Online Appendix for the paper

"Immigrants's Effect on Native Workers:
New Analysis on Longitudinal Data"

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July 2015

Online Appendix

A.1 Task Data

The information needed to construct the complexity index relative to one occupation is obtained by merging the American O*NET database with the Danish registers using the four-digit ISCO-88 Classification of Occupation and a crosswalk available at the National Crosswalk center, ftp://ftp.xwalkcenter.org/DOWNLOAD/xwalks/. This procedure allows us to link workers in Danish registers and measures of the intensity of use of different abilities in each job, assuming that the task content of a job is the same in Denmark and in the US.

Occupations are reported by firms to Statistics Denmark following the Danish version of the International Standard Classification of Occupations (ISCO-88), developed by the International Labour Office (ILO). We constructed an algorithm that replaces a missing or invalid ISCO-88 values by the next within the worker-firm match if the next is also the most frequent ISCO-88 within the worker-firm match. This algorithm, as well as little incentives for firms to change the occupation reported for an employee, may lead to under-estimation of the true job mobility within firms.

We follow Ottaviano, Peri, and Wright (2013) and aggregate the indices of each ability in O*NET (available from US Bureau of Labor Statistics) into three categories: communication, cognitive and manual task intensity. The underlying skill intensities have been standardized to be between zero and one (equal to the centile of that occupation in the lowest-to-highest ranking according to that skill in 2000). Each of the three indices is obtained as an average of a series of indicators capturing abilities in that specific area as described in Ottaviano, Peri, and Wright (2013). We then construct an occupational complexity index by combining them. The complexity of an occupation is defined as a composite index increasing in the intensity of communication and analytical skills and decreasing in the intensity of manual skills. Namely the index is calculated as: $\ln\left((\text{Communication} + \text{Analytical})/\text{Manual}\right)$. Therefore, the constructed complexity index can take values between $-\infty$ and $+\infty$.

A.2 Tables and Figures

Table A.1: Treatment-control differences in outcomes, low skilled

|	(1) Occupational complexity	(2) Manual intensity	(3) Hourly wage	(4) Fraction of year worked
Panel A. Cohort				
t = -3	-0.003	-0.005	-0.004	-0.010**
	(0.006)	(0.003)	(0.004)	(0.004)
t = 0	.	.	.	
t = 1	0.007	-0.005**	0.004	-0.005
	(0.005)	(0.002)	(0.003)	(0.004)
t = 5	0.029**	-0.015***	0.026***	-0.012
	(0.009)	(0.004)	(0.003)	(0.007)
t = 9	0.027*	-0.015**	0.024***	-0.010
	(0.011)	(0.005)	(0.004)	(0.007)
t = 14	0.034**	-0.017**	0.015**	-0.014*
	(0.011)	(0.005)	(0.005)	(0.005)
Observations	535260	535262	532492	641610
R-squared	0.44	0.47	0.22	0.14
Panel B. Area				
t = -3	-0.017*	-0.001	-0.000	-0.001
	(0.008)	(0.003)	(0.004)	(0.003)
t = 0	.	.	.	
t = 1	0.011*	-0.006**	-0.000	0.005
	(0.005)	(0.002)	(0.003)	(0.003)
t = 5	0.022	-0.012**	0.013***	0.001
	(0.013)	(0.004)	(0.003)	(0.004)
t = 9	0.016	-0.014*	0.014***	0.004
	(0.014)	(0.006)	(0.004)	(0.003)
t = 14	0.032*	-0.019**	0.005	-0.002
	(0.013)	(0.006)	(0.006)	(0.003)
Observations	476099	476101	509986	540226
R-squared	0.54	0.51	0.28	0.23

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Parameter estimates on the interaction terms of immigration exposure and year dummies in equation (2) using a strongly balanced panel of low skilled natives employed in 1994. All control variables are either specific to the worker in 1994 (cohort) or the actual values for the worker (area). Accordingly, standard errors in parentheses are clustered at the 1994-municipality for the cohort regressions and at the actual municipality for the area regressions.

Table A.2: Treatment-control cohort differences in outcomes, low skilled

	(1) Occupational complexity	(2) Manual intensity	(3) Hourly wage	(4) Fraction of year worked
t = -3	0.361	0.186	0.839	-0.162
	(1.109)	(0.366)	(0.689)	(0.628)
t = -2	0.915	-0.137	0.556	-0.451
	(1.117)	(0.375)	(0.621)	(0.634)
t = -1	0.155	0.086	0.606	-0.482
	(1.048)	(0.344)	(0.524)	(0.494)
t = 0	.	.	.	
t = 1	1.115	-0.408	1.263*	-0.162
	(0.945)	(0.324)	(0.481)	(0.426)
t = 2	0.847	-0.299	1.320**	-0.546
	(0.911)	(0.321)	(0.421)	(0.455)
t = 3	1.130	-0.390	1.844***	-0.313
	(0.999)	(0.384)	(0.408)	(0.489)
t = 4	1.136	-0.341	1.578***	-0.150
	(0.869)	(0.328)	(0.396)	(0.437)
t = 5	1.629	-0.643	1.744***	-0.495
	(0.990)	(0.345)	(0.394)	(0.421)
t = 6	1.781	-0.780*	1.493***	-0.488
	(0.985)	(0.358)	(0.394)	(0.374)
t = 7	1.615	-0.748*	1.460***	-0.104
	(0.980)	(0.349)	(0.375)	(0.352)
t = 8	1.409	-0.716	1.567***	0.112
	(1.018)	(0.375)	(0.352)	(0.330)
t = 9	1.372	-0.663	1.608***	-0.170
	(0.929)	(0.357)	(0.347)	(0.340)
t = 10	1.417	-0.643	1.377***	-0.307
	(0.978)	(0.395)	(0.385)	(0.384)
t = 11	1.664	-0.868*	1.696***	-0.471
	(0.978)	(0.367)	(0.324)	(0.415)
t = 12	1.700	-0.845*	1.684***	-0.554
	(1.003)	(0.336)	(0.388)	(0.411)
t = 13	2.420*	-0.994**	1.587***	-0.203
	(0.965)	(0.320)	(0.442)	(0.458)
t = 14	2.457*	-1.004**	1.456***	0.038
	(0.984)	(0.340)	(0.366)	(0.414)

