Immigrant Workers, Entrepreneurs, Firm Exports (and Beyond): Evidence from Italy

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Overview of the paper

Motivation

- There is a large literature on the pro-trade effects of immigrants (**PerReq10**; **BraDeBSan14**; **bratti2020immigrant**): region i, with a higher stock of immigrants from j, tend to export relatively more towards j;
- Some recent studies use firm-level data to investigate the pro-trade effects of immigrant workers and the spatial scope of the pro-trade effects (diasporas vs firm-level migrants?);
- Yet, there is still very little evidence on the pro-trade effects of immigrant entrepreneurs;
- In particular, even firm-level studies generally omit immigrant entrepreneurs from gravity models, but immigrant entrepreneurs may represent an important omitted variable, given that they often tend to hire workers from their countries of origin (e.g. positive matching induces a positive bias in the estimates of the effect of immigrant workers on exports). Moreover, those who are most likely to have knowledge of foreign markets and exploit it are entrepreneurs;
- Our research questions: Do immigrant entrepreneurs (IE) allow firms to export more towards their countries of origin? What is the size of the effect? Does the effect of immigrant workers (IW) survive the inclusion of IE?

Literature - Evidence on the trade-creating effect of immigrant workers (IW)

For the sake of brevity, we only refer to studies using firm-level dyadic export data:

- **Hiller2013** uses matched administrative employer-employee and manufacturing export data by destination for all Danish firms exporting to at least one destination in the 1995-2005 period. OLS estimates show that while foreign employees increase both export sales and the number of exported products, local diasporas only positively affect the latter;
- **HatLod2016** use administrative data from an employer-employee panel of all Sweden manufacturing firms (with at least 10 employees), covering about 12,000 firms for 1998-2007. Both their IV and fixed-effects estimates using lagged variables indicate a positive effect of foreign-born workers on firm exports. However, this relationship holds for Small and Medium Enterprises (SMEs), and high-skilled and recently arrived immigrants;
- **cardoso2022immigrants** investigates the effect of foreign employees on exports using Canadian administrative matched employer-employee data covering the full manufacturing firm population. Using IV, they find positive and statistically significant effects of firm-level immigrant employment on exports, especially of differentiated goods.

Literature - Evidence on the trade-creating effect of immigrant entrepreneurs (IE)

Evidence of comparable quality on IE coming from admin dyadic trade data is non-existent. There exist only papers using small samples or case studies;

- **hoch2021building** uses a small sample of US large publicly listed firms, in which export data are self-declared, and show that firms managed by foreign entrepreneurs exports more towards their countries of origin;
- **morgan2021no** show that that the financial success of immigrant entrepreneurs stems from their level of concurrent embeddedness in their countries of residence and origin, and from higher export intensity in their countries of origin;
- **morgan2018smes**; **wang2015transnational**; **miera2008transnational** focus on case studies (few ethnic groups) and show that immigrant-owned firms export more;
- To the best of our knowledge, no studies manage to include IE in a standard gravity model estimated at the firm level using customs export data yet.

Data

The data are restricted-access and were accessed at ISTAT premises in Rome within a joint project with ISTAT researchers. The main features of the data are:

- time coverage: 4 years, 2014-2017;
- firm coverage: all Italian manufacturing firms exporting towards at least one destination, for which we have export values from customs data ($< 1,000$ euro truncated);
- data on workers' and employers' country of birth derived from *Registro base degli individui* (RBI-ISTAT);
- data on firms' economic accounts derived from *FrameSBS ISTAT*, produced by linking serveral adiministrative sources available at ISTAT (e.g. Chambers of Commerce data).

Data - Descriptives

Country of origin of the entrepreneur	Board	Entrepreneurs in 2014	Entrepreneurs in 2017
Italy	Only Italians	253519	204100 ⇓
Italy	Mixed	8137	14073 ⇑
Foreign country (IE)	Mixed	2899	10747 ⇑
Foreign country (IE)	Only Immigrants	11379	19149 ⇑
		275934	248069 ⇓

Between 2014 and 2017 the number of entrepreneur managing exporting firms has decreased (from 6.45% of entrepreneurs active in all Italian firms, to 5.78%), but the number of immigrant entrepreneurs did substantially increase; in 2017 they represent the 12% of entrepreneurs managing exporting firms.

