMs, i.e. the employment and wage changes of firms that keep exporting in markets where NTMs change; second the *extensive* margin of NTMs, i.e. the employment and wage changes of firms that enter or exit markets in which NTMs are present.

The extensive margin mechanism may potentially reflect an endogenous firm decision: it is possible that firms hit by an unobservable productivity shock may at the same time change the employment composition (say, raise the share of managers) and enter new markets. To (partially) account for this we turn to the next section.

TABLE 9. Full sample: employment shares and NTMs

Dependent variable:	FTE	Heads	Hours	FTE	Heads	Hours
Employment shares	Firm FE			Firm FE+IV		
			Panel A: TBT			
Managers	0.00272***	0.00249***	0.00262***	0.00620***	0.00537***	0.00630***
	(0.000401)	(0.000380)	(0.000405)	(0.000715)	(0.000649)	(0.000730)
Professionals	-0.00128***	-0.000832**	-0.000727*	-0.00255***	-0.00161**	-0.00215***
	(0.000417)	(0.000410)	(0.000406)	(0.000698)	(0.000675)	(0.000690)
White collars	-0.000966***	-0.000753**	-0.00112***	-0.00202***	-0.00144**	-0.00224***
	(0.000356)	(0.000382)	(0.000357)	(0.000603)	(0.000636)	(0.000604)
Qualified Blue Collars	8.49e-05	-0.000342	-2.88e-05	-0.00233***	-0.00261***	-0.00241***
	(0.000400)	(0.000389)	(0.000401)	(0.000632)	(0.000626)	(0.000632)
Non qualified Blue Collars	-0.000569*	-0.000422	-0.000755**	0.000391	0.000236	0.000195
	(0.000338)	(0.000368)	(0.000340)	(0.000589)	(0.000659)	(0.000590)
			Panel B: SPS			
Managers	0.00293***	0.00217***	0.00285***	0.00468***	0.00346***	0.00422***
	(0.000697)	(0.000679)	(0.000701)	(0.000979)	(0.000941)	(0.000967)
Professionals	-0.000635	-0.000420	-0.000131	-0.00287**	-0.00206*	-0.00127
	(0.000892)	(0.000869)	(0.000870)	(0.00126)	(0.00123)	(0.00118)
White collars	-0.00284***	-0.00214***	-0.00288***	-0.00370***	-0.00242**	-0.00407***
	(0.000786)	(0.000767)	(0.000783)	(0.00108)	(0.00107)	(0.00109)
Qualified Blue Collars	0.00270**	0.00231**	0.00262**	0.00254*	0.00180	0.00233*
	(0.00111)	(0.00106)	(0.00112)	(0.00138)	(0.00130)	(0.00139)
Non qualified Blue Collars	-0.00234**	-0.00215**	-0.00264**	-0.00114	-0.00144	-0.00171
	(0.00106)	(0.00108)	(0.00105)	(0.00130)	(0.00135)	(0.00128)
N	621,866	621,929	621,884	577,140	577,198	577,150
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

Note: Each entry represents the coefficient from separate regressions of (lagged) NTMs on employment shares (by occupation). NTMs can either be the total number of TBT or SPS each company suffers from, lagged one year. Each regression includes firm fixed effects and 1-digit sector × year dummies. The instrumental variable used is the number of concerns raised to the WTO by extra EU countries on the same product. Standard errors reported in parentheses are clustered at the firm level. (***) indicates significance at the 1% level, (**) indicates significance at the 5% level and (*) indicates significance at the 10% level.

TABLE 10. Full sample: Hourly wages differentials and NTMs

Dependent variable:	TBT		SPS	
Log hourly wage differentials	Firm FE	Firm FE + IV	Firm FE	Firm FE + IV
Managers/Professionals	0.00141	0.00503**	-0.000588	0.00419
	(0.00160)	(0.00256)	(0.00360)	(0.00473)
	513,096	478,542	513,096	478,542
Professionals/White collars	0.00380**	0.00252	0.00582	0.00703
	(0.00181)	(0.00275)	(0.00388)	(0.00509)
	525,217	487,693	525,217	487,693
White collars/Qualified Blue Collars	-0.00311*	-0.00379	-0.00245	-0.00522
	(0.00172)	(0.00280)	(0.00359)	(0.00479)
	483,384	446,159	483,384	446,159
Qualified Blue Collars/Non qualified Blue Collars	0.00701**	0.00713*	-0.00622	-0.00918
	(0.00277)	(0.00426)	(0.00465)	(0.00596)
	407,581	375,390	407,581	375,390
Firm FE	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES

Note: Each entry represents the coefficient from separate regressions of (lagged) NTMs on the log hourly wages (by occupation). NTMs can either be the total number of TBT or SPS each company suffers from, lagged one year. Each regression includes firm fixed effects and 1-digit sector × year dummies. The instrumental variable used is the number of concerns raised to the WTO by extra EU countries on the same product. Standard errors reported in parentheses are clustered at the firm level. Observations for each regression are reported below the standard errors. (***) indicates significance at the 1% level, (**) indicates significance at the 5% level and (*) indicates significance at the 10% level.

3.2 Weighted NTMs

This section presents results from the estimation of equation (1), measuring the variable $NTM_{i,t-1}$ as the weighted average of the NTMs faced by firm i in year $t-1$ in each product/market pair, using as weights the initial export shares in each product/market pair (i.e. the average export shares in the first three years in which the firm is observed). Thus, given that the export shares are fixed, NTMs do not vary when firm enter/exit markets implying that the potentially endogenous extensive margin is shut down.

As before, we present separately the estimates for the sample of exporters, Table 11, and the full sample, Table 12.

