In What Sense Was Samuelson Right? New Estimates on the Distributional Effects of Trade

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Outline

A. Import shocks from emerging markets - The employment impact

Main formal framework derived from the shift-share strategy of [Autor et al. (2013)]:

- An regional index of exposure to competition of imports from China:

$$\Delta IPW_{it} = \sum_{j} \frac{L_{ijt}}{\sum_i L_{ijt}} \frac{\Delta M_{jt}}{L_{it}} \tag{1}$$

- A simple 2SLSL specification:

$$\Delta L_{it} = \beta_1 \Delta IPW_{it} + X'_{it}\beta_2 + \gamma_t + u_{it} \tag{2}$$

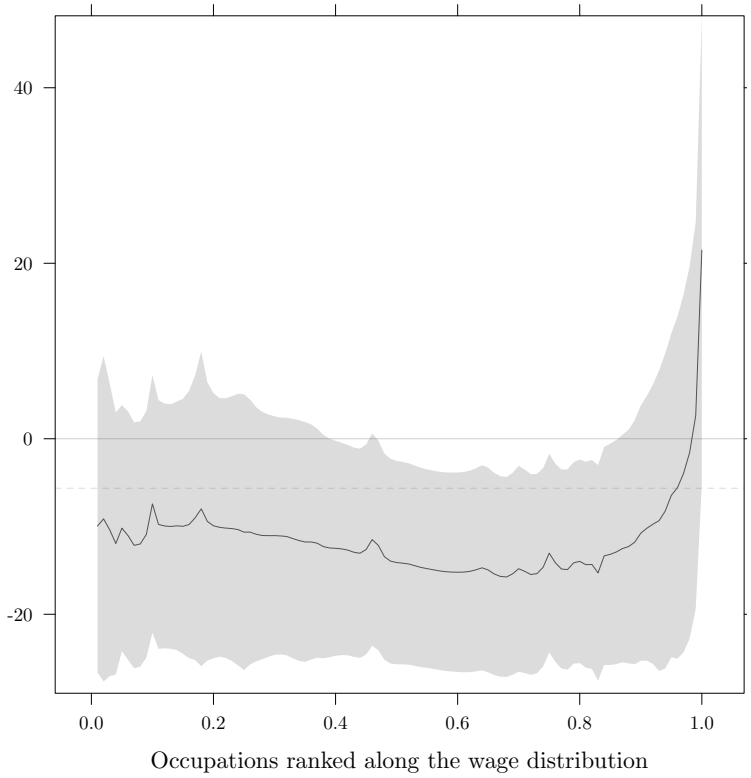
Table: Exposure to imports from China and change in manufacturing employment at the ZE level

Dep. : Decadal change in total manufacturing employ. (in pp)						
	1990-2018					
	(1)	(2)	(3)	(4)	(5)	(6)
Rise in imports from China per worker	−6.27***	−6.47***	−4.22***	−4.35***	−3.38*	−4.02***
over the decade (in 2022 kUSD)	(1.32)	(1.21)	(1.48)	(1.16)	(1.96)	(1.33)
Extra controls:						
Share of employ. in manufacturing		0.04	−0.04	−0.23	−0.02	−0.15
		(0.14)	(0.08)	(0.18)	(0.16)	(0.22)
Share of women in lab. force				−0.91**		−0.77*
				(0.38)		(0.35)
Share of foreign-born in pop.				−1.05***		−1.09***
				(0.25)		(0.24)
Share of higher educ. in pop.				0.27		0.31
				(0.21)		(0.19)
Share of insecure jobs				−0.57**		−0.66**
				(0.21)		(0.23)
Share of routine jobs					−0.11	−1.09*
					(0.75)	(0.59)
Offshorability of manuf. jobs					−1.99*	−1.36**
					(1.13)	(0.51)
Penetration of robots					−0.58	−0.38
					(1.2)	(1.36)
Regional dummies			X	X	X	X
R^2	0.28	0.28	0.49	0.57	0.51	0.58
F-stat	115***	86.6***	32.1***	37.9***	30.1***	35.7***
First stage: Instrumenting by the rise	0.83***	0.81***	0.8***	0.81***	0.76***	0.77***
in imports to a group of control countries	(0.07)	(0.07)	(0.08)	(0.09)	(0.07)	(0.07)
R^2	0.89	0.9	0.89	0.9	0.91	0.91
F-stat	2565***	1949***	302***	263***	299***	266***

Table: Comparing table 1 with [Autor et al. (2013)]

	US Data	French Data
Main coefficient (marginal impact of exposure)	-4.23^{***}	-4.02^{***}
(tab. 5-col. 1 in origin. art.; here tab. 1-col. 6)	(1.05)	(1.33)
Av. rise in exposure to China trade per worker		
First decade	+$1,140	+$281
Second decade	+$1,839	+$2,029
Third decade		+$711
Total	+$2,979	+$3,021
Implied growth of manuf. empl. (1990-2008)	−12.6	
Actual growth of manuf. empl. (1990-2008)	−25.61	
Implied growth of manuf. empl. (1990-2018)		−12.44
Actual growth of manuf. empl. (1990-2018)		−36.33
Percentage explained (raw)	49%	34%
Percentage explained (supply-driven shock only)	24%	32%

Figure: Employment response along the wage distribution (manufacturing vs non-manufacturing)



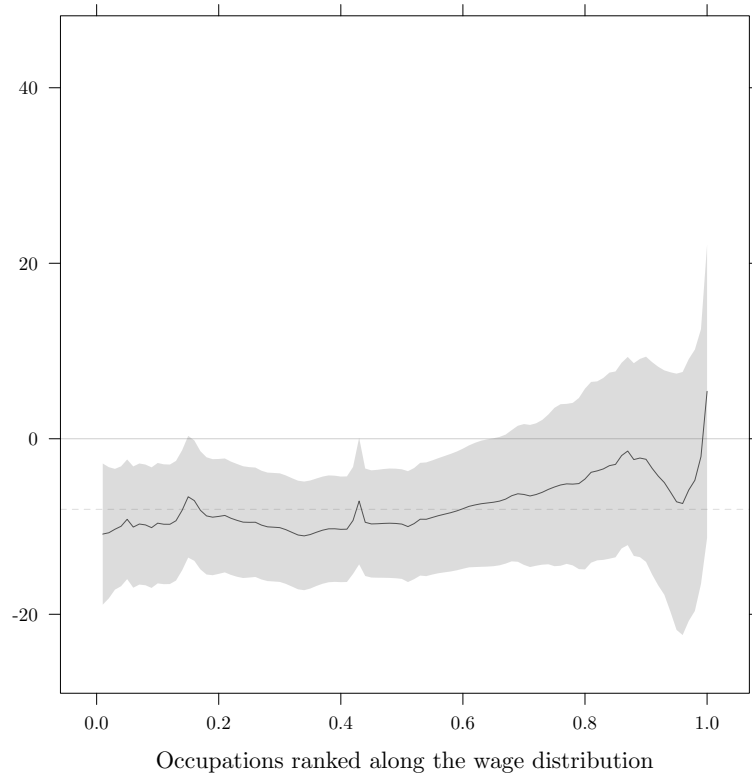
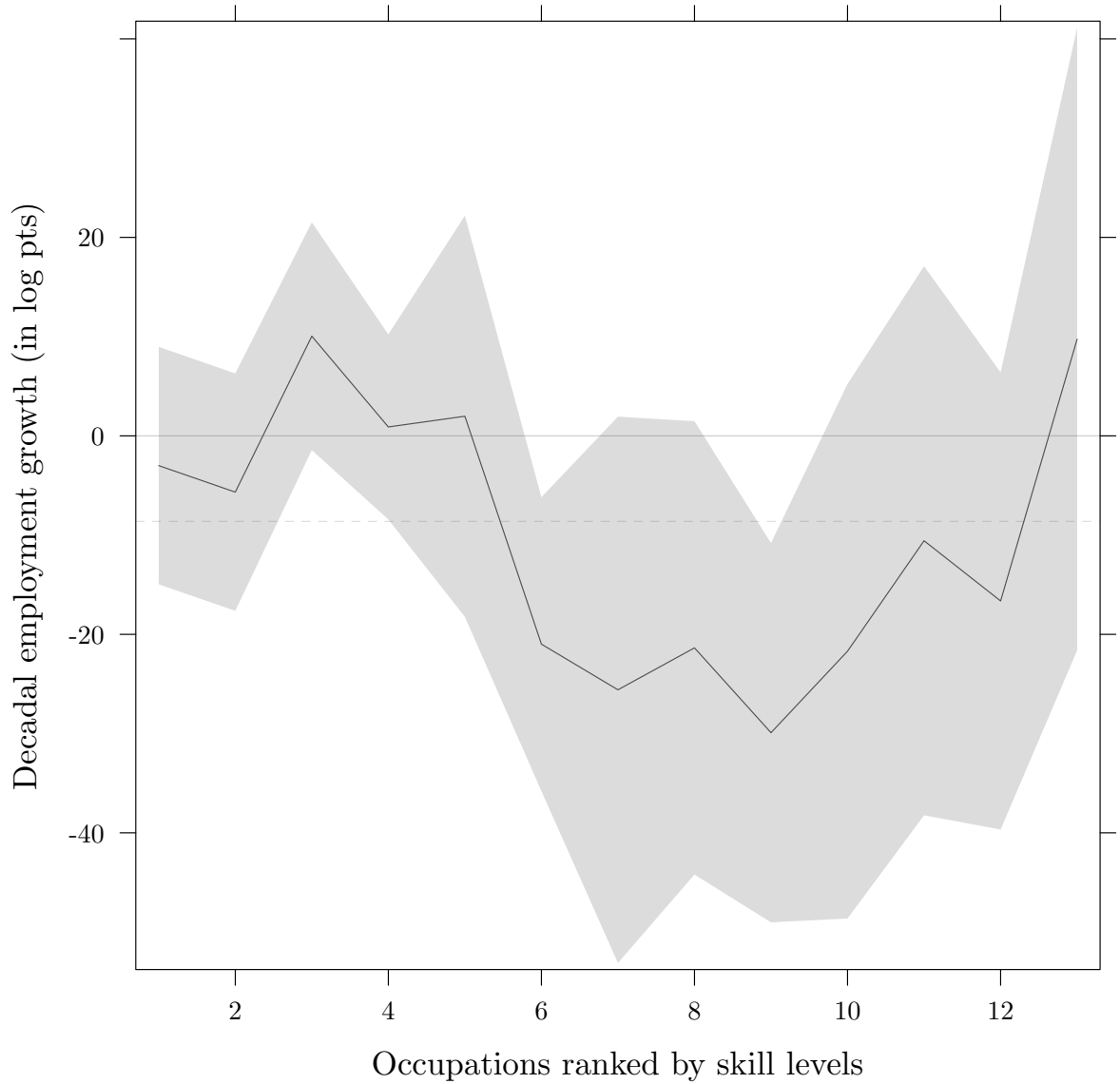