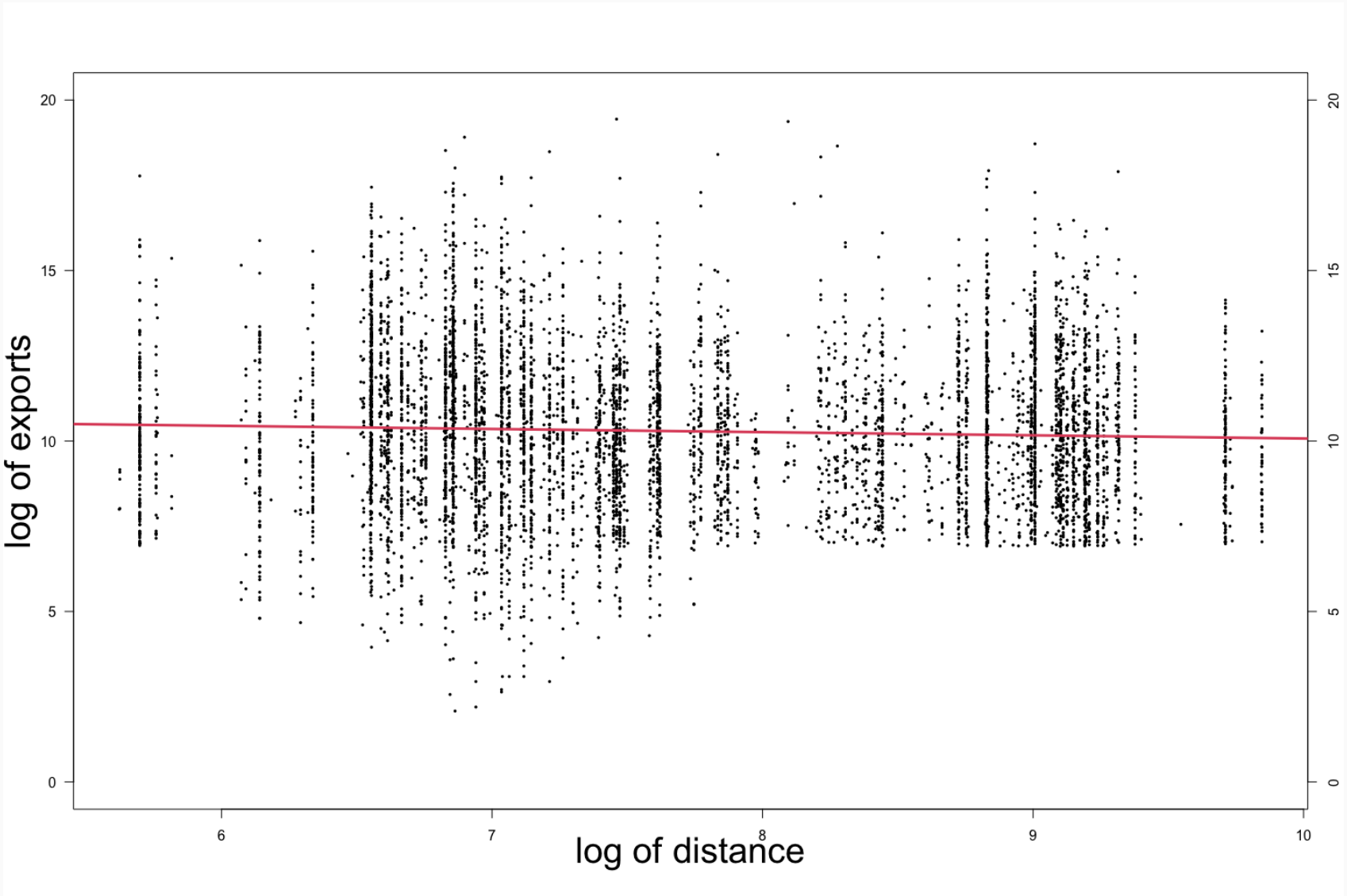
Exporting firms	2014	2017
	77173	69192 ⇓

The general effect is driven by the drop in the number of exporting firms, but the