TABLE 11. Exporters sample: Weighted NTMs

Dependent variable:	FTE	Heads	Hours	FTE	Heads	Hours
Employment shares	Firm FE			Firm FE+IV		
			Panel A: TBT			
Managers	0.00402	0.00207	0.000827	0.0283**	0.0187*	0.0308**
	(0.00640)	(0.00581)	(0.00639)	(0.0125)	(0.0109)	(0.0140)
Professionals	-0.0100	-0.00767	0.00193	-0.0377**	-0.0378**	-0.0324*
	(0.00946)	(0.00892)	(0.00922)	(0.0180)	(0.0165)	(0.0187)
White collars	0.00473	0.0118	0.00195	-0.00516	0.00299	-0.00667
	(0.00824)	(0.00822)	(0.00820)	(0.0188)	(0.0179)	(0.0187)
Qualified Blue Collars	0.0136	0.0556***	0.0102	0.0160	0.0716**	0.0127
	(0.00982)	(0.0178)	(0.00984)	(0.0180)	(0.0299)	(0.0180)
Non qualified Blue Collars	-0.00541	-0.00524	-0.00804	0.00795	0.0178	0.00492
	(0.00957)	(0.00982)	(0.00960)	(0.0228)	(0.0232)	(0.0229)
			Panel B: SPS			
Managers	-0.0186	-0.0275***	-0.0211*	0.0146	-0.00215	0.00667
	(0.0116)	(0.00939)	(0.0116)	(0.0188)	(0.0165)	(0.0185)
Professionals	-0.00376	-0.00855	0.00124	-0.0261	-0.0259	0.000260
	(0.0135)	(0.0132)	(0.0129)	(0.0226)	(0.0206)	(0.0213)
White collars	0.00416	0.0124	0.00386	-0.0358*	-0.0197	-0.0444**
	(0.0141)	(0.0142)	(0.0142)	(0.0214)	(0.0218)	(0.0219)
Qualified Blue Collars	0.0586***	0.00585	0.0586***	0.0761**	0.00628	0.0710**
	(0.0186)	(0.00940)	(0.0185)	(0.0308)	(0.0172)	(0.0310)
Non qualified Blue Collars	-0.0360*	-0.0294	-0.0381*	-0.0237	-0.0199	-0.0283
	(0.0199)	(0.0198)	(0.0199)	(0.0317)	(0.0320)	(0.0316)
N	492,464	492,508	492,472	470,517	470,555	470,518
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

Interestingly, results show that the positive effect of TBTs on the share of managers and the negative effect on the share of professionals survives both in the continuous exporters sample and in the full sample, i.e. they are both driven by the intensive margin. Differently, the bottom panels of Tables 11 and 12 show that the effect

TABLE 12. Full sample: Weighted NTMs

Dependent variable:	FTE	Heads	Hours	FTE	Heads	Hours
Employment shares	Firm FE			Firm FE+IV		
			Panel A: TBT			
Managers	0.00329	0.00206	0.00131	0.0228**	0.0174**	0.0256**
	(0.00546)	(0.00486)	(0.00542)	(0.00991)	(0.00850)	(0.0109)
Professionals	-0.00742	-0.00289	0.00139	-0.0367**	-0.0329**	-0.0323**
	(0.00813)	(0.00766)	(0.00798)	(0.0145)	(0.0132)	(0.0150)
White collars	0.00496	0.00749	0.00262	-0.00421	-0.000689	-0.00558
	(0.00702)	(0.00684)	(0.00698)	(0.0148)	(0.0140)	(0.0147)
Qualified Blue Collars	0.00628	0.00155	0.00374	0.00770	0.00175	0.00431
	(0.00789)	(0.00747)	(0.00790)	(0.0142)	(0.0135)	(0.0141)
Non qualified Blue Collars	-0.000879	-0.00150	-0.00287	0.0186	0.0222	0.0162
	(0.00759)	(0.00777)	(0.00760)	(0.0171)	(0.0174)	(0.0172)
			Panel B: SPS			
Managers	-0.0141	-0.0213**	-0.0164	0.0127	-0.00228	0.00620
	(0.0105)	(0.00830)	(0.0104)	(0.0166)	(0.0145)	(0.0164)
Professionals	-0.00769	-0.0123	-0.00340	-0.0267	-0.0329*	-0.00494
	(0.0117)	(0.0113)	(0.0112)	(0.0196)	(0.0177)	(0.0187)
White collars	0.00472	0.00880	0.00488	-0.0266	-0.0119	-0.0334*
	(0.0132)	(0.0131)	(0.0133)	(0.0195)	(0.0198)	(0.0198)
Qualified Blue Collars	0.0518***	0.0460***	0.0520***	0.0561**	0.0487*	0.0519*
	(0.0163)	(0.0154)	(0.0163)	(0.0270)	(0.0263)	(0.0272)
Non qualified Blue Collars	-0.0299*	-0.0190	-0.0320*	-0.0104	0.000699	-0.0143
	(0.0173)	(0.0171)	(0.0173)	(0.0282)	(0.0284)	(0.0281)
N	621,866	621,929	621,884	577,140	577,198	577,150
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

of SPS along the intensive margin raises the share of Qualified Blue Collars while somewhat reducing the share of white collars. Moreover, effects are larger if compared to the unweighted cases and they are, in most cases significant only when estimating using the IV. A change of 1 NTM y

3.3 Core products

This section shows results from the estimation of equation (2). This specification tries and identifies the core product of the firm as the variety/destination pair with the highest (average) export share in the first three years in which the firm is observed in the custom data.

While we find no effect of TBTs, SPSs are found to positively affect the share of qualified blue collars and negatively affect the share of white collars consistently with the results obtained using both unweighted and weighted NTMs. According to these estimates, firms that experience the introduction of an SPS in their core product decide to remain on that market by adapting the production function to this change, increasing the share of qualified blue collars and decreasing the share of white collars.

