Lillard, Dean R.; Manzoni, Anna

Working Paper

International migration as occupational mobility

SOEPpapers on Multidisciplinary Panel Data Research, No. 498

Provided in Cooperation with:
German Institute for Economic Research (DIW Berlin)

Suggested Citation: Lillard, Dean R.; Manzoni, Anna (2012) : International migration as occupational mobility, SOEPpapers on Multidisciplinary Panel Data Research, No. 498, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin

This Version is available at:
https://hdl.handle.net/10419/66573

SOEP Das Sozio-oekonomische Panel

498 2012

SOEPpapers
on Multidisciplinary Panel Data Research

International Migration as Occupational Mobility

Dean R. Lillard and Anna Manzoni

DIW SOEP

SOEPpapers on Multidisciplinary Panel Data Research
at DIW Berlin

This series presents research findings based either directly on data from the German Socio-Economic Panel Study (SOEP) or using SOEP data as part of an internationally comparable data set (e.g. CNEF, ECHP, LIS, LWS, CHER/PACO). SOEP is a truly multidisciplinary household panel study covering a wide range of social and behavioral sciences: economics, sociology, psychology, survey methodology, econometrics and applied statistics, educational science, political science, public health, behavioral genetics, demography, geography, and sport science.

The decision to publish a submission in SOEPpapers is made by a board of editors chosen by the DIW Berlin to represent the wide range of disciplines covered by SOEP. There is no external referee process and papers are either accepted or rejected without revision. Papers appear in this series as works in progress and may also appear elsewhere. They often represent preliminary studies and are circulated to encourage discussion. Citation of such a paper should account for its provisional character. A revised version may be requested from the author directly.

Any opinions expressed in this series are those of the author(s) and not those of DIW Berlin. Research disseminated by DIW Berlin may include views on public policy issues, but the institute itself takes no institutional policy positions.

The SOEPpapers are available at
http://www.diw.de/soeppapers

ISSN: 1864-6689 (online)

German Socio-Economic Panel Study (SOEP)
DIW Berlin
Mohrenstrasse 58
10117 Berlin, Germany

Contact: Uta Rahmann | soeppapers@diw.de

International Migration as Occupational Mobility

Dean R. Lillard[a] and Anna Manzoni[b]

[a]Ohio State University and DIW, [b]North Carolina State University

Authors' names listed alphabetically. Both contributed equally.

Contact: Lillard.13@osu.edu, amanzon@ncsu.edu

Abstract
We investigate whether Germans immigrants to the US work in higher-status occupations than they would have had they remained in Germany. We account for potential bias from selective migration. The probability of migration is identified using life-cycle and cohort variation in economic conditions in the US. We also explore whether occupational choices vary for Germans who migrated as children or as adults. Our results allow us to decompose observed differences in occupational status of migrants and non migrants into the part explained by selection effects and the part that is causal, extending the literature on international migration.

JEL classification: J24, J61, J62

1. Introduction

Nearly 1 million new legal immigrants arrive in the US each year, seeking a better life for themselves and their families (Martin/ Midgely, 2010). Social scientists theorize that people migrate in part to improve their social and economic status (Chiswick, 2008; Massey et al., 1993). They may migrate to seek jobs, better pay, education, skills, or better overall economic conditions for themselves (upward lifetime mobility) or their children (intergenerational mobility) and may do so by reference to their own situation (internal mobility) or relative to some external group (relative mobility).

To study relative mobility, the literature typically focuses on the assimilation of immigrants and compares economic outcomes of immigrants relative to observationally similar native-born residents in the country of destination. Studies find that, even controlling for socio-demographic characteristics and time in the country, immigrants occupy lower rungs on the occupational ladder in Denmark (Brodmann/ Polavieja, 2011), Spain (Bernardi et. al,, 2010) and Germany (Kogan, 2011), and that this disadvantage is more prevalent among more recent immigrants (Kogan, 2010).

To study lifetime mobility, the literature typically compares data on the occupation immigrants held before they migrated to the occupation they were in sometime after arriving in the host country. Researchers find that, relative to the occupation just before migrating, migrants tend to occupy lower rungs on the occupational ladder immediately after arriving in a new country (Akresh, 2006; Chiswick, Lee/ Miller, 2005; McAllister, 1995) but that over time migrants move into higher status occupations (Chiswick et al., 2005; McAllister, 1995).