Data - Descriptives

% workers from the same country of the Entrepreneur			% immigrant workers from the same country of the Entrepreneur			% immigrant entrepreneurs			
iso3	2014	2017	iso3	2014	2017	iso3	2014	2017	(#)
CHN	57.97	57.78	PHL	23.23	100.00	CHN	99.91	98.56	(1037)
PAK	39.54	42.21	CHN	87.27	81.88	DEU	97.42	77.82	
BGD	2.98	26.93	BIH	43.36	65.61	CHE	98.74	89.85	
BIH	26.56	26.79	PAK	71.03	52.78	FRA	99.03	81.41	
ALB	25.67	24.15	BGD	13.62	46.98	USA	99.42	70.89	
GHA	0.00	22.90	ALB	54.68	44.61	GBR		66.43	
MDA	0.00	15.16	GHA	0.00	33.20	BEL	99.43	73.92	
ROM	19.08	13.64	MDA	0.00	32.32				
SVN	2.03	11.40	ROM	41.49	31.09	PAK	100.00	88.19	(12)
MAR	16.61	10.81	ZMB	30.68	26.19	BGD	100.00	100.00	(4)
TUR	11.39	9.65	UGA	50.00	25.00	BIH	96.15	100.00	(11)
PER	7.15	7.61	MAR	36.59	23.63	ALB	100.00	100.00	(105)
ZMB	8.30	7.23	TUR	22.100	20.98	GHA	100.00	100.00	(4)
NGA	4.43	6.48	BLR	25.74	20.00	ROM	96.51	96.77	(101)

Data - Descriptives



Gravity in Genoa (2017). $\hat{\beta}_d$ = -0.09

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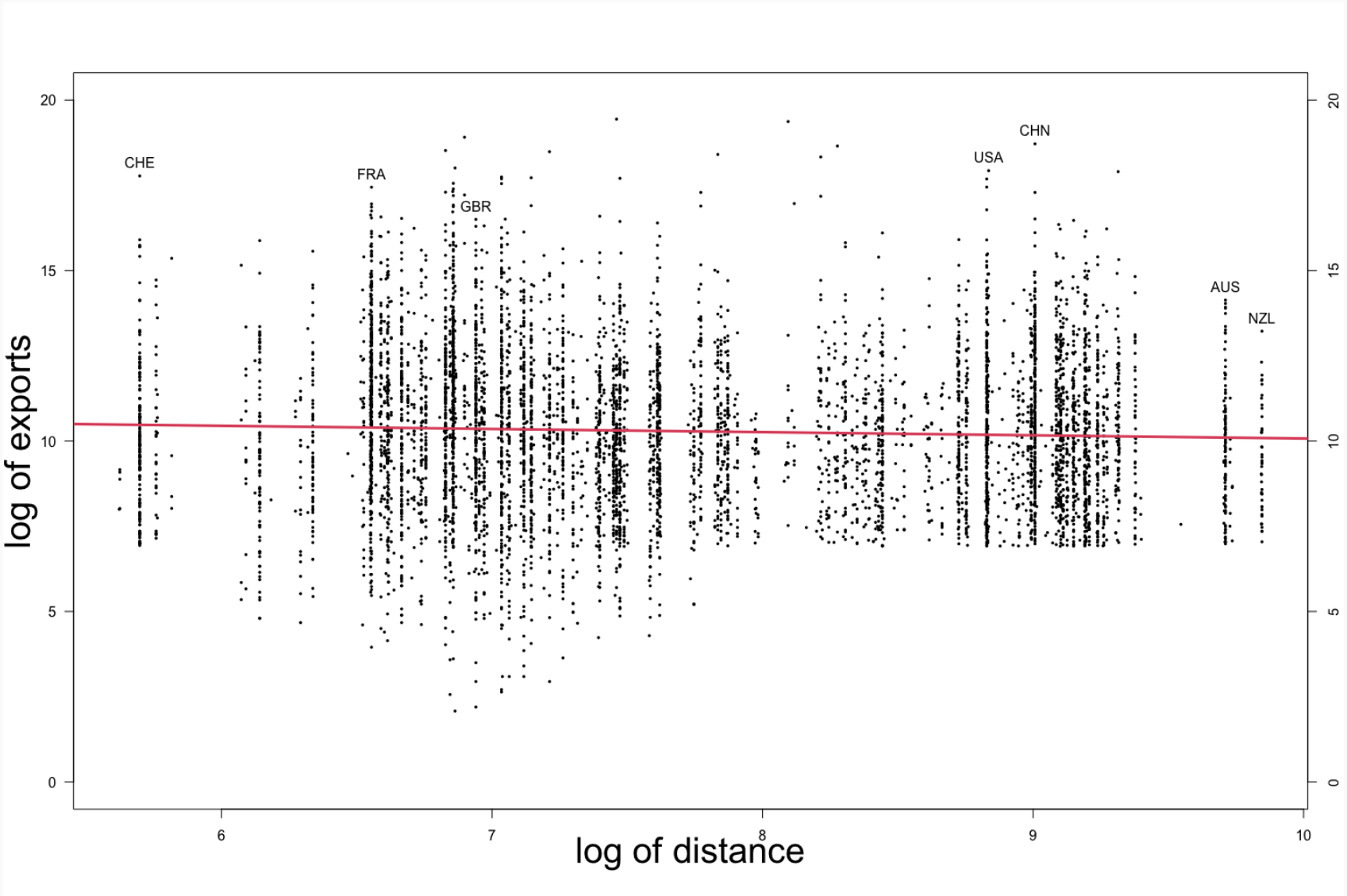