3.4 Heterogeneity

This section explores the possibility that the effect of NTMs are heterogeneous. For instance, large and more productive companies may be more likely to adapt their production to new standards (Chaney, 2008).

Tables 14-17 show results by size [10] for both the exporters sample and the full sample using the unweighted NTM measure.

The estimates show that TBTs raise the share of managers in both large and small firms, while decreasing the share of white collars and qualified blue collars in large firms and the share of professionals in small firms (both samples). SMEs are also affected by SPSs that increase the share of qualified blue collars and decrease the share of white collars (both samples). Large firms are mainly affected by TBTs while no effect is found for SPSs. Most of the TBT effect on managers can be attributed to large firms, as the effects on SMEs are smaller. Conversely, for the SPSs, the effect on qualified blue collars and white collars are only found in the SMEs sample. This is particularly true when looking at the sample of continuous exporters.

Table 18 shows results on manufacturing sector firms that typically produce tradable goods. We show results for the sample of continuous exporters. For both the TBTs and SPSs the effects on managers are larger than the effects found in Table 7. They show that, when using the unweighted NTM, both TBT and SPS raise the share of managers while they reduce the share of professionals and white collars. Qualified blue collars are negatively affected by changes in the TBTs but no significant effect is found for the SPSs.

[10] Large firms are firms with more than 250 employees in the first year the firm is observed

TABLE 13. Core products

Dependent variable: Employment shares	FTE	Heads	Hours	FTE	Heads	Hours
	Firm FE			Firm FE+IV		
			Panel A: TBT			
Managers	-0.00276	0.000343	-0.00397	0.00809	0.00382	0.00547
	(0.00574)	(0.00562)	(0.00580)	(0.0140)	(0.0119)	(0.0139)
Professionals	0.0109	0.00488	0.0162**	-0.0222	-0.0287	-0.00950
	(0.00803)	(0.00797)	(0.00795)	(0.0199)	(0.0184)	(0.0199)
White collars	0.000154	0.00446	-0.00106	0.0288	0.0207	0.0275
	(0.00810)	(0.00760)	(0.00809)	(0.0188)	(0.0196)	(0.0187)
Qualified Blue Collars	0.00559	0.00110	0.00384	-0.00871	0.000416	-0.0132
	(0.00751)	(0.00684)	(0.00756)	(0.0166)	(0.0149)	(0.0167)
Non qualified Blue Collars	-0.0139**	-0.0107	-0.0149**	-0.00464	0.00462	-0.00874
	(0.00682)	(0.00750)	(0.00682)	(0.0194)	(0.0208)	(0.0194)
			Panel B: SPS			
Managers	-0.0123	-0.0186**	-0.0149	0.0162	-0.00523	0.00922
	(0.00991)	(0.00785)	(0.00951)	(0.0354)	(0.0351)	(0.0350)
Professionals	-0.00818	-0.00790	-0.000347	-0.0493	-0.0327	-0.0309
	(0.0187)	(0.0155)	(0.0167)	(0.0433)	(0.0419)	(0.0393)
White collars	-0.0204	-0.0122	-0.0211	-0.0941**	-0.0845*	-0.0983**
	(0.0142)	(0.0114)	(0.0143)	(0.0452)	(0.0476)	(0.0448)
Qualified Blue Collars	0.0152	0.00723	0.0163	0.0697*	0.0515	0.0701*
	(0.0214)	(0.0131)	(0.0215)	(0.0388)	(0.0327)	(0.0389)
Non qualified Blue Collars	0.0244	0.0274	0.0187	0.0591	0.0712	0.0516
	(0.0210)	(0.0173)	(0.0205)	(0.0458)	(0.0495)	(0.0455)
N	62,951	62,953	62,952	59,023	59,025	59,023
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

TABLE 14. Exporters sample: large firms

Dependent variable:	FTE	Heads	Hours	FTE	Heads	Hours
Employment shares	Firm FE			Firm FE+IV		
			Panel A: TBT			
Managers	0.00312***	0.00299***	0.00322***	0.00523***	0.00475***	0.00544***
	(0.000980)	(0.000967)	(0.000997)	(0.00144)	(0.00141)	(0.00148)
Professionals	-0.000366	1.10e-05	-0.000473	-0.000260	0.000358	-0.000521
	(0.000749)	(0.000777)	(0.000745)	(0.00105)	(0.00111)	(0.00104)
White collars	-0.00173**	-0.00132*	-0.00175**	-0.00269***	-0.00235**	-0.00273***
	(0.000706)	(0.000698)	(0.000702)	(0.00102)	(0.00112)	(0.00102)
Qualified Blue Collars	-0.00175**	-0.00184***	-0.00176**	-0.00259**	-0.00246**	-0.00255**
	(0.000705)	(0.000686)	(0.000709)	(0.00110)	(0.00106)	(0.00110)
Non qualified Blue Collars	0.00100*	0.000939	0.00102*	0.000679	0.000734	0.000722
	(0.000539)	(0.000614)	(0.000542)	(0.00122)	(0.00143)	(0.00122)
			Panel B: SPS			
Managers	0.000651	0.000794	0.000780	0.00131	0.00103	0.000854
	(0.00175)	(0.00162)	(0.00177)	(0.00184)	(0.00176)	(0.00187)
Professionals	0.00248	0.00262	0.00271	0.00223	0.00250	0.00377*
	(0.00189)	(0.00191)	(0.00184)	(0.00206)	(0.00220)	(0.00218)
White collars	-0.00217	-0.00196	-0.00222	-0.00220	-0.00170	-0.00262
	(0.00215)	(0.00216)	(0.00212)	(0.00216)	(0.00209)	(0.00228)
Qualified Blue Collars	-0.00244	-0.00219	-0.00271*	-0.00241	-0.00211	-0.00285
	(0.00168)	(0.00171)	(0.00162)	(0.00209)	(0.00213)	(0.00200)
Non qualified Blue Collars	0.00178	0.00159	0.00175	0.00123	0.000658	0.00101
	(0.00148)	(0.00155)	(0.00147)	(0.00168)	(0.00163)	(0.00163)
N	10,800	10,800	10,800	10,800	10,800	10,800
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