Figure: Employment response along the skill distribution



Note: The unit of interest is the *département*. Employment data are from the 1/12 microsample of the DADS. The main specification is still 2 with the full vector of controls and the Chinese imports' exposure index ΔIPW as the main explanatory, but this time the dependent is the decadal evolution (in log points) of the total stock of employment for a specific occupation. The decade estimated is 2008-2018, and we take the exposure index of 1999-2008 as the explanatory, with the corresponding instrumentation. Occupations are then ranked as follows: We group occupations using the PCS scale at the 4-digits level. We consider the individual diploma scale of the INSEE with slight modifications (1 - No schooling / 2 - No high school and no diploma / 3 - Some high school but no diploma / 4 - Middle-school diplomas (BDC-BEPC-CEP-DFEO) / 5 - Vocational education, short diplomas (CAP-BEP) / 6 - Vocational education, long diplomas (Bac-Tech-Bac-Pro) / 7 - High school diplomas (Bac) / 8 - Vocational higher education (BTS-DUT-DEUST) / 9 - Undergraduate short diplomas (DEUG-L1-L2) / 10 - Undergraduate long diplomas (L3-M1) / 11 - Graduate (M2) / 12 - Gradute "grande école" / 13 - PhD). Using the 2009 issue of the INSEE-ECMOSS dataset, we reconstruct the distribution of diplomas of the members of one specific occupation. We then compare that distribution to the nationwide distribution of diplomas of all workers, and we ascribe to that occupation the diploma which is most overrepresented compared to the national structure of diplomas for all workers. We estimate our main specification with, as dependent, the employment growth for the set of workers to which that specific diploma has been ascribed in each *département*, weighting observations by the start-of-the-decade log total employment, clustering standard errors at the level of the INSEE's superzones.

Table: Exposure to imports from China and evolution of occupations within each ZE

	Dep. : Decadal change in population log counts or shares of total adult population (1990-2008)							
	Population evolution			Adult population decomposition				
	Total change	*Natural increase*	*Migration increase*	Working (manuf.)	Working (tert.)	Unempl.	Retired	Other inactivity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A. Change in log counts								
Rise in imports from China per worker:								
No controls:	2.19***	−0.01	2.19***					
	(0.56)	(0.09)	(0.55)					
Full vector of controls:	3.04***	0.31	2.73***					
	(0.62)	(0.22)	(0.71)					
Panel B. Change in shares of adult pop.								
Rise in imports from China per worker:								
No controls:				−0.14***	−0.24**	0.12*	0.14	0.22
				(0.03)	(0.12)	(0.07)	(0.19)	(0.22)
Full vector of controls:				−0.22***	−0.14**	0.13**	−0.02	0.38
				(0.05)	(0.07)	(0.05)	(0.17)	(0.25)
Obs.	608	608	608	608	608	608	608	608

Sign. thr. : *p<0.1; **p<0.05; ***p<0.01

Note: The unit of observation is the ZE (*Zone d'emploi*, definition of 2010). We estimate model 2 with and without the full vector of controls mentioned in table 1, using as dependent variable a set of changes in population, expressed either in log counts, or in shares in adult (15 y.o. or more) population; data for these dependent variables are drawn from the *Mobilités* datasets of the INSEE. The main explanatory variable is the index ΔIPW, described hereinbefore, which provides an estimation of the mean rise in Chinese imports (in value) per worker within each ZE. The instrument is the same ΔIPW, in which French trade data has been replaced by a control group of four countries (Japan, Germany, Spain, Switzerland) and all labour force variables are taken with a decadal lag. We stack two decades (1990-1990 and 1999-2008) together and include a time dummy for the second decade. Observations are weighted by the start-of-the-decade total population of the ZE. Standard errors are clustered at the level of the INSEE superzones.

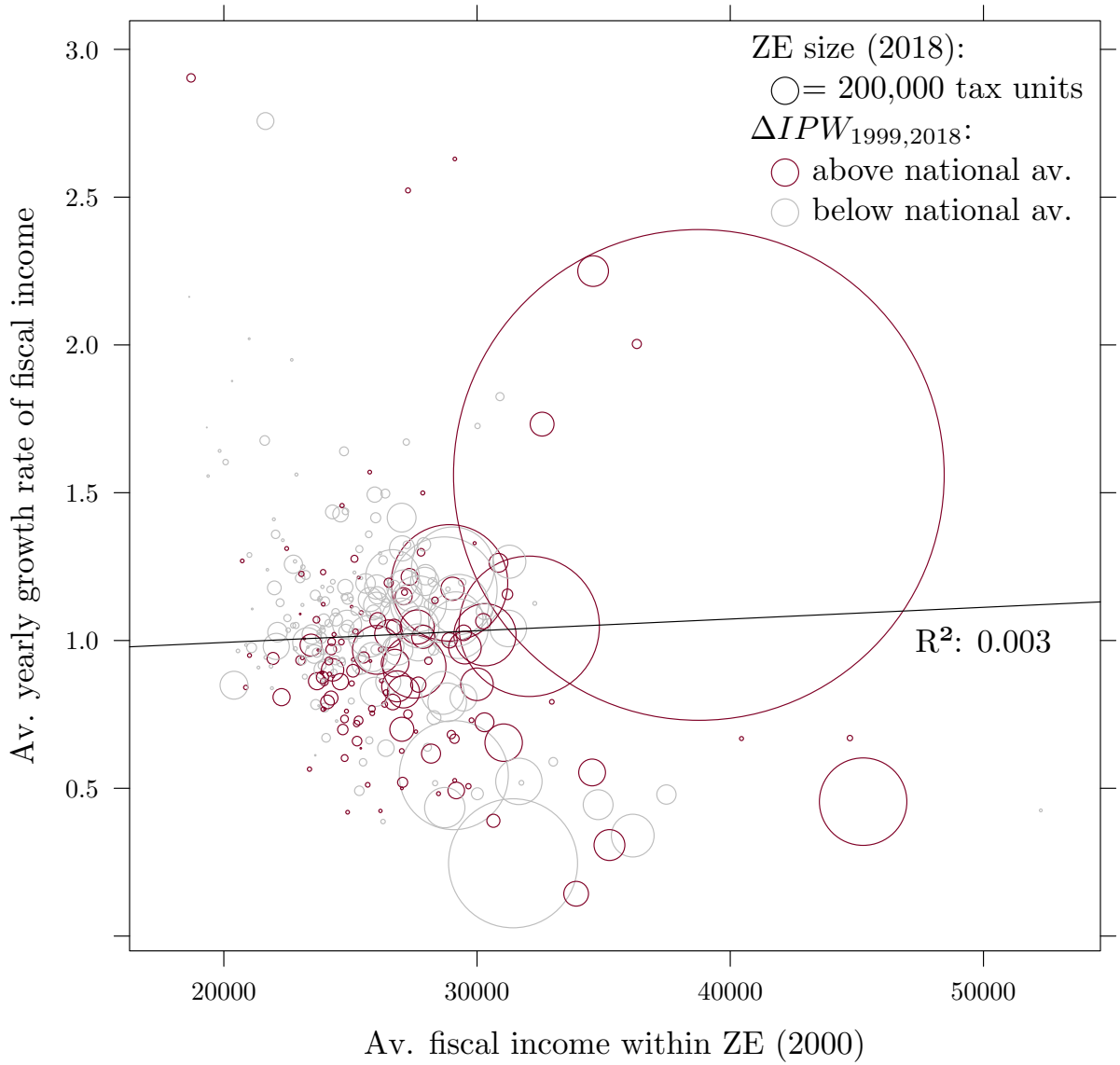
Table: Robustness checks — Alternative instrument, alternative trade partner

Dep. : Decadal change in total manuf. employ. over 1990-2008 (in pp)	China				Germany	
	(1)	(2)	(3)	(4)	(5)	(6)
Rise in import exposure from specified exporter						
Panel A. OLS estimates						
β_1	−6.03***	−3.78***	−6.03***	−3.78***	−1.45**	−1.31**
SE	(1.39)	(0.89)	(1.39)	(0.89)	(0.62)	(0.51)
R^2	0.28	0.61	0.28	0.61	0.21	0.43
F-stat	116***	27.5***	116***	27.5***	75.9***	45.2***
Panel B. 2SLS estimates						
β_1	−6.83***	−4.18***	−6.81***	−4.61***	−1.57**	−1.56***
SE	(1.41)	(1.21)	(1.61)	(0.72)	(0.77)	(0.49)
R^2	0.27	0.61	0.27	0.604	0.19	0.61
F-stat	114.6***	27.3***	113.2***	27.5***	74.7***	29.5***
First-stage:						
Original instrument	0.96***	0.88***				
	(0.05)	(0.09)				
Extra-EU instrument			0.72***	0.75***	2.61***	2.28***
			(0.03)	(0.04)	(0.09)	(0.18)
R^2	0.91	0.92	0.92	0.92	0.86	0.91
F-stat	5801***	210***	5326***	211***	3686***	191***
Controls		X		X		X
Obs.	608	608	608	608	608	608
Av. national $\Delta IPW_{1999,2008}$	2.289	2.289	2.289	2.289	3.608	3.608
Explained share of manuf. decline		0.36		0.39		0.23

Sign. thr. : * p<0.1; ** p<0.05; *** p<0.01

Note: The unit of observation is the ZE (*Zone d'emploi*, definition of 2010). The dependent variable is the change (in pp) of total manufacturing employment within the ZE. The main explanatory variable is the index ΔIPW, described hereinbefore, which provides an estimation of the mean rise in Chinese imports (in value) per worker (in 2022 kUSD) within each ZE. The original instrument is the same ΔIPW, in which French trade data has been replaced by a control group of four countries (Japan, Germany, Spain, Switzerland) and all labour force variables are taken with a decadal lag; the extra-EU instrument is similarly built with a control group made out of Japan, New Zealand, Australia & Canada. Observations are weighted by the start-of-the-decade total population of the ZE. Standard errors are clustered at the level of the 10 INSEE superzones. The shares explained are computed using the variance decomposition exercise reported in the corresponding annex.