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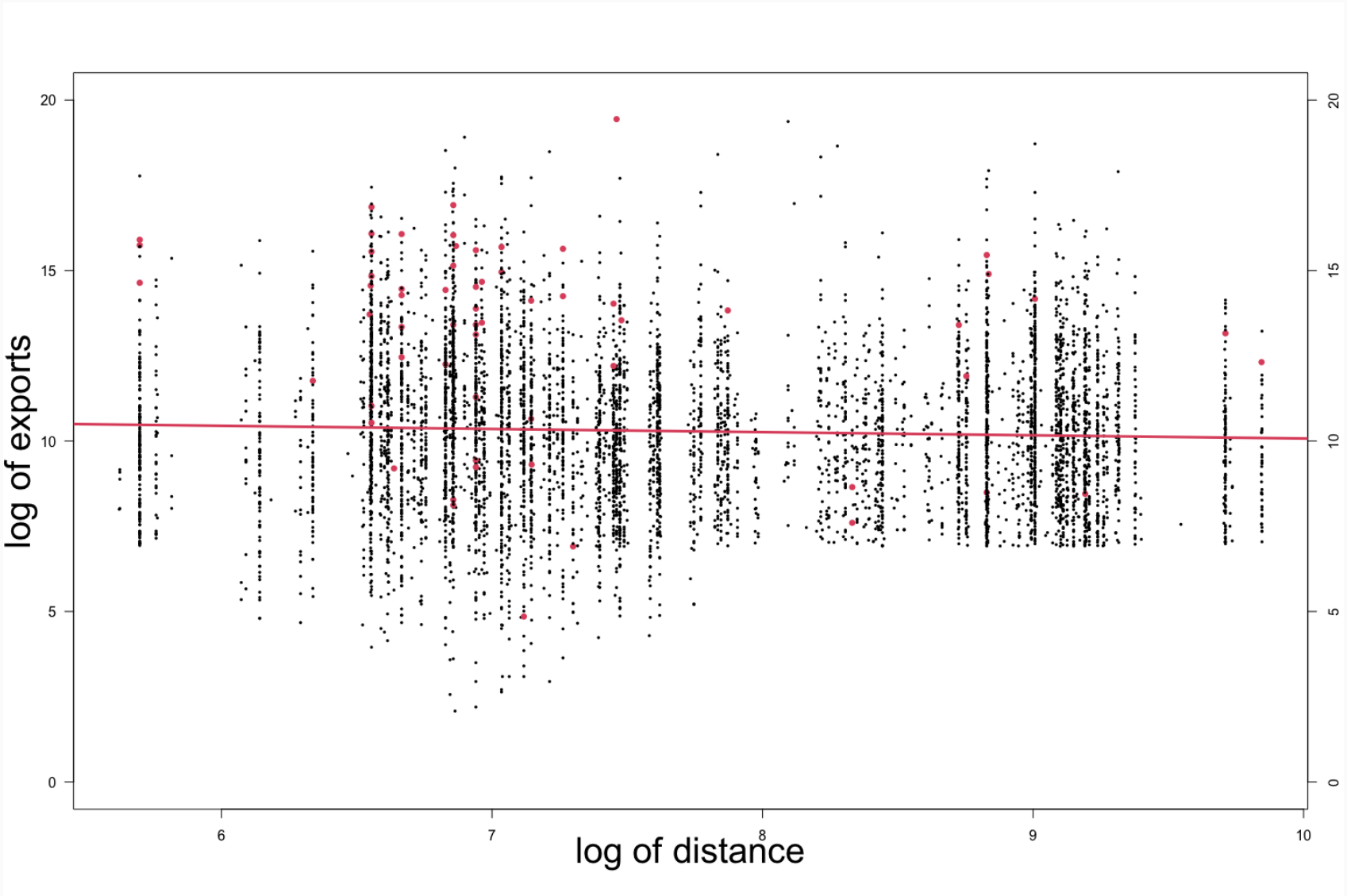
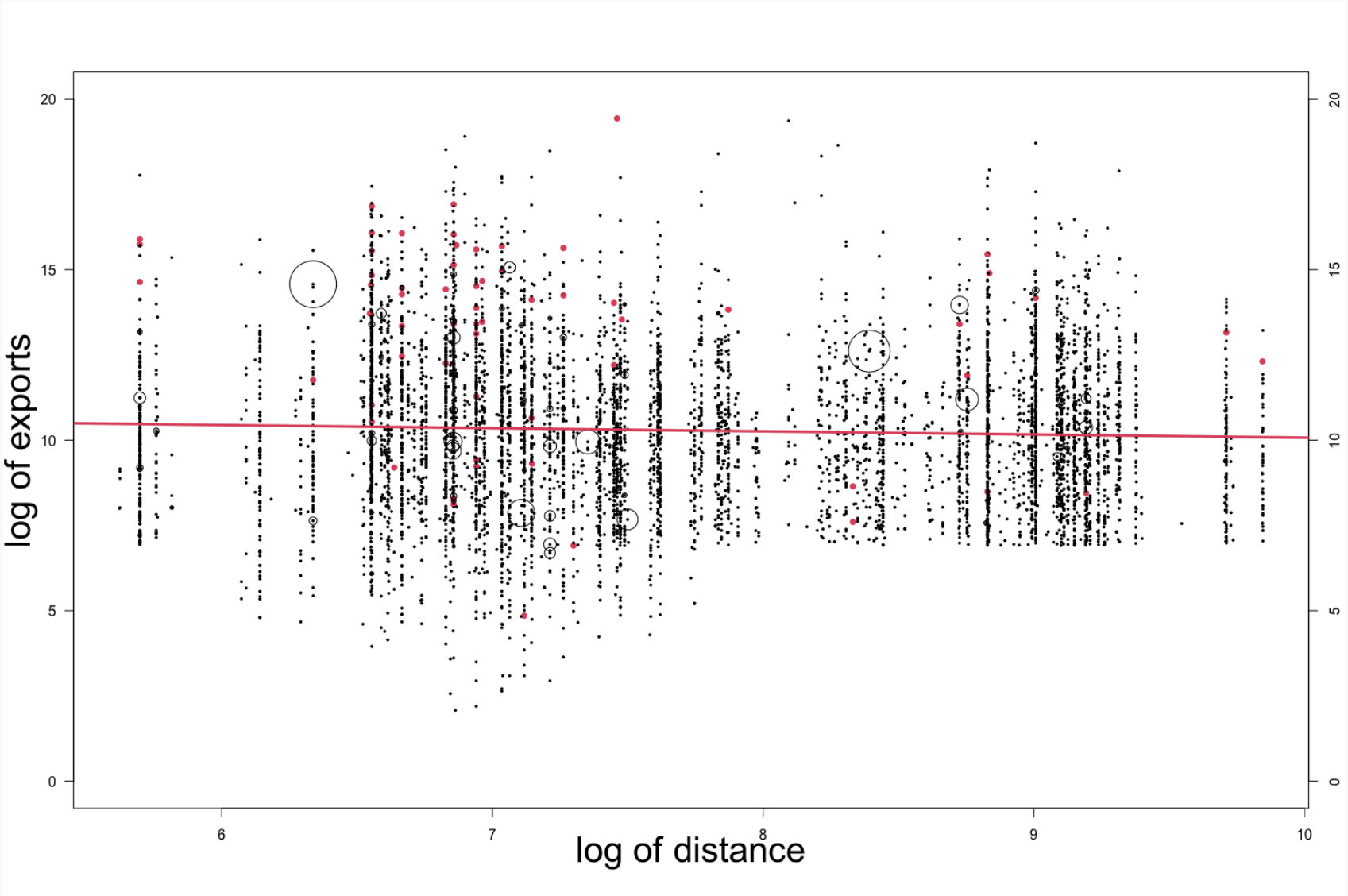