TABLE 15. Exporters sample: small firms

Dependent variable:	FTE	Heads	Hours	FTE	Heads	Hours
Employment shares	Firm FE			Firm FE+IV		
			Panel A: TBT			
Managers	0.000112	-0.000473	-7.57e-05	0.00345**	0.00174	0.00393**
	(0.000720)	(0.000649)	(0.000742)	(0.00172)	(0.00143)	(0.00184)
Professionals	-0.00222**	-0.00111	-0.00119	-0.00330*	-0.00141	-0.00308*
	(0.00110)	(0.00105)	(0.00110)	(0.00176)	(0.00173)	(0.00181)
White collars	0.000350	0.000396	3.27e-05	-0.00161	-0.00162	-0.00210
	(0.000975)	(0.00102)	(0.000979)	(0.00182)	(0.00189)	(0.00184)
Qualified Blue Collars	0.00453*	0.00273***	0.00380***	0.00726**	-0.00133	0.000199
	(0.00238)	(0.000928)	(0.000984)	(0.00300)	(0.00162)	(0.00158)
Non qualified Blue Collars	-0.00205**	-0.00133	-0.00242***	0.00116	0.00223	0.000882
	(0.000827)	(0.000840)	(0.000844)	(0.00146)	(0.00160)	(0.00145)
			Panel B: SPS			
Managers	0.00174	0.000707	0.00169	0.00229	0.000479	0.00196
	(0.00123)	(0.00118)	(0.00130)	(0.00179)	(0.00176)	(0.00184)
Professionals	0.000960	0.00148	0.000808	-0.00110	-0.000372	-0.000403
	(0.00217)	(0.00204)	(0.00227)	(0.00296)	(0.00287)	(0.00308)
White collars	-0.00299*	-0.00244	-0.00286*	-0.00501**	-0.00345	-0.00511**
	(0.00160)	(0.00163)	(0.00162)	(0.00212)	(0.00234)	(0.00216)
Qualified Blue Collars	0.00393***	0.00417*	0.00470*	0.000130	0.00595**	0.00738**
	(0.000980)	(0.00224)	(0.00242)	(0.00158)	(0.00280)	(0.00303)
Non qualified Blue Collars	-0.00433*	-0.00418*	-0.00445*	-0.00386	-0.00341	-0.00427
	(0.00247)	(0.00241)	(0.00244)	(0.00303)	(0.00299)	(0.00301)
N	69,945	69,945	69,945	69,945	69,945	69,945
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

TABLE 16. Full sample: large firms

Dependent variable:	FTE	Heads	Hours	FTE	Heads	Hours
Employment shares	Firm FE			Firm FE+IV		
			Panel A: TBT			
Managers	0.00300***	0.00315***	0.00298***	0.00488***	0.00495***	0.00495***
	(0.000584)	(0.000591)	(0.000589)	(0.000875)	(0.000865)	(0.000889)
Professionals	-0.000122	9.11e-05	2.80e-06	0.000417	0.000776	0.000370
	(0.000439)	(0.000448)	(0.000442)	(0.000616)	(0.000656)	(0.000624)
White collars	-0.00168***	-0.00168***	-0.00170***	-0.00247***	-0.00225***	-0.00246***
	(0.000412)	(0.000464)	(0.000408)	(0.000600)	(0.000632)	(0.000594)
Qualified Blue Collars	-0.00189***	-0.00202***	-0.00196***	-0.00375***	-0.00360***	-0.00377***
	(0.000490)	(0.000506)	(0.000493)	(0.000800)	(0.000793)	(0.000802)
Non qualified Blue Collars	0.000883**	0.000964*	0.000867**	0.00115	0.000904	0.00114
	(0.000411)	(0.000501)	(0.000411)	(0.000803)	(0.000930)	(0.000804)
			Panel B: SPS			
Managers	0.00134	0.00174*	0.00137	0.00176	0.00212*	0.00132
	(0.000994)	(0.00102)	(0.00101)	(0.00114)	(0.00122)	(0.00113)
Professionals	0.00199*	0.00212*	0.00211*	0.00184	0.00230	0.00292**
	(0.00115)	(0.00114)	(0.00112)	(0.00133)	(0.00140)	(0.00132)
White collars	-0.00239*	-0.00246*	-0.00236*	-0.00280*	-0.00289*	-0.00296*
	(0.00131)	(0.00138)	(0.00128)	(0.00151)	(0.00162)	(0.00151)
Qualified Blue Collars	-0.00256**	-0.00256**	-0.00275**	-0.00213	-0.00236	-0.00243
	(0.00117)	(0.00120)	(0.00115)	(0.00160)	(0.00161)	(0.00158)
Non qualified Blue Collars	0.00191	0.00174	0.00191	0.00170	0.00141	0.00152
	(0.00123)	(0.00130)	(0.00121)	(0.00157)	(0.00158)	(0.00154)
N	48,462	48,473	48,465	46,634	46,640	46,632
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