Figure: No income convergence between ZEs over 2000-2018, mostly because of exposed ZEs



Note: The unit of interest is the *Zone d'emploi* (the INSEE's commuting zone, 2010 definition). Data are from the INSEE's Census and the IRCOM base. Reported statistics include the average fiscal income within ZE expressed in euros of 2022 and the average yearly growth rate of fiscal income over 2000-2018. Circle sizes provide the related population of the ZE (total number of tax units in 2018). A red circle indicates that the average exposure to import competition within the ZE (expressed in 2022 kUSD per worker) is above the national average (and vice-versa for grey circles). We plot the regression line of the variable on the *y*-axis on the variable of the *x*-axis, weighting by the related tax unit population of each ZE.

B. Income response - Average impact

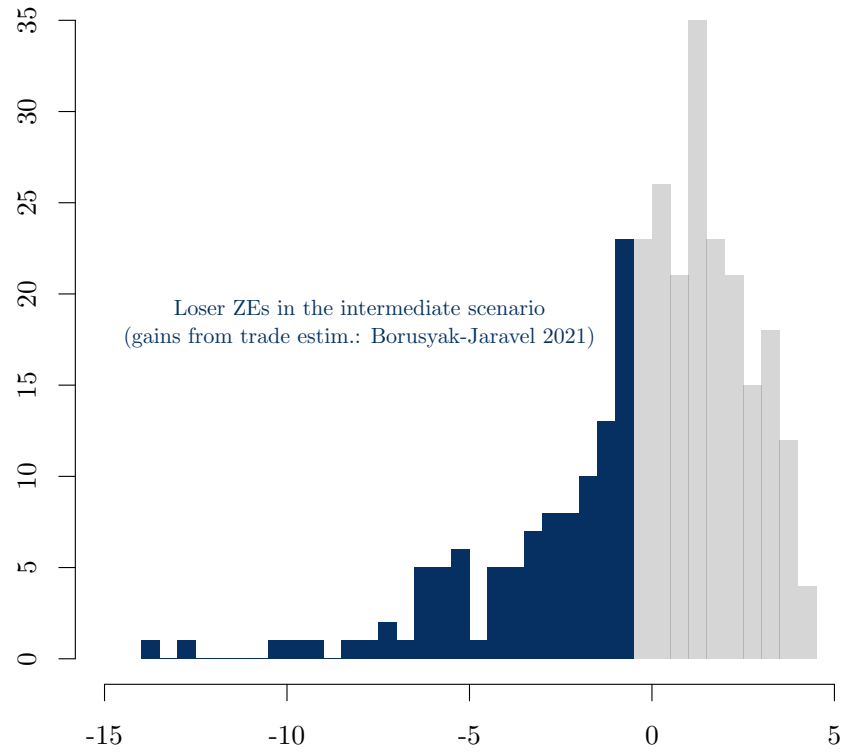
Table: Exposure to import competition and evolution of between regions inequalities

Dep. : Decadal change in the av. fiscal and disposable income (in pp)	Distribution of spatial units		
	Between départements (1)	*Between ZEs* (2)	*Between communes* (3)
Rise in import exposure:			
Panel A. IRCOM dataset — 1990-2018 — Fiscal income			
β_1	−4.34***	−2.02**	−1.41**
S.E.	(1.08)	(1.03)	(0.59)
R^2	0.85	0.76	0.39
F-stat	44.6***	82.2***	1393***
Obs.	282	912	71520
Panel B. — Filosofi dataset — 2012-2017 — Fiscal income			
β_1		−2.16*	
S.E.		(1.13)	
R^2		0.44	
F-stat		6.9***	
Obs.		304	
Panel C. — Filosofi dataset — 2012-2017 — Disposable income			
β_1		−1.41	
S.E.		(0.97)	
R^2		0.54	
F-stat		10.6***	
Obs.		304	

Sign. thr. : *p<0.1; **p<0.05; ***p<0.01

Note: Income data are from IRCOM and Filosofi databases. We report the estimation of the main coefficient of model (2), but the dependent variable is the evolution of the related average yearly fiscal or disposable income of the persons living within each geographical unit of interest. When the model is estimated at the level of the *commune*, we ascribe to each city the explanatory and the instrument of the ZE to which it belongs; other controls, and the dependent, are city-specific. Observations are weighted by the start-of-the-period total tax units population. Standard errors are clustered at the level of the INSEE superzones.

Figure: Centered distribution of the income loss caused by a decade of import competition exposure



Note: The unit of interest is the *Zone d'emploi* (2010 INSEE definition). Income data are from the IRCOM base. We estimate model 2, using the import exposure index $\Delta IPW_{1999,2008}$ as the main explanatory variable (instrumented in the way described hereinabove), the full set of controls, and the variation in fiscal income (in log points) within the ZE over 1999-2018 as the dependant, weighting observations by the start-of-the-period population. We retrieve the corresponding coefficient $\hat{\beta}_1 = -2.27$ (t-stat: 1.95) and multiply it by the exposure of each ZE over 1999-2008, providing an estimate of the income loss caused by a decade of import exposure on local incomes. This histogram plots the distribution of that statistic, centered around the national weighted average. ZEs for which that statistics is below minus the aggregate gains from trade estimates of [Borusyak and Jaravel (2021)] are displayed in blue.

C. Income response - Distributional impact

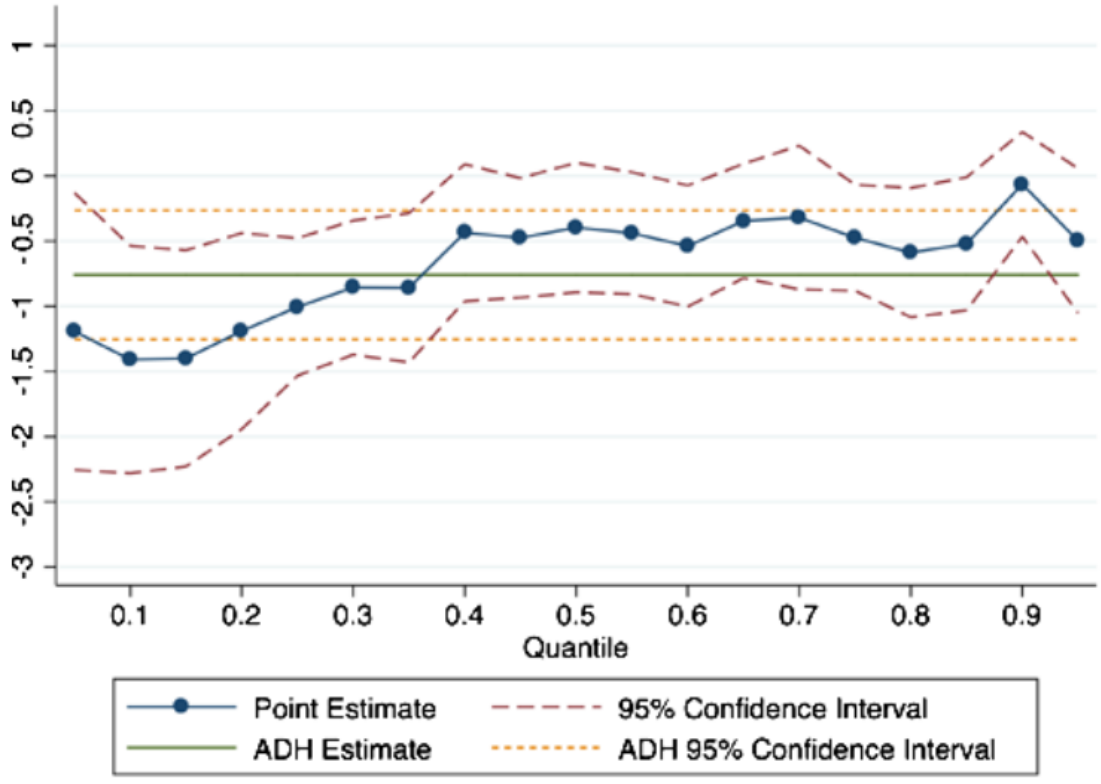


FIGURE 1.—Effect of Chinese import competition on conditional wage distribution: full sample. *Notes*: Figure plots grouped IV quantile regression estimates of the effect of a $1,000 increase in Chinese imports per worker on the conditional wage distribution (β_1 in equation (9) in the text when the change in average log wages for the commuting zone and decade corresponding to group g, $\Delta\overline{\ln w}_g$, is replaced with the change in the u-quantile of log wages $\Delta \ln w_g^u$). The dashed horizontal line is the ADH estimate of β_1 in equation (9). 95% pointwise confidence intervals are constructed from robust standard errors clustered by state and observations are weighted by CZ population, as in ADH. Units on the vertical axis are log points.