• = firm managed by immigrant entrepreneur(s) born in the same export market.

Data - Descriptives



○ = proportional to the share of immigrant workers born in the same export market.

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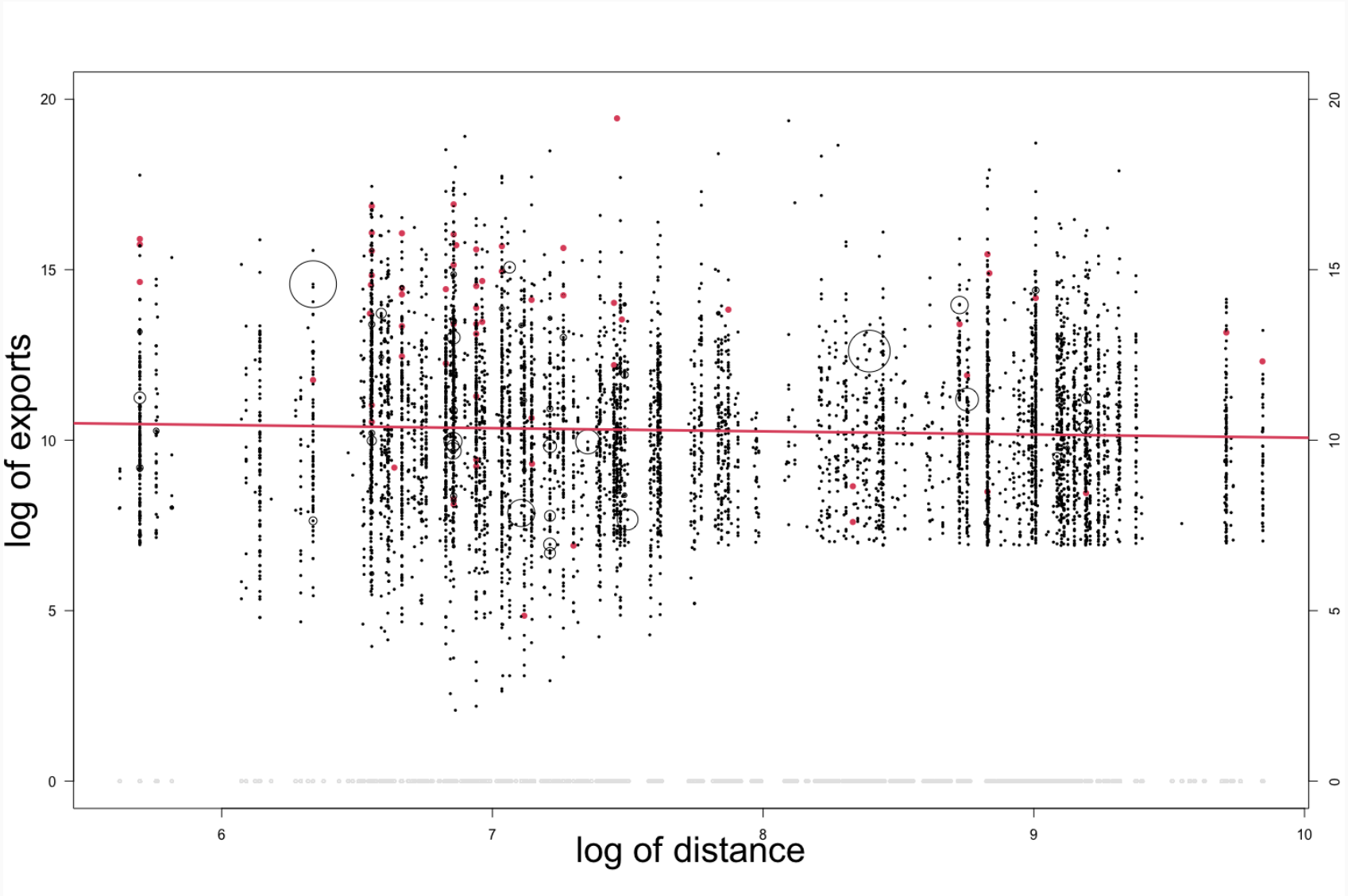

○ = zero exports.