TABLE 17. Full sample: small firms

Dependent variable:	FTE	Heads	Hours	FTE	Heads	Hours
Employment shares	Firm FE			Firm FE+IV		
			Panel A: TBT			
Managers	0.00154***	0.00118***	0.00134***	0.00505***	0.00375***	0.00517***
	(0.000480)	(0.000432)	(0.000483)	(0.000961)	(0.000850)	(0.000992)
Professionals	-0.00222***	-0.00154**	-0.00131**	-0.00493***	-0.00369***	-0.00430***
	(0.000637)	(0.000605)	(0.000620)	(0.00116)	(0.00111)	(0.00116)
White collars	0.000106	0.000368	-0.000171	-0.000476	0.000376	-0.000866
	(0.000549)	(0.000561)	(0.000551)	(0.00104)	(0.00108)	(0.00104)
Qualified Blue Collars	0.00226***	0.00156***	0.00212***	0.000313	-0.000575	0.000240
	(0.000550)	(0.000518)	(0.000554)	(0.000977)	(0.000959)	(0.000974)
Non qualified Blue Collars	-0.00169***	-0.00161***	-0.00200***	-0.000447	-0.000540	-0.000738
	(0.000508)	(0.000525)	(0.000513)	(0.000899)	(0.000976)	(0.000904)
			Panel B: SPS			
Managers	0.00356***	0.00230***	0.00342***	0.00590***	0.00391***	0.00548***
	(0.000853)	(0.000817)	(0.000866)	(0.00124)	(0.00120)	(0.00125)
Professionals	-0.00186	-0.00156	-0.00130	-0.00602***	-0.00506***	-0.00434**
	(0.00123)	(0.00117)	(0.00123)	(0.00179)	(0.00171)	(0.00178)
White collars	-0.00251**	-0.00139	-0.00256**	-0.00312**	-0.000877	-0.00359**
	(0.00101)	(0.000987)	(0.00101)	(0.00148)	(0.00153)	(0.00148)
Qualified Blue Collars	0.00573***	0.00497***	0.00573***	0.00626***	0.00495***	0.00616***
	(0.00144)	(0.00136)	(0.00147)	(0.00183)	(0.00172)	(0.00186)
Non qualified Blue Collars	-0.00517***	-0.00488***	-0.00553***	-0.00380**	-0.00425**	-0.00451**
	(0.00147)	(0.00146)	(0.00146)	(0.00183)	(0.00184)	(0.00182)
N	567,036	567,087	567,051	522,928	522,978	522,939
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

TABLE 18. Manufacturing sector

Dependent variable:	FTE	Heads	Hours	FTE	Heads	Hours
Employment shares	Firm FE			Firm FE+IV		
			Panel A: TBT			
Managers	0.00365***	0.00370***	0.00369***	0.00826***	0.00823***	0.00843***
	(0.000479)	(0.000448)	(0.000484)	(0.000902)	(0.000797)	(0.000911)
Professionals	-0.00135***	-0.000856*	-0.00109**	-0.00277***	-0.00203**	-0.00259***
	(0.000483)	(0.000492)	(0.000467)	(0.000806)	(0.000800)	(0.000785)
White collars	-0.000869**	-0.000659	-0.000902**	-0.00169***	-0.00142**	-0.00176***
	(0.000400)	(0.000443)	(0.000400)	(0.000634)	(0.000695)	(0.000637)
Qualified Blue Collars	-0.000238	-0.000666	-0.000343	-0.00416***	-0.00432***	-0.00418***
	(0.000617)	(0.000604)	(0.000616)	(0.000965)	(0.000928)	(0.000959)
Non qualified Blue Collars	-0.00113**	-0.00122**	-0.00129**	0.000289	-7.43e-05	4.10e-05
	(0.000524)	(0.000551)	(0.000530)	(0.000862)	(0.000928)	(0.000867)
			Panel B: SPS			
Managers	0.00407***	0.00357***	0.00410***	0.00607***	0.00574***	0.00576***
	(0.000698)	(0.000682)	(0.000712)	(0.00104)	(0.00100)	(0.00104)
Professionals	-0.00286***	-0.00228**	-0.00196**	-0.00519***	-0.00387**	-0.00300**
	(0.00103)	(0.00104)	(0.000941)	(0.00156)	(0.00154)	(0.00135)
White collars	-0.00127*	-0.000809	-0.00143**	-0.00173*	-0.000765	-0.00222**
	(0.000678)	(0.000698)	(0.000676)	(0.000886)	(0.000977)	(0.000882)
Qualified Blue Collars	0.00292*	0.00248	0.00268*	0.00301	0.00186	0.00252
	(0.00162)	(0.00156)	(0.00163)	(0.00206)	(0.00196)	(0.00206)
Non qualified Blue Collars	-0.00252	-0.00250	-0.00306*	-0.00194	-0.00277	-0.00285
	(0.00160)	(0.00163)	(0.00158)	(0.00203)	(0.00211)	(0.00201)
N	268,491	268,517	268,500	256,460	256,485	256,468
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

4 Concluding remarks

This paper provides an empirical assessment of the effect of NTMs on the size of firm-level wage skill premia and on the skill composition of labor demand, making use of detailed firm level matched employer-employee data with information on exports by destination country and Specific Trade Concern (STC) data released by the WTO to measure trade restrictive non-tariff measures. We identify the effect of NTMs exploiting (unexpected) changes in bilateral NTMs between the EU and the destination countries.

We find that NTMs have little impact on skill premia, while affecting the skill composition of employment. In particular, Technical Barriers to Trade (TBTs) raise the share of managers at the expense of white collars and professionals, while Sanitary and PhytoSanitary (SPS) measures raise the share of qualified blue collars and reduce the share of white collars.

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A Data details and additional results

A.1 Occupations

Table A1 reports the definition of the occupation breakdown.