Figure: Figure 1 of [Chetverikov et al. (2016)]

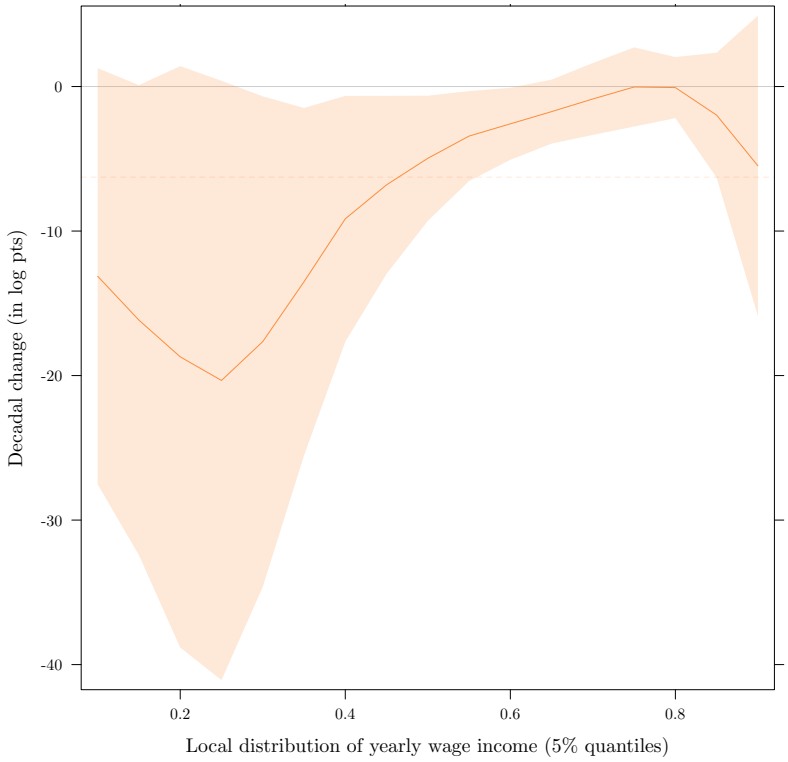


Figure: Wage response in all sectors

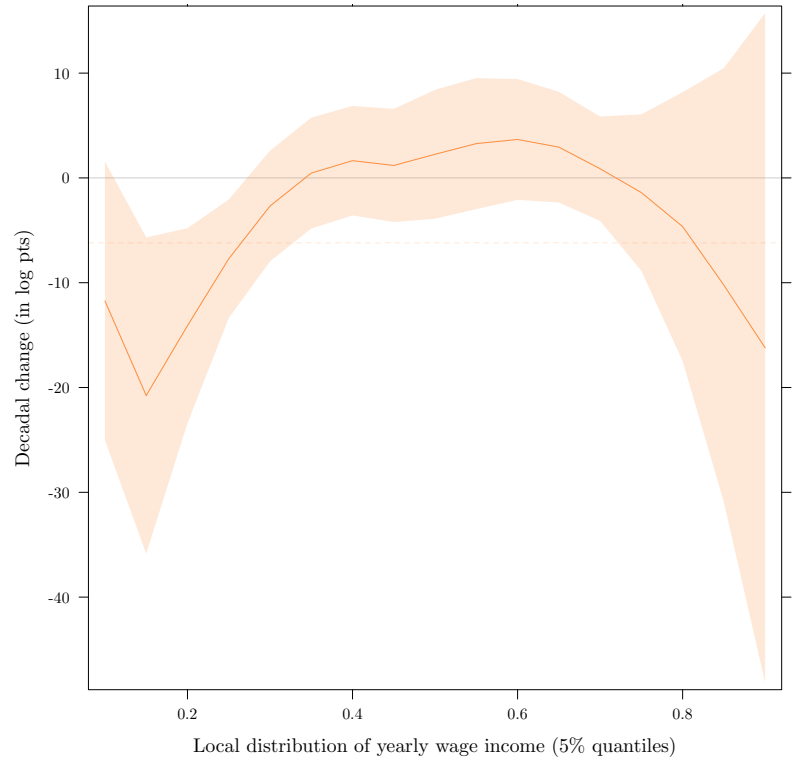
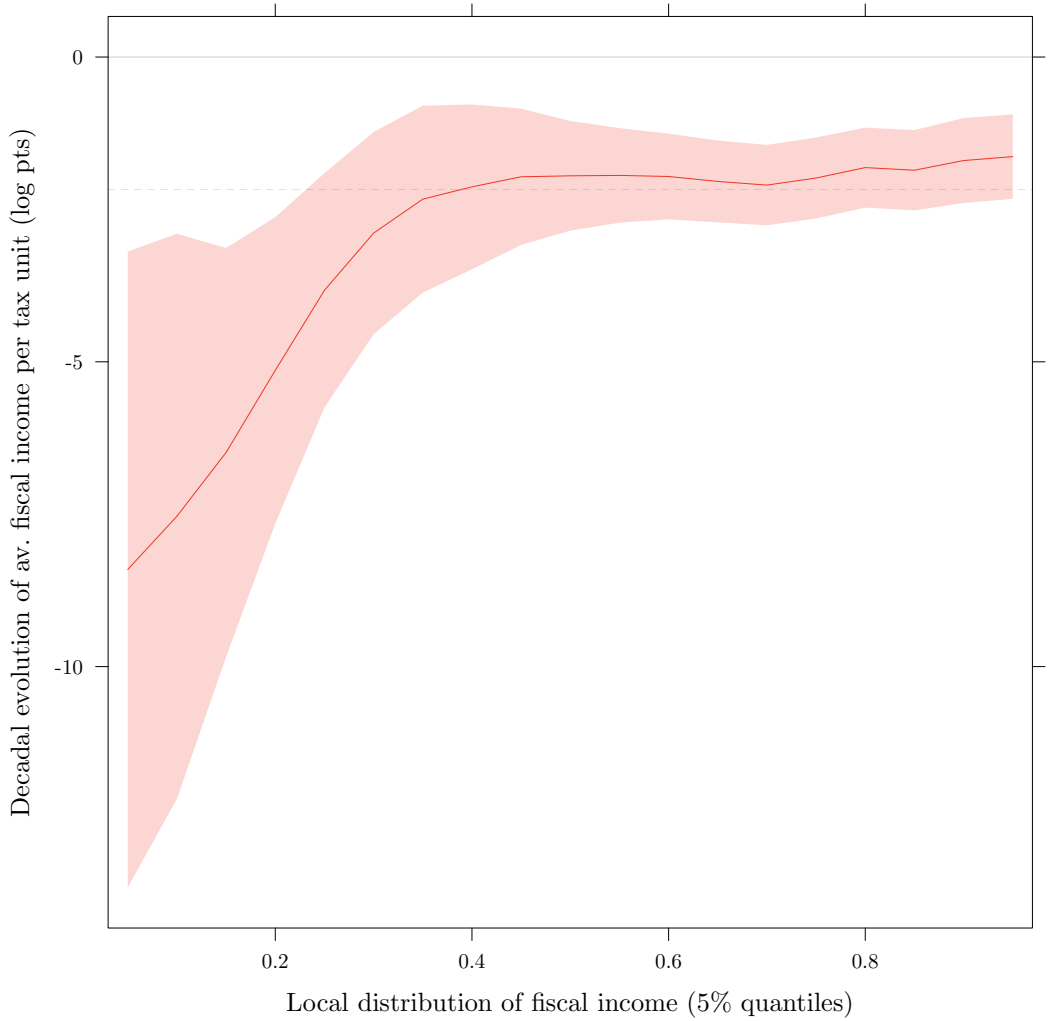


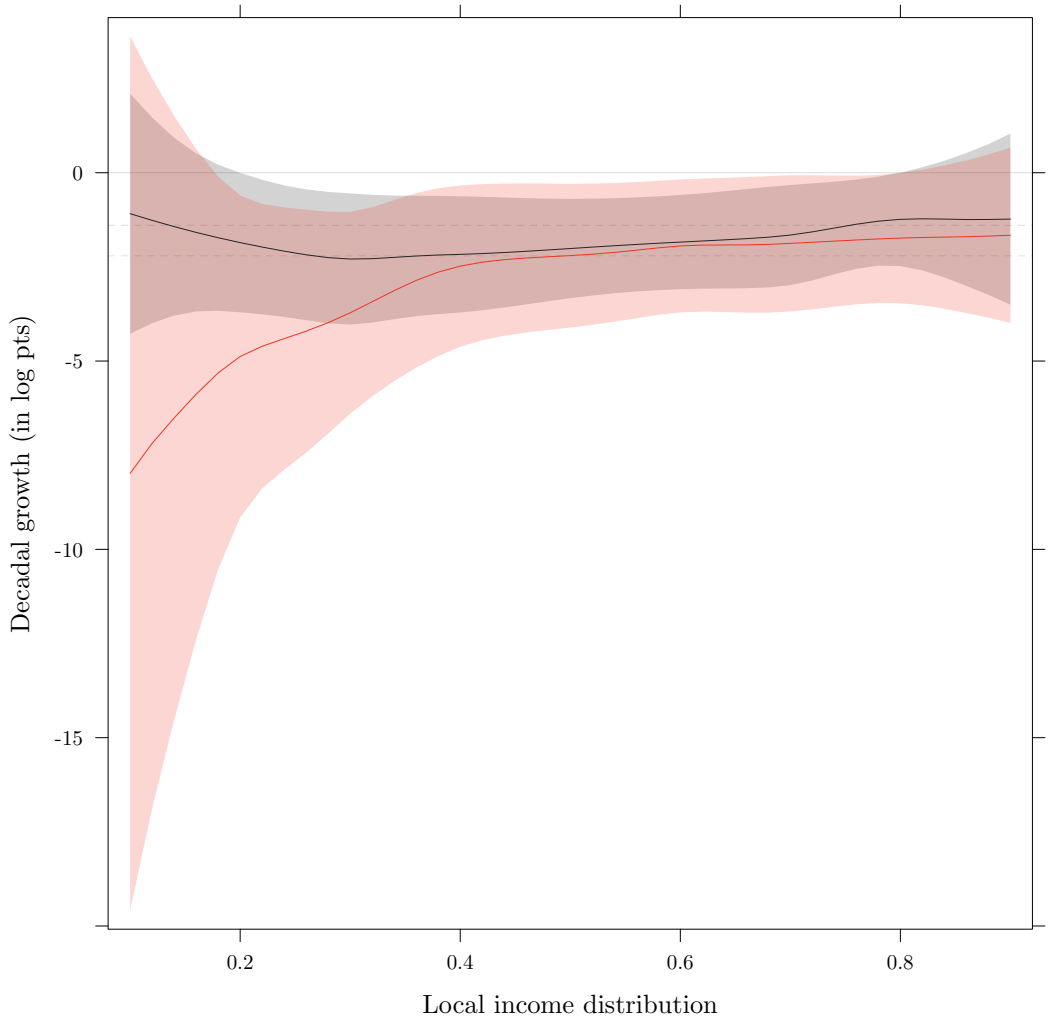
Figure: Wage response in manufacturing

Figure: Distributional impact : Chetverikov-Larsen-Palmer estimator [Chetverikov et al. (2016)] — City-level