Empirical model

We use a standard gravity equation for firm-level dyadic export data:

$$\begin{aligned}\ln y_{ipljt} =& \alpha + \beta_{IW} IW_{ijt} + \beta_{IE} IE_{ijt} + \beta_{PIW} IW_{pjt} + \beta_{PIE} IE_{pjt} + \\ &+ \beta_d \ln Distance_{lj} + D_{it} + D_{jt} + \epsilon_{ipljt}\end{aligned} \tag{1}$$

- where i, p, l, j, and t are firm, province, local labor market (in both cases of firm i's location), destination country (for exports) and year subscripts, respectively.
- $Distance_{lj}$ is the geodesic distance between local labor market j's centroid and the export destination country's centroid;
- IE_{ijt} and IW_{ijt} are the numbers of immigrant entrepreneurs and immigrant workers, respectively, in firm i, coming from country j, at time t;
- IE_{pjt} and IW_{pjt} are their local level (province) counterparts (in thousands of individuals).
- In some specifications the local-level variables are omitted and their effect is captured by province-country-time fixed effects (D_{pjt}).
- ϵ_{ipjt} is an idiosyncratic error term, i-clustered.
- The equation is estimated with OLS. However, we also use Poisson Pseudo Maximum Likelihood (PPML) estimation. In both the semi-log and the PPML

Empirical model

- Previous papers using IV strategies have generally used either lags or local instruments as a source of presumably exogenous variation in firm-level immigrant workers (IW). These IVs are in general hard to defend;
- Finding credible IVs for immigrant entrepreneurs (IE) at the firm level by origin country is even harder;
- Therefore, identification in our models is based on fixed effects. In particular, conditional on *it*, *jt* and *pjt* FEs, for identification we have to assume that *variation in* IE_{ijt} *is as good as random*. These FEs control for a good deal of unobserved heterogeneity, in particular firm-time, (export) country-time, and province-country-time heterogeneity.

Dyadic results — Intensive margin (OLS)

VARIABLES	(1)	(2)	(3)
IW_{ijt}	0.037***	0.033***	0.036***
	(0.004)	(0.004)	(0.004)
IE_{ijt}	0.862***	0.836***	0.858***
	(0.022)	(0.022)	(0.022)
IW_{pjt}(,000)			0.067***
			(0.012)
IE_{pjt}(,000)			0.224**
			(0.108)
ln Distance$_{lj}$	-0.637***	-0.329**	-0.631***
	(0.016)	(0.156)	(0.016)
Constant	15.254***	12.920***	15.200***
	(0.122)	(1.184)	(0.121)
Observations	3,115,260	3,106,271	3,115,260
R-squared	0.385	0.402	0.385
FEs	it & jt	it & jt & pjt	it & jt
Cluster	i	i	i

Dyadic results — Extensive margin (LPM)

VARIABLES	(1)	(2)	(3)
IW_{ijt}	0.011***	0.011***	0.011***
	(0.001)	(0.001)	(0.001)
IE_{ijt}	0.154***	0.153***	0.150***
	(0.003)	(0.003)	(0.003)
IW_{pjt}(,000)			0.024***
			(0.001)
IE_{pjt}(,000)			0.013
			(0.016)
ln Distance$_{lj}$	-0.122***	-0.090***	-0.122***
	(0.001)	(0.017)	(0.001)
Constant	1.083***	0.811***	1.078***
	(0.011)	(0.145)	(0.011)
Observations	56,511,170	56,511,170	56,511,170
R-squared	0.265	0.276	0.265
FEs	it & jt	it & jt & pjt	it & jt
Cluster	i	i	i

Dyadic results — Intensive margin (PPML)

VARIABLES	(1)	(2)	(3)
IW_{ijt}	0.003***	0.001	0.003***
	(0.001)	(0.001)	(0.001)
IE_{ijt}	0.431***	0.423***	0.431***
	(0.038)	(0.031)	(0.038)
IW_{pjt}(,000)			0.085
			(0.076)
IE_{pjt}(.000)			0.303
			(0.819)
ln Distance$_{lj}$	-0.493**	1.633	-0.479**
	(0.210)	(1.249)	(0.208)
Constant	19.184***	3.553	19.062***
	(1.560)	(9.287)	(1.543)
Observations	3,115,260	3,106,271	3,115,260
FEs	it & jt	it & jt & pjt	it & jt
Cluster	i	i	i

