

Quasi-experimental Evidence on Language Proficiency, Employment, and Welfare Dependency

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1. Motivation

Public policies can influence immigrant's and refugee's decision to invest in language training through subsidies and financial incentives. For instance, the public provision of free classes and the provision of additional welfare transfers to individuals who complete a given Danish Language Education level may increase language training take-up¹. Although the literature has established that language knowledge is positively correlated with measures of economic success and assimilation, no study has identified the causal effect of language acquisition, as immigrants who sign up to language classes are systematically different from those who don't sign-up (Frattoni, 2017; Rinne 2013). **The main objective of this project is to determine if the *timing* of Danish language acquisition affects adult refugees' dynamic labor market outcomes such as the likelihood of being employed, their earnings trajectories, and their occupation in the short and long run.** To do so, we will take advantage of registers that have detailed information on language course starting and finishing dates, attendance, and grade in each training module. This information will be matched to yearly labor market outcomes, monthly wage data, and weekly data on welfare dependency.

Language classes in refugee's introduction and integration program are common across European countries. Therefore, the project will provide valuable academic knowledge on refugee assimilation and will have extensive policy implications as the number of refugees has risen throughout Europe.

2. Literature and background

The early literature established that language proficiency was positively correlated with higher earnings in the host country. For instance, Dustmann (1994) found that immigrants who speak German at an intermediate level have earnings that are between 1% and 3% higher, and that those who speak it well or really well have earnings 7% higher. The evidence from the U.S. regarding English proficiency suggest a similar pattern, although the return to English is twice or three time as large (Chiswick, 1991; Chiswick and Miller, 1992, 1995). The more recent literature has acknowledged that estimates are biased from systematic and unsystematic measurement error in self-reported measures of language proficiency and concluded that the attenuation bias is larger than the endogeneity bias.² That is, the literature suggests that the estimated return to language is a lower bound of the true effect (Akresh and Frank, 2011; Dustmann and van Soet, 2001 and 2002).

To account for such biases, a few papers have uses instrumental variables or policy changes in active labor market integration programs to estimate the return to language. For instance, Bleakley and Chin (2004, 2010) use age at arrival to build an instrument for language proficiency and find that language proficiency is positively associated with higher earnings, ethnic enclave residence, divorce, and intermarriage, and negatively associated with fertility. Sarvimäki and Hämäläinen (2016) use variation from a reform that restructured active labor market programs for immigrants in Finland towards language courses. Their results suggest that restructuring

¹ A refugee who passes Level 2 receive 1500 DKR extra per month. <http://refugees.dk/en/facts/the-asylum-procedure-in-denmark/new-integration-allowance/>

² An example of endogeneity is unobserved heterogeneity which generates a positive bias if unobserved variables, such as ability, are positively correlated with language acquisition and earnings.

the integration plans increased compliers' cumulative earnings over a 10-year period by 47%, but did not affect the time to first employment, or the likelihood of being employment.

In summary, in the literature the two main challenges in the estimation of the return to language proficiency are measurement error, since most analyses are based on self-reported measures of language proficiency, and selection bias, as immigrants that acquire language are positively selected on unobserved variables. Therefore, estimating the causal impact of language proficiency on labor market outcomes requires both an objective measure of language proficiency as well as an exogenous source of variation in language knowledge. The language training offered to foreign born through the Danish integration program and the high quality Danish register data allow us to make progress in both dimensions. First, as Danish registers have an objective measure of language proficiency ("Danskundervisningsdatabasen") instead of self-reported measures, they reduce misclassification error due to subjective perception of the knowledge scale. Second, taking advantage of the variation that results from differences on the timing in which refugees arrive to their assigned municipalities relative to the date in which Danish courses are offered, we will use time until the next available course to instrument for language proficiency. This design will inform us on the importance of early language training. Last year's three party agreement removed the ability to speak Danish and fill out application in Danish from the requirements for being regarded "ready to work" in the Danish labor market program. Hence, overnight the majority of refugees went from not being regarded ready to work to being regarded ready for work

Although previous work using Danish data has not determined the causal effect of starting language classes at different points after arrival, Clausen et al (2009) established that participating in language class is positively associated with the probability of being employed. The authors use weekly information on active labor market programs, participation in Danish language courses, and employment from Danish records to estimate the timing-of-events duration model. Their results suggest that the probability of being employed is lowest for refugees or family reunified migrants attending the lowest tracks of language courses and is highest among those that the maximum level.

3. Contribution and policy relevance

Main: The previous literature has identified a positive association between language knowledge, the likelihood of being employed, and earnings. The goal of this project is to determine if having access to Danish language classes shortly after arrival improves refugee dynamic assimilation as measured by their labor market outcomes and welfare dependency over time since arrival. The project is of interest to the scientific literature in two ways. First, it will provide evidence on whether early investment in language skill improves the labor market assimilation of refugees, and on whether it influences the speed of convergence to native's labor market outcomes.

Furthermore, the project will also contribute to the literature as it will significantly reduce measurement as, unlike previously available information, Danish registers contain detailed information on language course attendance and grades in each training module. The use of this objective measure of language proficiency therefore reduces misclassification due to subjective perception of the knowledge scale, a common problem in the literature. Moreover, as the information comes from administrative records, measurement error due to reporting errors should also be smaller.