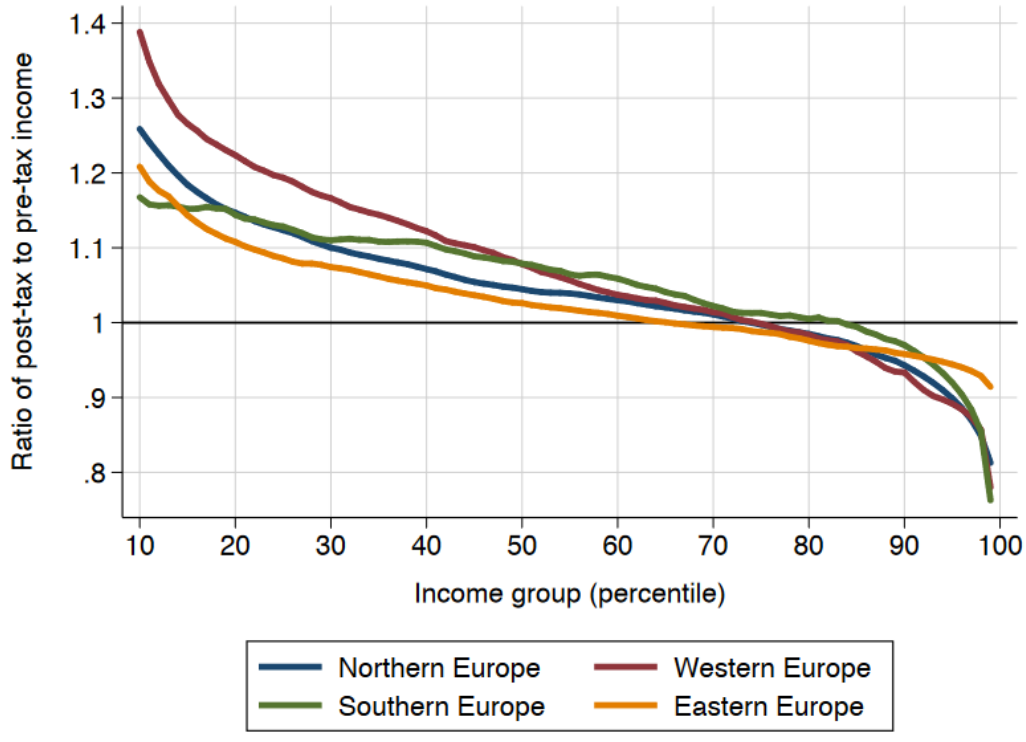
Note: The unit of interest is the city-*commune* and the commuting zone-ZE (*Zone d'emploi*, 2010 INSEE definition). The main source for income variables are respectively the IRCOM database (restriction 2) and the Filosofi database (full dataset). The specification is similar to 2, but this time the dependent variable is the decadal-equivalent evolution (in log points) of each quantile of the local distribution of fiscal (red) and disposable (grey) incomes. The main explanatory variable is the index ΔIPW, described herein above, which provides an estimation of the mean rise in Chinese imports (in value) per worker within each zone. The instrument is the same ΔIPW, in which French trade data has been replaced by a control group of four countries (Japan, Germany, Spain, Switzerland) and all labour force variables are taken with a decadal lag. The period of estimation is 2012-2017 for ZEs, 2001-2018 for cities. All specifications include the full vector of controls mentioned in table 1; for the city-level strategy, we ascribe to each city the indexes ΔIPW, the routine, offshorability, and machine penetration indexes of the ZE to which it belongs, other controls being city-specific. Observations are weighted by the start-of-the-decade total population of the zone reported in the IRCOM or Filosofi base. Standard errors are clustered at the level of the INSEE's superzones. The main line denotes the coefficient $\hat{\beta}_1$, with the corresponding 95% conf. interval; dashed line provide the corresponding $\hat{\beta}_1$ when the mean rise in fiscal income in the zone is the dependent, i.e. for the first panel -2.17 (t=5.38), and for the second one, respec. -2.13 (t=1.77) and -1.51 (t=1.64).

Figure: Distributional impact : Chetverikov-Larsen-Palmer estimator [Chetverikov et al. (2016)] — ZE-level — Pre and post-redistribution income



Note: The unit of interest is the commuting zone-ZE (*Zone d'emploi*, 2010 INSEE definition). The main source is the the Filosofi database (full dataset). The specification is similar to 2, but this time the dependent variable is the decadal-equivalent evolution (in log points) of each quantile of the local distribution of fiscal (red) and disposable (grey) incomes. The main explanatory variable is the index ΔIPW, described herein above, which provides an estimation of the mean rise in Chinese imports (in value) per worker within each zone. The instrument is the same ΔIPW, in which French trade data has been replaced by a control group of four countries (Japan, Germany, Spain, Switzerland) and all labour force variables are taken with a decadal lag. The period of estimation is 2012-2017 for ZEs, 2001-2018 for cities. All specifications include the full vector of controls mentioned in table 1. Observations are weighted by the start-of-the-decade total population of the zone reported in the Filosofi base. Standard errors are clustered at the level of the INSEE's superzones. The main line denotes the coefficient $\hat{\beta}_1$, with the corresponding 95% conf. interval; dashed line provide the corresponding $\hat{\beta}_1$ when the mean rise in fiscal income in the zone is the dependent, i.e. for the first panel -2.17 (t=5.38), and for the second one, respec. -2.13 (t=1.77) and -1.51 (t=1.64).

Figure 19: Redistribution in European regions, 2017:
ratio of post-tax to pre-tax income by percentile



Source: authors' computations combining surveys, tax data and national accounts. Figures correspond to population-weighted averages over the countries belonging to the corresponding regions.

Figure: Figure 19 of [Blanchet, Chancel and Gethin, 2019]

TABLE 8—IMPORTS FROM CHINA AND CHANGE OF GOVERNMENT TRANSFER RECEIPTS IN CZS, 1990–2007: 2SLS ESTIMATES

Dep vars: Ten-year equivalent log and dollar change of annual transfer receipts per capita (in log pts and US$)

	Total individual transfers (1)	TAA benefits (2)	Unemployment benefits (3)	SSA retirement benefits (4)	SSA disability benefits (5)	Medical benefits (6)	Federal income assist (7)	Educ/training assist (8)
Panel A. Log change of transfer receipts per capita								
(Δ imports from China	1.01***	14.41*	3.46*	0.72*	1.96***	0.54	3.04***	2.78**
to US)/worker	(0.33)	(7.59)	(1.87)	(0.38)	(0.69)	(0.49)	(0.96)	(1.32)
R^2	0.57	0.28	0.48	0.36	0.32	0.27	0.54	0.33
Panel B. Dollar change of transfer receipts per capita								
(Δ imports from China	57.73***	0.23	3.42	10.00*	8.40***	18.27	7.20***	3.71***
to US)/worker	(18.41)	(0.17)	(2.26)	(5.45)	(2.21)	(11.84)	(2.35)	(1.44)
R^2	0.75	0.28	0.41	0.47	0.63	0.66	0.53	0.37

Notes: $N = 1{,}444$ (722 CZs × two time periods), except $N = 1{,}436$ in column 2, panel A. Results for TAA benefits in column 2 are based on state-level data that is allocated to CZs in proportion to unemployment benefits. Unemployment benefits in column 3 include state benefits and federal unemployment benefits for civilian federal employees, railroad employees, and veterans. Medical benefits in column 6 consist mainly of Medicare and Medicaid. Federal income assistance in column 7 comprises the SSI, AFDC/TANF, and SNAP programs while education and training assistance in column 8 includes such benefits as interest payments on guaranteed student loans, Pell grants, and Job Corps benefits. The transfer categories displayed in columns 2 to 8 account for over 85 percent of total individual transfer receipts. All regressions include the full vector of control variables from column 6 of Table 3. Robust standard errors in parentheses are clustered on state. Models are weighted by start of period CZ share of national population.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table: Exposure to import competition and evolution of reliance on social transfers

		Types of transfers			*Restrictions*	
Dep. : Decadal change in average share of social transfers in final income						
Period of estimation: 2012-2017						
	All transfers	*Minimum inc.*	*Family allow.*	*Housing benefits*	*Top 10 ZEs*	*Bottom 50 ZEs*
	(1)	(2)	(3)	(4)	(5)	(6)
Rise in imports from China per worker:						
+Full vector of controls:	0.511**	0.411**	0.083	0.036	1.07***	0.469
	(0.24)	(0.19)	(0.05)	(0.04)	(0.21)	(0.37)
R^2	0.68	0.78	0.61	0.57	0.88	0.56
F-stat	18.2***	29.7***	13.2***	10.5***	6.1***	4.9***
Obs.	304	304	304	304	31	152

Sign. thr. : *p<0.1; **p<0.05; ***p<0.01

Note: The unit of observation is the ZE (*Zone d'emploi*, definition of 2010) or the *département*. The dependent variable is the average evolution (in pp) of the share of each type of transfers within the final disposable (after-redistribution) income of a tax unit within the ZE of interest, as reported in the Filosofi database of the INSEE. The main explanatory variable is the index ΔIPW, described hereinbefore, which provides an estimation of the mean rise in Chinese imports (in value) per worker within each ZE. The instrument is the same ΔIPW, in which French trade data has been replaced by a control group of four countries (Japan, Germany, Spain, Switzerland) and all labour force variables are taken with a decadal lag. All specifications include the full vector of controls (at the exception of offshorability and machine penetration indexes due to data limitation). Observations are weighted by the start-of-the-decade total population of households reported in the Filosofi database. Standard errors are clustered at the level of the INSEE superzones.