Non-dyadic results (I)

We investigate whether immigrant entrepreneurs (and workers) affect other firm outcomes (in logs):

- average wage per worker W/L (with L in tens)
- average labor costs per worker (W+A)/L
- value added per worker VA/L
- average export value per worker (E/L)
- total export values (E)
- the firm-year FEs (D_{it}) computed from the OLS and the PPML intensive margin regressions, which can be interpreted as overall export-competitiveness (i.e. towards all destinations) of a firm (estimates are weighted by group size).
- the estimated equations reads as:

$$\ln y_{it} = \alpha + \beta_{IW} IW_{it} + \beta_{IE} IE_{it} + \beta_M MNE_{it} + \beta_L L_{it} + D_i + D_t + \epsilon_{it} \qquad (2)$$

where IE_{it} and IW_{it} are the total stocks of immigrant entrepreneurs and immigrant workers, respectively, MNE_{it} a multinational enterprise indicator, and L_{it} firm size (divided by 10).

Non-dyadic results (II)

VARIABLES	(1) log(W/L)	(2) log((W+A)/L)	(3) log(VA/L)	(4) log(E/L)	(5) log(E)
IW_{it}	0.000	0.000	0.001	0.005***	0.005**
	(0.000)	(0.000)	(0.001)	(0.001)	(0.002)
IE_{it}	0.001	0.003**	0.011**	0.016***	0.021***
	(0.002)	(0.001)	(0.004)	(0.005)	(0.005)
MNE_{it}	0.016***	0.016***	0.003	0.028***	0.046***
	(0.003)	(0.003)	(0.006)	(0.009)	(0.010)
$L_{it}(/10)$	-0.002***	-0.002***	-0.004***	-0.003***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.005)
Constant	8.337***	10.375***	9.086***	10.817***	13.533***
	(0.003)	(0.003)	(0.005)	(0.005)	(0.022)
Observations	187,065	187,069	188,032	193,143	193,143
R-squared	0.998	0.923	0.992	0.912	0.950
FEs	i & t	i & t	i & t	i & t	i & t
Cluster	i	i	i	i	i

Non-dyadic results (III)

VARIABLES	(6) D_{it} (OLS) – WLS	(7) D_{it} (PPML) – WLS
IW_{it}	-0.002*	0.000
	(0.001)	(0.001)
IE_{it}	-0.016***	-0.044***
	(0.003)	(0.004)
MNE_{it}	0.013**	0.023***
	(0.006)	(0.006)
$L_{it}(/10)$	0.006***	0.006***
	(0.002)	(0.002)
Constant	-0.018	-3.353***
	(0.017)	(0.020)
Observations	193,139	193,139
R-squared	0.941	0.964
FEs	i & t	i & t
Cluster	i	i

Weighted by $\sum_j L_{ijt}$ observations in the dyadic data.

Concluding remarks

What are the main takeaways from our paper:

- Extensive margin: one additional IE from j increases the likelihood that a firm exports toward j by about 15 percentage points (pp). The effect of an IW is much smaller (1.1 pp);
- Intensive margin: Using OLS, one more IE increases export values by about 86%, one more IW by 3.6%. The latter effect is of a similar order of magnitude to those found in previous papers. **HatLod2016** report a 3.7% estimate, and **Hiller2013** a 1.2% estimate (in both cases controlling for trading-pair FEs), while **cardoso2022immigrants** report a lower effect (0.4%);
- Intensive margin: Using PPML, the effect of IW is somehow sensitive to the specification, while one additional IE increases export values by about 43% (half the OLS estimate. Local IWs and IEs do not affect exports;
- Other outcomes; IEs *reduce* average exports to the generic destination, but this reduction is more than compensated by the dyadic export effect. As a result, immigrant-owned firms have higher average total exports (+1.6%) and total exports per worker (+2.1%). They also have higher labor costs per worker (+0.3 %) and value added per worker (+1.1%), which might suggest higher product quality. A higher stock of IWs also increases total exports and average export per worker.

References