Detail: We will compare the outcomes of refugees with similar observable characteristics who have taken different language classes because their classes started at different points after their arrival to municipality. In particular, we will first estimate a model to determine whether having taken a given language module 3 months

after arrival (or 6, 12, or 18 months after arrival) improves the likelihood of employment and the earnings of refugees in the short and long run. Moreover, as immigrants that acquire language are positively selected on unobserved variables, such as ability, estimates from this first exercise may over-estimate the return of the language courses. To correct for such bias, taking advantage on the variation that results from differences on the timing in which refugees arrive to their assigned municipalities relative to the date in which Danish courses are offered, we will use time until the next available course to instrument for language proficiency. We will also investigate alternative sources of exogenous variation such as distance to nearest language school or seasonal variation in startup due to holidays.

4. Workplan

Qualifications and relevant scientific network: Giovanni Peri, professor in the Department of Economics at the University of California, Davis, is keen on the project; he will be working closely with us on the project as he is the main advisor of Cynthia van der Werf in the graduate program and has previously coauthored with Mette Foged. Nevertheless, the project will be authored only by Cynthia van der Werf and Mette Foged.

Cynthia has specialized in the relevant theories and econometric estimation methods during her course work in the PhD program, e.g. labor and migration courses with Doug Miller and Giovanni Peri, and has recently started to work on migration on US data. This project will allow us to pursue a common research interest, using much better data than is available in the US.

Time schedule: Cynthia van der Werf is currently a third-year Graduate Student in the Department of Economics at the University of California, Davis. She plans to be on the international job market in 2019. Our workplan is designed such that she will be ready for this. Cynthia will have two one-month research stays in Copenhagen at EPRU financed by the project. The rest of the time she will work on the project as part of her PhD studies at UC Davis. Mette Foged will go to Davis early 2019 when the project reaches a final stage. These research stays are important to facilitate close collaboration on the project and to speed up the work process.

We will start presenting the paper externally in 2018 in order to get feedback from peers and polishing the analysis and write up a working paper in early 2019. In summer 2019 Cynthia will make her last trip to Copenhagen as part of this project and present our paper at a specialized workshop on labor market integration of refugees, that Mette will host at the University of Copenhagen in the summer of 2019.

Gantt chart:

	2017				2018					2019			
	Sept	Okt	Nov	Dec	Jan	Feb	Mar-Jun	Jul	Aug	Sep-dec	Jan	Feb-Maj	June-Aug
Kickstart project together in Cph.													
Data management													
Descriptive statistics													
Preliminary estimations													
Work together in Cph													
Preliminary paper outline													
Present and get feedback													
Work together in Davis													
Polish the analysis, make WP													
Finish paper for submission													

5. References

- Akresh, I. R., & Frank, R. (2011). At the intersection of self and other: English language ability and immigrant labor market outcomes. *Social Science Research*, 1362-1370.
- Bleakley, H., & Chin, A. (2004). Language Skills And Earnings: Evidence From Childhood Immigrants. *The Review of Economics and Statistics*, 481-496.
- Bleakley, H., & Chin, A. (2010). Age at Arrival, English Proficiency, and Social Assimilation Among US Immigrants. *American Economic Journal: Applied Economics*, 165-192.
- Chiswick, B. R. (1991). Speaking, Reading, and Earnings among Low-Skilled Immigrants. *Journal of Labor Economics*, 149-170.
- Chiswick, B. R., & Miller, P. W. (1995). The Endogeneity between Language and Earnings: International Analyses. *Journal of Labor Economics*, 246-288.
- Chiswick, B., & Miller, P. (1992). Language in the immigrant labor market. In C. BR, *Immigration, language and ethnicity: Canada and the United States*. Washington, DC: AEI Press.
- Clausen, J., Heinesen, E., Hummelgaard, H., Husted, L., & Rosholm, M. (2009). The effect of integration policies on the time until regular employment of newly arrived immigrants: Evidence from Denmark. *Labour Economics*, 409-417.
- Dustmann, C. (1994). Speaking Fluency, Writing Fluency and Earnings of Migrants. *Journal of Population Economics*, 133-156.
- Dustmann, C., & van Soest, A. (2001). Language Fluency and Earnings: Estimation with Misclassified Language Indicator. *The Review of Economics and Statistics*, 663-674.
- Dustmann, C., & van Soest, A. (2002). Language and the Earnings of Immigrants. *ILR Review*, 473-492.
- Fratini, T. (2017). Integration of immigrants in host countries - what we know and what works. *Centro Studi Luca D'Agliano*.
- Rinne, U. (2013). The Evaluation of Immigration Policies. In A. F. Constant, & F. Klaus, *International Handbook on the Economics of Migration* (pp. 530-551). Northampton, USA: Edward Elgar Publishing.
- Sarvimäki, Matti, & Hämäläinen, K. (2016). Integrating Immigrants: The Impact of Restructuring Active Labor Market Programs. *Journal of Labor Economics*, 479-508.