Table: Simple model for the political impact of the Great Depression

Dep. var.: Evo. of vote shares (1924-1936) in pp	ΔSocialist vote	ΔCommunist vote
	(1)	(2)
Impact of a 1SD change		
Δ*Personal income*$_{1929,1935}$	−2.05	−1.19*
	(1.61)	(0.67)
Δ*Personal wage income*$_{1929,1935}$	−0.36	−0.06
	(1.57)	(0.66)
Δ*Personal wealth*$_{1929,1935}$	0.53	0.71
	(1.19)	(0.51)
Δ*Ratio T10/B50 of wealth*$_{1929,1935}$	−1.83	0.84*
	(1.14)	(0.46)

Sign. thr. : *p<0.1; **p<0.05; ***p<0.01

Note: The unit of observation is the *département* (1929 geography). General data is drawn from the *Annuaire statistique de la France* published by the statistical division of the *Présidence du Conseil*. Electoral data is from Georges Lachapelle's reports. The dependant variable is the evolution of vote shares for the SFIO and SFIC parties between the 1924 and 1936 parliamentary elections. The explanatory variables are the evolution of the explanatory described in the preceding table over 1929-1935; controls are 1929 values of the ones mentioned in the preceding table. There are 85 observations, weighted by the number of vote casts in the corresponding election.

D. Elements on the political economy impact

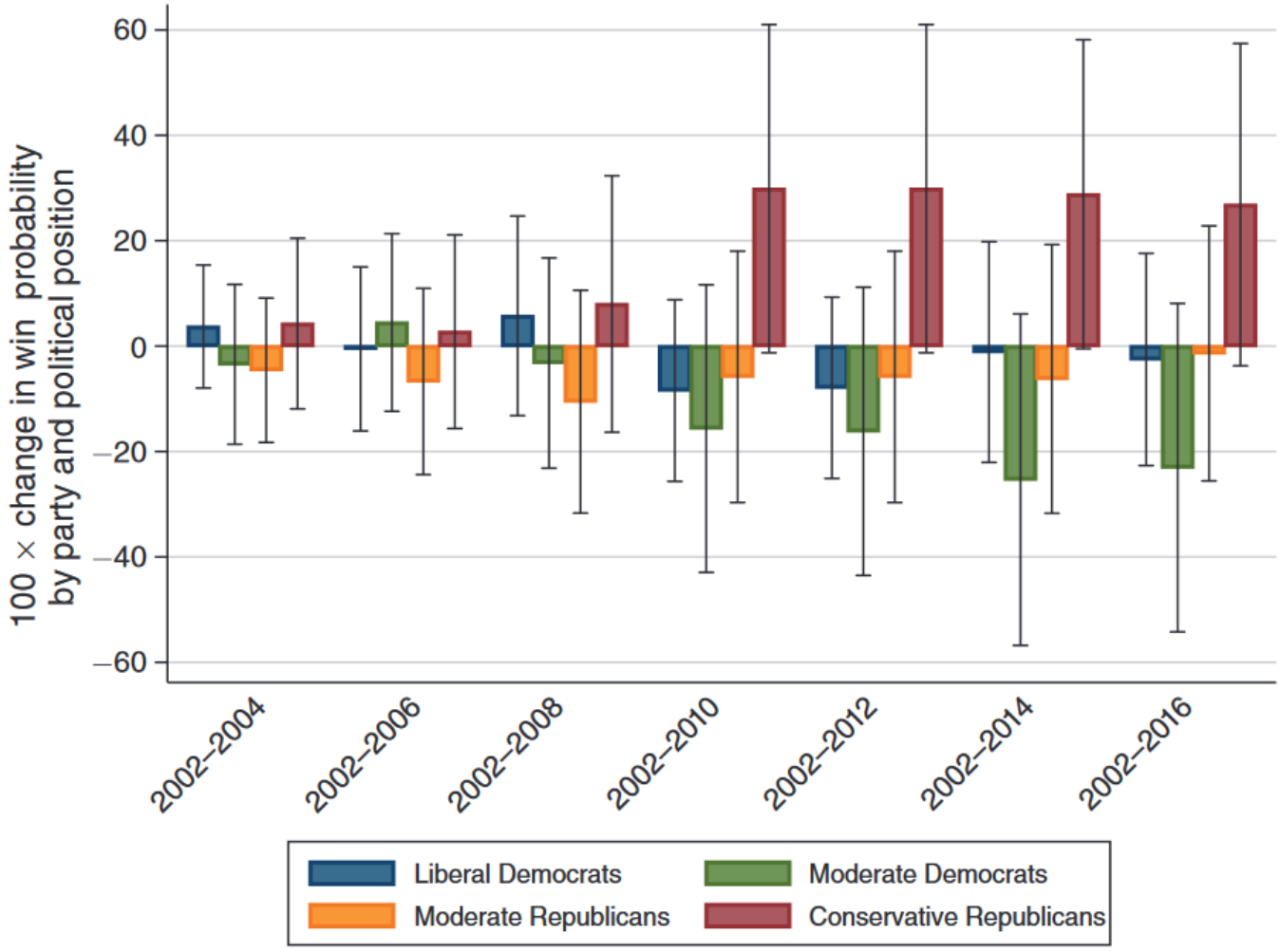


FIGURE 6. EXPOSURE TO CHINESE IMPORT COMPETITION AND IDEOLOGICAL POSITION OF ELECTION WINNER, 2002–2004/2016

Figure: Figure 6 in [Autor et al. (2016)]

Figure: Political impact of a rise in import competition exposure within the ZE (I) — First rounds of the presidential elections

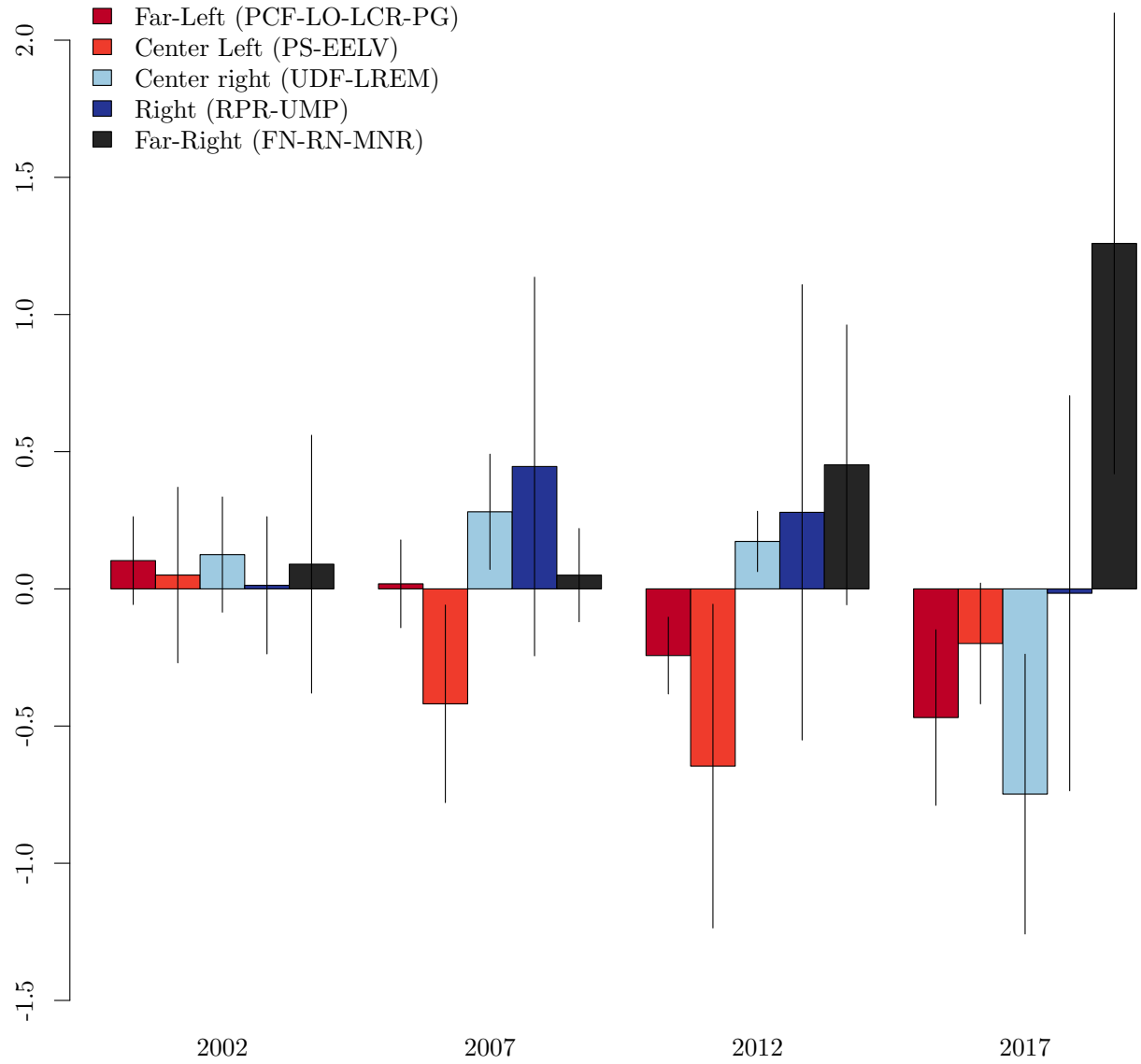


Figure: Political impact of a rise in import competition exposure within the ZE (II) — Second rounds of the presidential elections