Table A1. Occupations

Occupation	Definition
Management	CS=1 or CS=3 or CS=73 (for some years)
Professionals	CS=4 or CS=74
White Collar	CS=52 or CS=53 or CS=54 or CS=55 or CS=56
Qualified Blue Collar	CS=62 or CS=63 or CS=64 or CS=65
Non-qualified Blue Collar	CS=67 or CS=68 or CS=69

A.2 Results on employment and wage levels

A.2.1 Descriptives

Tables 1 to A4 show descriptives on employment levels. Table A2 shows the average number of employees by qualification over time in the full sample of companies (all companies with more than 5 employees).

Table A3 reports the average number fo employees by qualification as full time equivalent.[11] Table A4 shows the average number of hours worked by each qualification in a year. On average, there are more qualified blue collars than other types of workers, irrespective of how their employment is measured. While the number of non-qualified blue collar is decreasing over time and it is the lowest on average, the average number of managers shows the highest increase. For both professional workers and white collars we do not observe any specific patterns: the level of their employment has remained fairly constant over time. Only in the last three years, the number of professionals has slightly decreased while those of white collars has increased.

Table A2. Number of employees

Year	Management	Professionals	Non Qualified Blue Collars	Qualified Blue Collars	White Collars
1994	13.317	23.430	18.532	25.432	21.666
1995	13.226	22.477	18.780	25.038	21.325
1996	13.556	22.641	17.083	24.709	21.728
1997	13.670	22.497	17.714	24.383	21.340
1998	14.332	23.082	18.516	24.695	22.383
1999	14.968	23.563	18.168	25.745	22.867
2000	15.857	24.453	19.554	26.482	24.461
2001	16.826	25.291	19.419	27.217	24.879
2002	18.140	24.931	18.351	26.855	24.846
2003	18.565	25.128	17.581	27.301	24.637
2004	18.976	24.984	15.244	25.126	23.500
2005	19.565	25.563	15.094	25.446	24.177
2006	20.002	25.668	15.001	25.413	24.740
2007	21.688	27.294	15.521	25.890	27.099
2008	21.803	27.401	14.868	25.893	26.207
2009	23.880	24.884	13.954	25.085	27.368
2010	25.419	26.985	14.399	25.487	31.095

A.2.2 Regression results

We first consider a sample of companies that are observed in the exporting dataset for the entire period (1995-2010). The sample includes over 7,000 companies. In Table A5 we report the results from a regression of the effects of NTMs on the levels of employment, as previously defined.

[11] In this case, we consider each individual on the basis of the actual number of hours worked in the company, computed as a share of a full time worker).

TABLE A3. Number of full-time equivalent employees

Year	Management	Professionals	Non Qualified Blue Collars	Qualified Blue Collars	White Collars
1994	8.910	15.821	8.800	17.251	11.314
1995	8.972	15.710	9.689	18.282	11.501
1996	9.274	16.064	9.001	18.152	11.520
1997	9.149	15.780	8.738	17.429	11.042
1998	9.521	15.965	8.736	17.473	11.028
1999	9.882	16.091	8.260	17.767	10.955
2000	9.999	16.069	8.092	17.429	10.821
2001	10.683	16.442	7.964	17.515	10.918
2002	12.332	16.898	6.962	18.116	11.448
2003	12.818	17.406	6.793	18.466	11.485
2004	13.120	17.543	6.858	17.819	11.416
2005	13.363	17.695	6.885	17.832	11.759
2006	13.917	18.079	6.927	17.871	12.184
2007	15.147	19.029	6.960	18.192	13.534
2008	15.302	19.215	6.804	18.437	12.583
2009	14.898	15.406	7.509	17.695	14.366
2010	15.547	16.400	7.098	17.432	14.662

TABLE A4. Number of hours worked

Year	Management	Professionals	Non Qualified Blue Collars	Qualified Blue Collars	White Collars
1994	19136.104	34641.112	19842.519	38776.270	24780.392
1995	18342.165	32164.886	19844.650	37665.271	23482.720
1996	18956.710	32556.472	18409.839	37422.484	23493.276
1997	18690.072	31957.965	17862.081	35910.781	22500.746
1998	19183.548	30913.824	17691.726	35956.908	22218.343
1999	19840.624	30679.178	16468.178	36222.102	21780.058
2000	20078.817	30440.827	16346.925	35724.016	21739.710
2001	21332.798	30840.259	16064.949	35803.429	21948.045
2002	23608.088	32087.228	14908.647	36026.186	21640.963
2003	24445.051	32959.592	14296.448	36602.576	21856.029
2004	25038.354	33173.704	13674.397	34947.422	21438.965
2005	25564.085	33589.782	13678.423	35091.447	22177.182
2006	26658.052	34319.846	13805.522	35392.605	22645.566
2007	28988.247	36043.754	13934.693	35961.285	25598.425
2008	29385.487	36558.103	13632.997	36590.896	23928.709
2009	32682.132	34049.472	14143.868	35639.150	27805.060
2010	34564.503	36883.740	14089.649	36057.658	32238.758

Both TBT and SPS have a positive and significant impact on the levels of employment of managers, with the effect being stronger for SPS. An increase of the concerns by one unit in $t-1$, increases on average the employment of managers by 2 to 5 percent within firms. Results are confirmed also when using the instrumental variable approach. Positive but slightly smaller results are found for professionals: the effect ranges between 1.5 and 2 percent in the case of TBTs and 4 and 6 percent in the case of SPSs. The effects on white collars are never significant in the case of TBTs and marginally significant for SPSs. TBTs increase the employment of qualified blue collars by 1.5-1.8 percent while the effect of SPS is much larger, 4 to 6 percent. For non-qualified blue collar, the effect is marginally significant in the case of TBTs and significant and in the range of 3 to 5 percent for SPSs.