Notes: *** p< 0.01, ** p< 0.05, * p< 0.10. Parameter estimates on the interaction terms of predicted immigrant share and year dummies in an equation similar to (2) using a strongly balanced panel of low skilled natives employed in 1994. All control variables are specific to the worker in 1994. Standard errors in parentheses are clustered at the 1994-municipality.

Figure A.1: Treatment-control differences in outcomes, high skilled
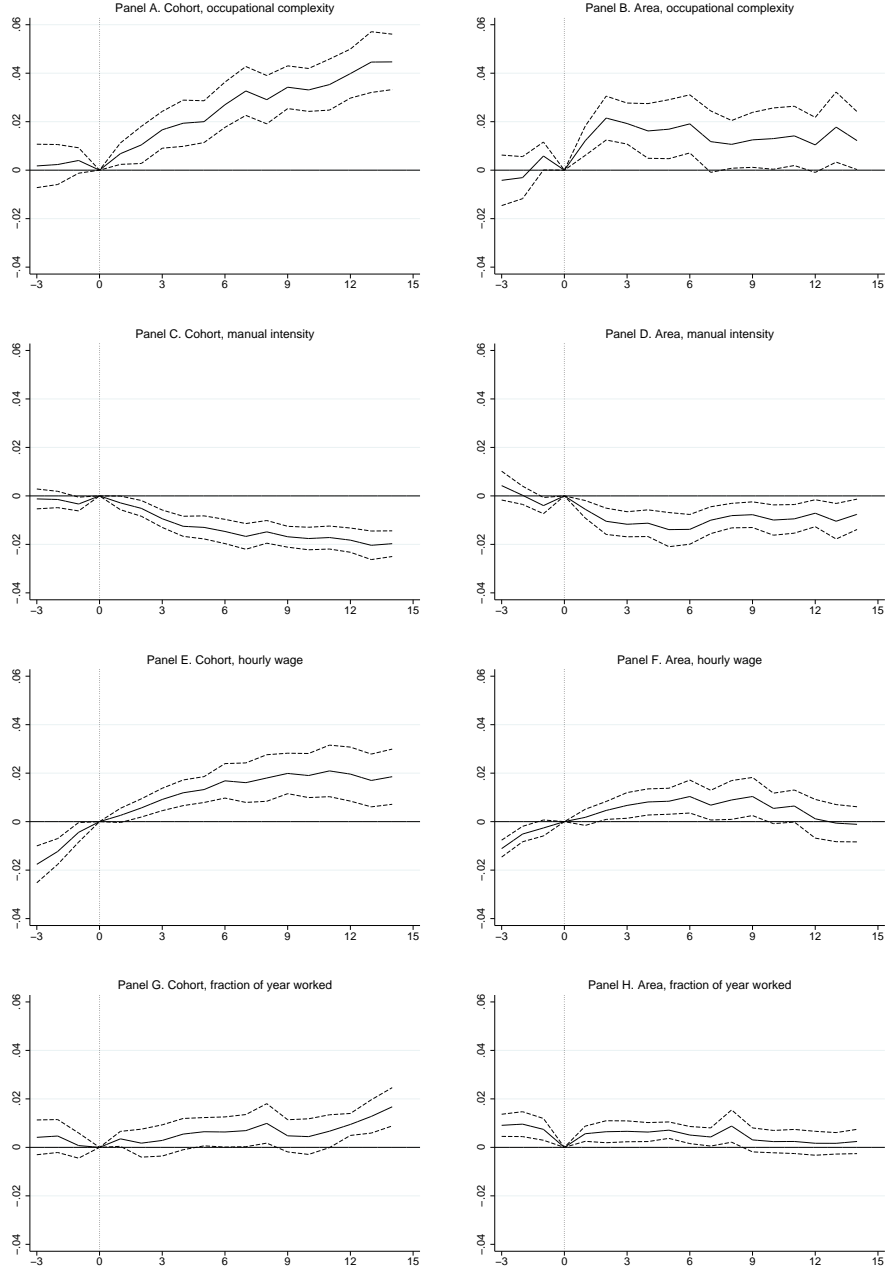
Notes: Parameter estimates (——) and 95% confidence limits (- - -) on the interaction terms of immigration exposure and year dummies in equation (2) using a strongly balanced panel of high skilled natives employed in 1994. All control variables are either specific to the worker in 1994 (cohort) or the actual values for the worker (area). Accordingly, standard errors are clustered at the 1994-municipality for the cohort regressions and at the actual municipality for the area regressions.

References

Ottaviano, Gianmarco I. P., Giovanni Peri, and Greg C. Wright. 2013. "Immigration, Offshoring and American Jobs." *American Economic Review* 103 (5):1925–1959.