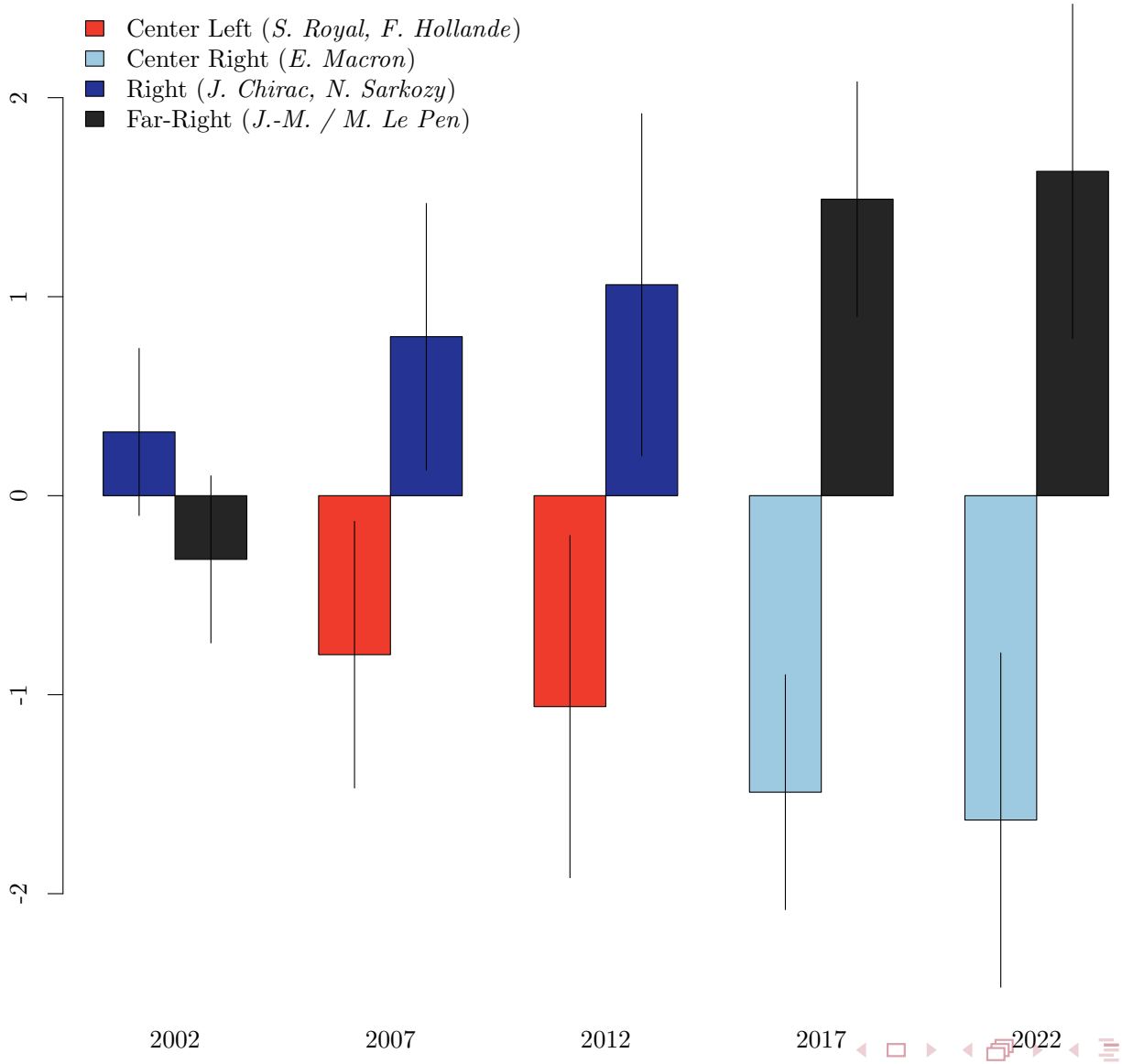


Figure: Political impact of an import shock: some other proxies

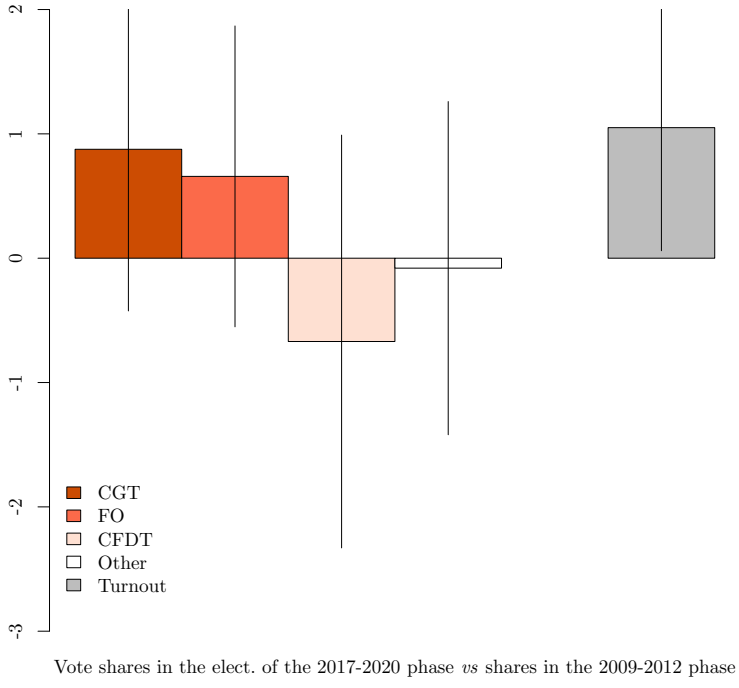


Figure: Profesionnal elections 2009-2022

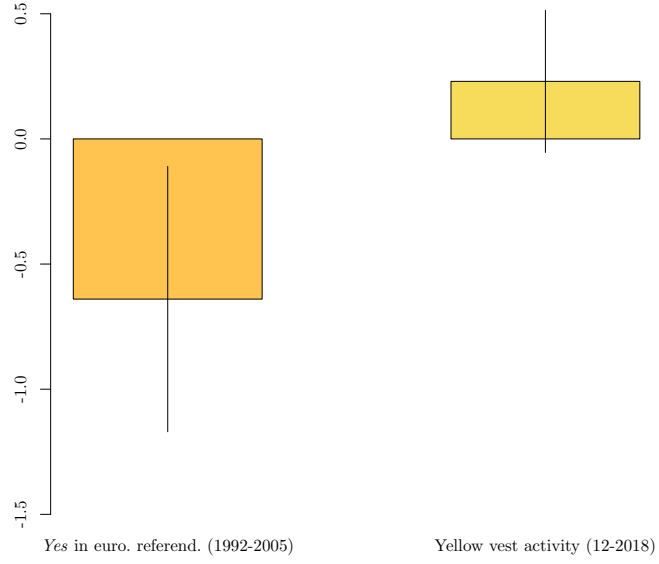


Figure: Euro. referendum & YW activity

Thank you!

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Annex

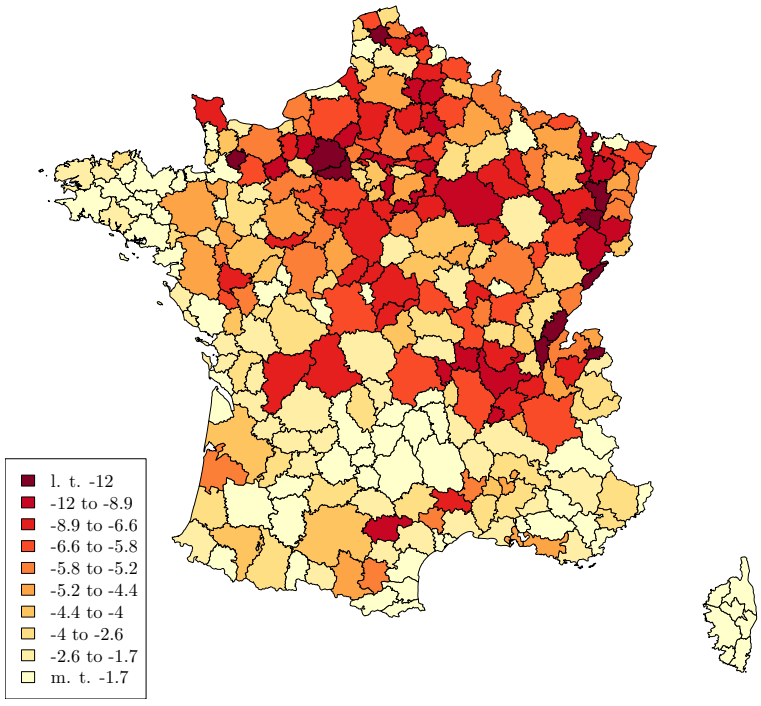


Figure: Industrial decline 1990-2018

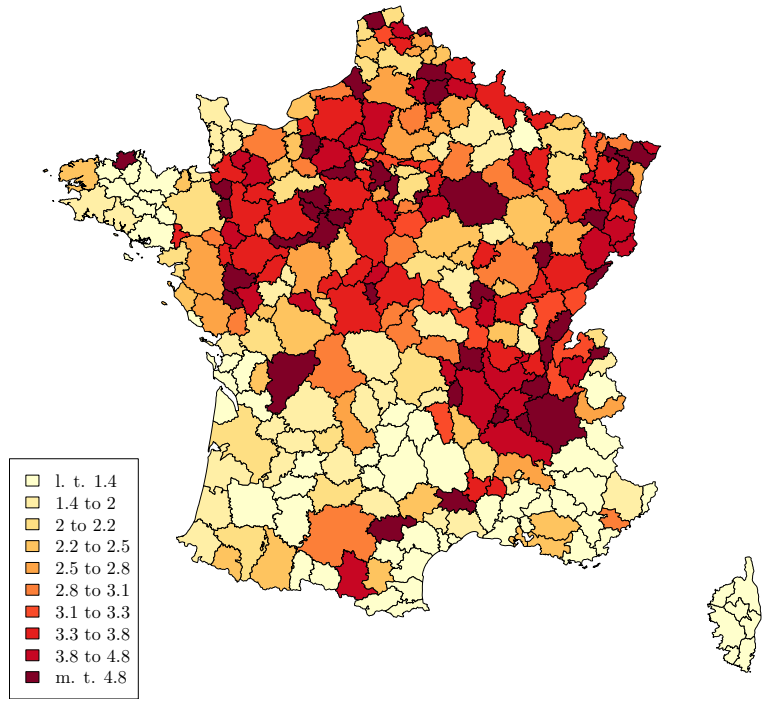
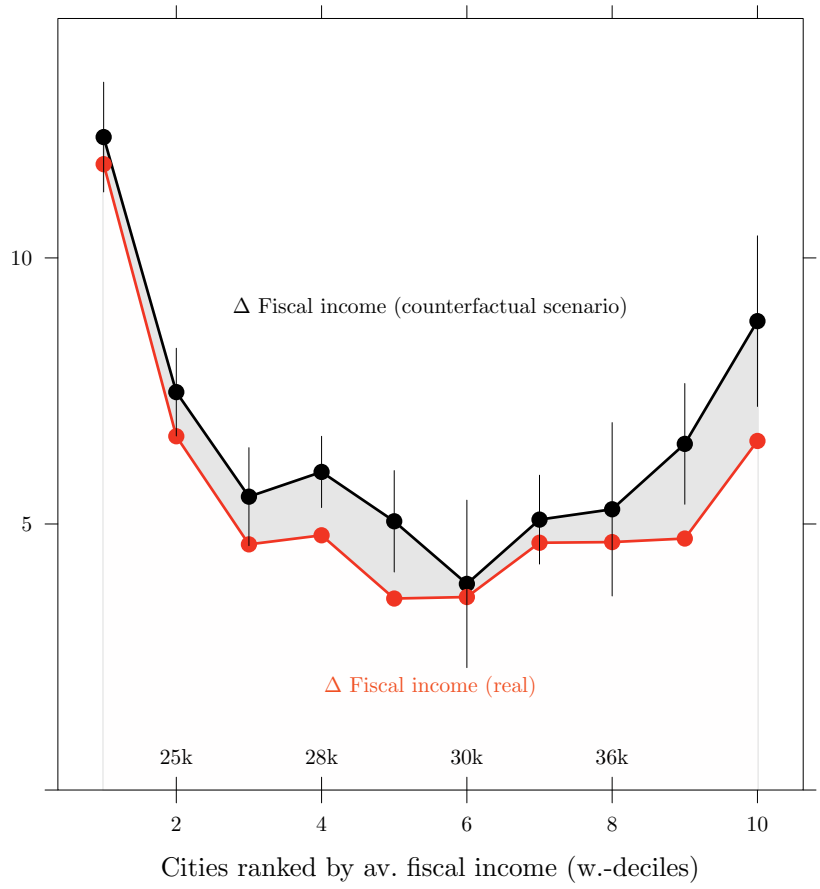