Table A6 shows results on log hourly wages for each qualification. As before, we report results for both TBT and SPS and from the IV estimation. In most cases results are not or just marginally significant, therefore it is hard to identify a pattern. These results are expected due to the rigitidy of the French wage structure, where shocks are more likely to affect employment rather than wages.

We next estimate equation (1) on a different sample of companies. We look at all companies that have exported at least once between 1995 and 2010, therefore we are now using a much larger sample of over 160,000 companies. Tables A7 to 10 reports the results from these regressions. The tables show that our results are still robust even to this specification of the sample and most of the previous findings are confirmed, for both the level of employment (Table A7) and the level of wages (Table A8).

TABLE A5. Exporters sample: employment levels and NTMs

Dependent variable:	FTE	Heads	Hours	FTE	Heads	Hours
Log employment	Firm FE			Firm FE+IV		
			Panel A: TBT			
Management	0.0227***	0.0197***	0.0216***	0.0452***	0.0367***	0.0437***
	(0.00421)	(0.00406)	(0.00414)	(0.00711)	(0.00664)	(0.00699)
	89,483	89,498	89,478	89,473	89,488	89,469
Professionals	0.0156***	0.0179***	0.0153***	0.0260***	0.0271***	0.0230***
	(0.00514)	(0.00510)	(0.00510)	(0.00752)	(0.00748)	(0.00740)
	90,152	90,218	90,048	90,149	90,215	90,045
White Collars	0.00266	0.00546	0.00147	0.00213	0.00530	0.000163
	(0.00460)	(0.00441)	(0.00457)	(0.00710)	(0.00655)	(0.00703)
	89,618	89,631	89,619	89,609	89,622	89,610
Qualified Blue Collars	0.0176***	0.0155**	0.0161**	0.0189**	0.0163*	0.0160*
	(0.00678)	(0.00643)	(0.00672)	(0.00947)	(0.00910)	(0.00935)
	84,294	84,324	84,295	84,247	84,277	84,248
Non-qualified Blue Collars	0.0142*	0.0112	0.0121	0.0237*	0.0198*	0.0207*
	(0.00744)	(0.00703)	(0.00743)	(0.0124)	(0.0114)	(0.0124)
	77,205	77,269	77,222	77,089	77,153	77,105
			Panel B: SPS			
Management	0.0541***	0.0467***	0.0527***	0.0686***	0.0588***	0.0662***
	(0.00807)	(0.00757)	(0.00798)	(0.0120)	(0.0112)	(0.0117)
	89,483	89,498	89,478	89,473	89,488	89,469
Professionals	0.0479***	0.0464***	0.0443***	0.0614***	0.0593***	0.0621***
	(0.00999)	(0.00949)	(0.00987)	(0.0135)	(0.0128)	(0.0138)
	90,152	90,218	90,048	90,149	90,215	90,045
White Collars	0.0169*	0.0172**	0.0143	0.0142	0.0193*	0.0109
	(0.00888)	(0.00833)	(0.00890)	(0.0119)	(0.0112)	(0.0119)
	89,618	89,631	89,619	89,609	89,622	89,610
Qualified Blue Collars	0.0475***	0.0465***	0.0445***	0.0649***	0.0646***	0.0613***
	(0.0109)	(0.0101)	(0.0108)	(0.0168)	(0.0156)	(0.0165)
	84,294	84,324	84,295	84,247	84,277	84,248
Non-qualified Blue Collars	0.0381**	0.0268**	0.0324**	0.0523**	0.0384**	0.0461**
	(0.0159)	(0.0131)	(0.0156)	(0.0222)	(0.0182)	(0.0217)
	77,205	77,269	77,222	77,089	77,153	77,105
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

Note: Each entry represents the coefficient from separate regressions of (lagged) NTMs on log employment (by occupation). NTMs can either be the total number of TBT or SPS each company suffers from, lagged one year. Each regression includes firm fixed effects and 1-digit sector × year dummies. The instrumental variable used is the number of concerns raised to the WTO by extra EU countries on the same product. Standard errors reported in parentheses are clustered at the firm level. Observations for each regression are reported below the standard errors. (***) indicates significance at the 1% level, (**) indicates significance at the 5% level and (*) indicates significance at the 10% level.

TABLE A6. Exporters sample: hourly wages and NTMs

Dependent variable:	TBT		SPS	
	Firm FE	Firm FE + IV	Firm FE	Firm FE + IV
Management	0.00194	0.00589*	-0.000453	0.00177
	(0.00174)	(0.00308)	(0.00339)	(0.00443)
	89,476	89,467	89,476	89,467
Professionals	-0.000418	-0.00353	-0.00387	-0.00461
	(0.00169)	(0.00282)	(0.00356)	(0.00444)
	90,048	90,045	90,048	90,045
White Collars	-0.00371**	-0.00609*	-0.00414	-0.00996*
	(0.00174)	(0.00322)	(0.00373)	(0.00558)
	89,619	89,610	89,619	89,610
Qualified Blue Collars	0.000661	0.00115	-0.00500	-0.00588
	(0.00174)	(0.00303)	(0.00363)	(0.00490)
	84,295	84,248	84,295	84,248
Non-qualified Blue Collars	-0.00463	-0.00744	0.00775	0.0139*
	(0.00407)	(0.00572)	(0.00595)	(0.00749)
	77,220	77,104	77,220	77,104
Firm FE	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES

Note: Each entry represents the coefficient from separate regressions of (lagged) NTMs on the log hourly wages (by occupation). NTMs can either be the total number of TBT or SPS each company suffers from, lagged one year. Each regression includes firm fixed effects and 1-digit sector × year dummies. The instrumental variable used is the number of concerns raised to the WTO by extra EU countries on the same product. Standard errors reported in parentheses are clustered at the firm level. Observations for each regression are reported below the standard errors. (***) indicates significance at the 1% level, (**) indicates significance at the 5% level and (*) indicates significance at the 10% level.

TABLE A7. Full sample: employment levels and NTMs

Dependent variable:	FTE	Heads	Hours	FTE	Heads	Hours
Log employment	Firm FE			Firm FE+IV		
			Panel A: TBT			
Managers	0.0276***	0.0218***	0.0265***	0.0572***	0.0458***	0.0556***
	(0.00285)	(0.00258)	(0.00281)	(0.00537)	(0.00461)	(0.00532)
	552,666	552,976	552,706	514,459	514,763	514,493
Professionals	0.0136***	0.0124***	0.0140***	0.0246***	0.0216***	0.0233***
	(0.00331)	(0.00308)	(0.00330)	(0.00497)	(0.00470)	(0.00494)
	568,401	568,988	567,484	528,821	529,398	527,897
White collars	0.00513	0.00522*	0.00365	0.0133***	0.0112**	0.0102**
	(0.00313)	(0.00287)	(0.00310)	(0.00493)	(0.00455)	(0.00487)
	572,181	572,453	572,247	530,273	530,531	530,325
Qualified Blue Collars	0.0165***	0.0115***	0.0146***	0.0193***	0.0124**	0.0158**
	(0.00442)	(0.00414)	(0.00439)	(0.00661)	(0.00614)	(0.00653)
	520,265	520,680	520,363	480,554	480,933	480,624
Non qualified Blue Collars	0.0101**	0.00933**	0.00773	0.0176**	0.0131*	0.0136
	(0.00506)	(0.00446)	(0.00509)	(0.00842)	(0.00737)	(0.00844)
	449,969	450,606	450,107	414,877	415,472	414,974
			Panel B: SPS			
Managers	0.0567***	0.0449***	0.0545***	0.0794***	0.0623***	0.0757***
	(0.00529)	(0.00485)	(0.00524)	(0.00863)	(0.00766)	(0.00846)
	552,666	552,976	552,706	514,459	514,763	514,493
Professionals	0.0379***	0.0319***	0.0365***	0.0486***	0.0432***	0.0507***
	(0.00602)	(0.00560)	(0.00602)	(0.00841)	(0.00777)	(0.00861)
	568,401	568,988	567,484	528,821	529,398	527,897
White collars	0.0225***	0.0208***	0.0195***	0.0318***	0.0309***	0.0270***
	(0.00601)	(0.00564)	(0.00599)	(0.00847)	(0.00825)	(0.00837)
	572,181	572,453	572,247	530,273	530,531	530,325
Qualified Blue Collars	0.0515***	0.0446***	0.0478***	0.0689***	0.0582***	0.0639***
	(0.00781)	(0.00725)	(0.00777)	(0.0119)	(0.0107)	(0.0117)
	520,265	520,680	520,363	480,554	480,933	480,624
Non qualified Blue Collars	0.0213**	0.0139*	0.0172*	0.0432***	0.0285**	0.0378***
	(0.00991)	(0.00831)	(0.00992)	(0.0145)	(0.0121)	(0.0143)
	449,969	450,606	450,107	414,877	415,472	414,974
Firm FE	YES	YES	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES	YES	YES

Note: Each entry represents the coefficient from separate regressions of (lagged) NTMs on log employment (by occupation). NTMs can either be the total number of TBT or SPS each company suffers from, lagged one year. Each regression includes firm fixed effects and 1-digit sector × year dummies. The instrumental variable used is the number of concerns raised to the WTO by extra EU countries on the same product. Standard errors reported in parentheses are clustered at the firm level. Observations for each regression are reported below the standard errors. (***) indicates significance at the 1% level, (**) indicates significance at the 5% level and (*) indicates significance at the 10% level.

TABLE A8. Full sample: hourly wages and NTMs

Dependent variable:	TBT		SPS	
Log hourly wage	Firm FE	Firm FE + IV	Firm FE	Firm FE + IV
Managers	0.00268**	0.00513**	0.00243	0.00622*
	(0.00123)	(0.00226)	(0.00255)	(0.00347)
	552,682	514,467	552,682	514,467
Professionals	0.00220*	0.000375	0.00177	0.000950
	(0.00132)	(0.00209)	(0.00293)	(0.00373)
	567,476	527,891	567,476	527,891
White collars	-0.00172	-0.00164	-0.00417	-0.00630
	(0.00143)	(0.00232)	(0.00285)	(0.00390)
	572,241	530,320	572,241	530,320
Qualified Blue Collars	0.00276**	0.00350	-0.000106	0.00323
	(0.00136)	(0.00241)	(0.00296)	(0.00405)
	520,347	480,610	520,347	480,610
Non qualified Blue Collars	-0.00459*	-0.00235	0.00534	0.0129**
	(0.00260)	(0.00399)	(0.00415)	(0.00539)
	450,081	414,956	450,081	414,956
Firm FE	YES	YES	YES	YES
(1-digit) × year dummies	YES	YES	YES	YES

Note: Each entry represents the coefficient from separate regressions of (lagged) NTMs on the log hourly wages (by occupation). NTMs can either be the total number of TBT or SPS each company suffers from, lagged one year. Each regression includes firm fixed effects and 1-digit sector × year dummies. The instrumental variable used is the number of concerns raised to the WTO by extra EU countries on the same product. Standard errors reported in parentheses are clustered at the firm level. Observations for each regression are reported below the standard errors. (***) indicates significance at the 1% level, (**) indicates significance at the 5% level and (*) indicates significance at the 10% level.