Figure: $\Delta IPW_{1990,2008}$

Figure: Rise in fiscal income across types of *communes* 1990-2018 (actual *vs* counterfactual with $\Delta IPW_{1990,2018} = 0$)



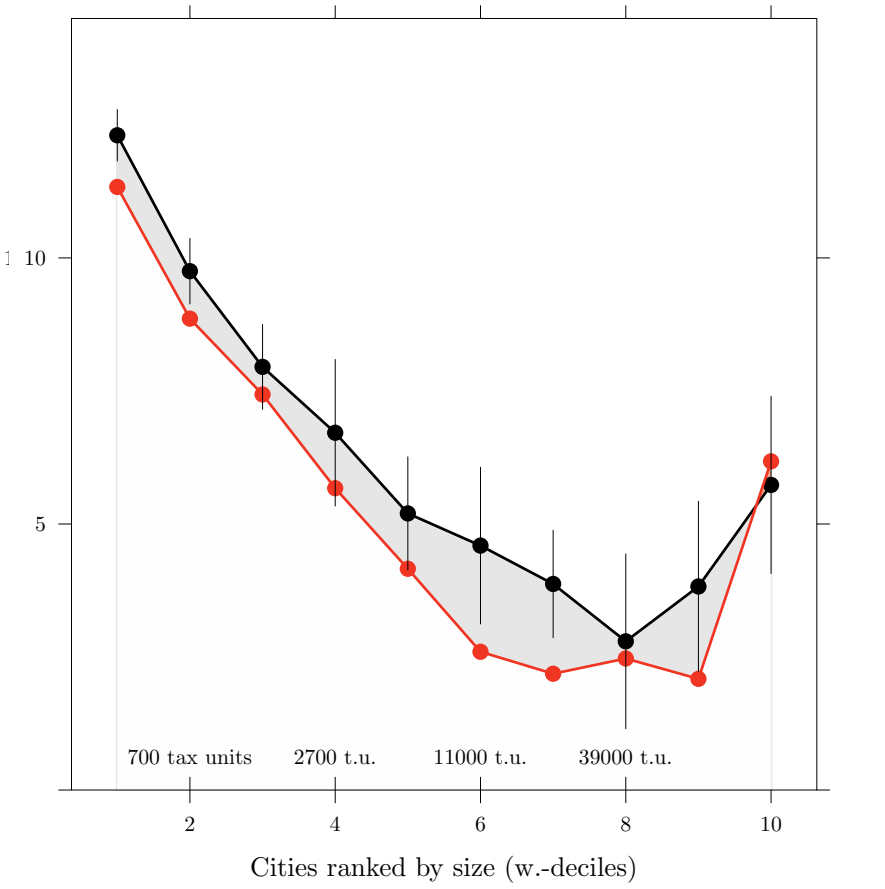


Figure: Loser ZEs in the sense of [Autor et al. (2021)]

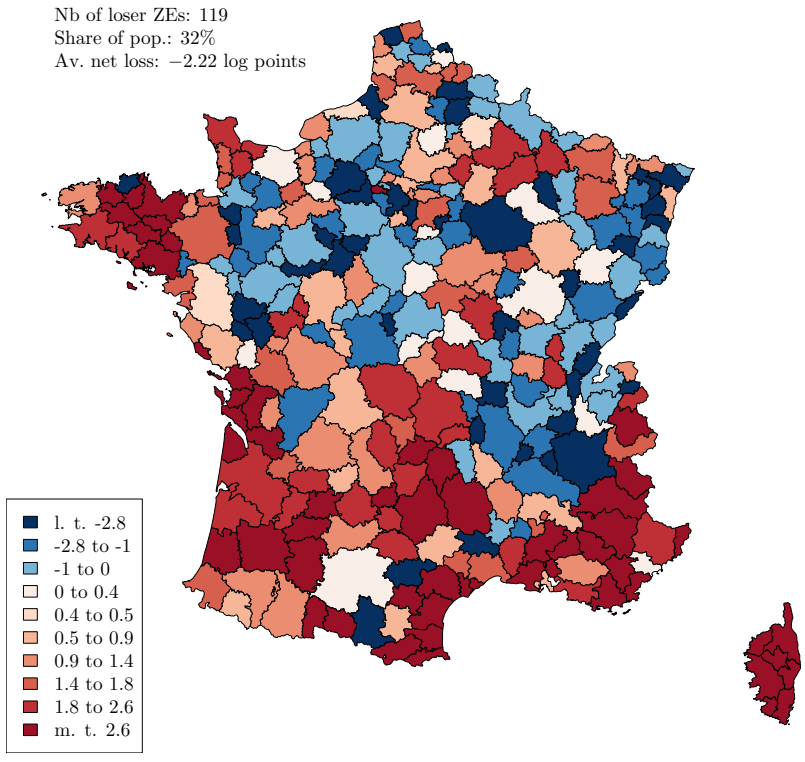


Figure: Aggregate gains from [Caliendo et al. (2015)]

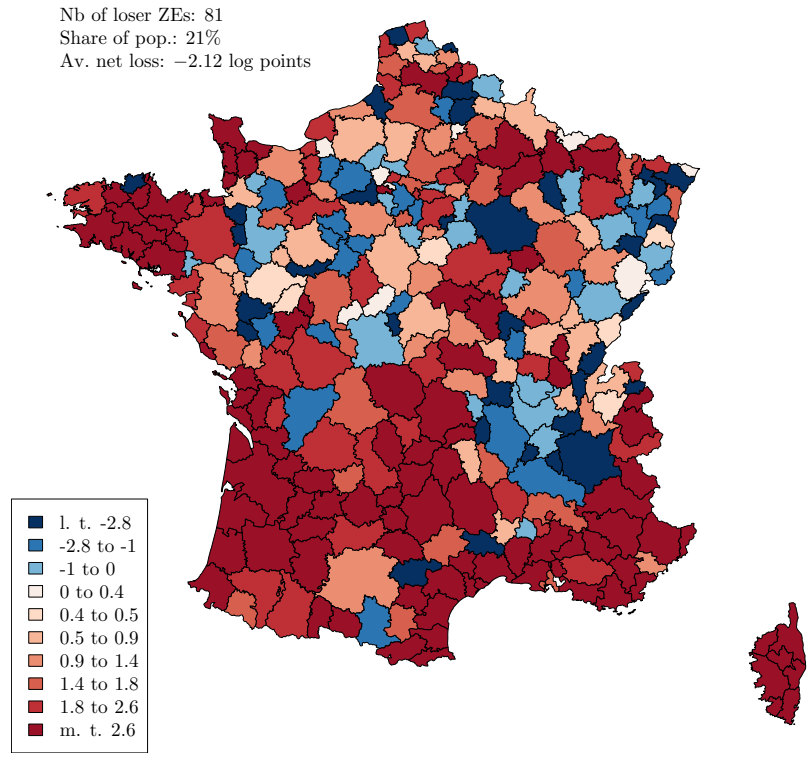


Figure: Gains from the consumpt. channel of [Borusyak and Jaravel (2021)]

TABLE 9—IMPORTS FROM CHINA AND CHANGE IN HOUSEHOLD INCOME, 1990–2007: 2SLS ESTIMATES

Dependent variable: Ten-year equivalent percentage and real dollar change in average and median annual household income per working-age adult (in %pts and US$)

	Average HH income/adult by source				Median HH income/adult	
	Total (1)	Wage-salary (2)	Business invest (3)	SocSec + AFDC (4)	Total (5)	Wage-salary (6)
Panel A. Percent change						
(Δ imports from China to US)/worker	−1.48***	−2.14***	−0.51	2.12***	−1.73***	−2.32***
	(0.36)	(0.59)	(0.74)	(0.58)	(0.38)	(0.51)
R^2	0.69	0.43	0.76	0.52	0.53	0.52
Panel B. Dollar change						
(Δ imports from China to US)/worker	−492.6***	−549.3***	40.1	17.3***	−439.9***	−476.5***
	(160.4)	(169.4)	(116.7)	(4.3)	(112.7)	(122.2)
R^2	0.63	0.40	0.72	0.51	0.49	0.48

Notes: $N = 1{,}444$ (722 CZs × 2 time periods). Per capita household income is defined as the sum of individual incomes of all working-age household members (age 16–64), divided by the number of household members of that age group. Total income comprises wage and salary income; self-employment, business, and investment income; social security and welfare income; and income from other nonspecified sources. Social security and welfare income in column 4 includes social security retirement, disability, and supplementary income, aid to families with dependent children (AFDC), and general assistance. All regressions include the full vector of control variables from column 6 of Table 3. Robust standard errors in parentheses are clustered on state. Models are weighted by start of period CZ share of national population.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.