We investigate a related question that can be summarized as: "Did the immigrant make the 'right' choice when s/he migrated?" That is, we investigate whether an immigrant achieved a higher occupational status than s/he would have if s/he *had not migrated*. To investigate this counterfactual, we combine data from the Current Population Surveys (CPS) on Germans who migrated to the US with data from the German Socio-Economic Panel (SOEP) on Germans who did not migrate. In our analysis, we

directly confront the well-recognized statistical challenges of self-selection bias. We use instrumental variable methods to model the decision to migrate separately from the occupational choice. Our instruments consist of levels of per-capita GDP in the US during different periods of a person's life-cycle and indicators for calendar years when the US adopted a policy that made it easier for Germans to migrate.

2. Theoretical Framework

To predict who migrates, we adopt the basic migration model attributed to Sjaastad (1962).[1] Sjaastad posits that, to decide whether or not to migrate, individuals compare the lifetime utility they expect to enjoy in each country. This micro-economic approach implies that the probability that an individual migrates increases when a country offers more benefits and is reduced when migration costs more. The literature uses the "push" and "pull" to discuss factors associated with a person's country of origin and country of (potential) destination respectively. Factors the literature identifies as benefits include employment opportunities, net wage differentials, overall standards of living, freedom of religious practice, political systems free of corruption, and societies with less racial and gender discrimination. In addition to direct costs of migration, the literature suggests that migration costs include policies that limit who may enter a country, distance, differences in language, and the absence of cultural networks.

Below, we describe the first-stage migration model. The decision to migrate is identified from three "pull" factors (i.e., specific to the US) that vary over time. These are per capita GDP in the US during two periods of each cohort's lives (described below) and an indicator for people whose age fell in the interval from 22 to 32 in any year between 1945 and 1955. In 1948 the US government passed the Displaced Persons Act, which admitted Europeans displaced by World War II under less stringent rules (Genizi, 1993). Admission was (in principle) limited to people who were living in resettlement camps in 1945. 200,000 people were admitted under this program in 1948. Another 400,000 were admitted in two separate waves in 1950 and 1952.

[1] See Chiswick (2008) for a succinct review of theories of migration and the potential importance of self-selection.

3. Data

3.1 The US Current Population Surveys (CPS)

We draw data on Germans who immigrated to the US from the 1994-2010 CPS. The CPS is a monthly survey of about 50,000 nationally representative households conducted by the Bureau of the Census for the Bureau of Labor Statistics. The survey has been conducted for more than 50 years and focuses on US residents ages 16 and older. In addition to rich measures of labor market indicators (including current occupation) and the usual demographic characteristics, the Census Bureau asks each respondent to report in what country s/he, his/her mother and his/her father were born. The CPS asks immigrants to identify when they immigrated (in calendar periods approximately two years long). Pooled across all monthly surveys, one can collect a large number of immigrants from any given country.

3.2 The German Socio-Economic Panel (SOEP)

We combine the CPS data on German immigrants with data from the German Socio-Economic Panel. First administered in 1984 to all members age 16 and older living in approximately 6,000 German households, the SOEP continues to interview all of the original respondents, all children after they turn 16, and all members of households the original respondents formed.[2] When analyzed with sample weights, the SOEP data are nationally representative.

We retain all native-born Germans from the SOEP sample and combine them with native-born Germans living in the US from the CPS sample. For both groups, we draw data on their current occupation and demographic characteristics. The data include either the month and year individuals were born or their age at the time of the survey and date of interview. We use those data to calculate the calendar year each person was born so that we can merge to each individual measures of per capita GDP in the US and Germany in different periods of life.

[2] See Haisken DeNew and Frick (2005) and Frick et al. (2007).

3.3 Occupation Categories

We collapse occupations listed in the CPS and SOEP into eight categories that more or less correspond to 1-digit occupation codes.[3] The labels and corresponding values are as follows: "Managerial and professional specialties" (1); "Technical, Sales and administrative support" (2); "Service" (3); "Farming, forestry and fishing" (4); "Precision production, craft and repair" (5); "Operators, fabricators and laborers" (6); "Military"; and "Experienced unemployed" (8).

Sample restrictions

We drop individuals in the military or not working (i.e. the last two categories). We also limit our sample to native-born Germans in each sample who are working at the time of the survey, and report valid data on occupation, year of migration (CPS only), educational attainment, age and sex. Our CPS sample consists of 805 men and 1,347 women. In the SOEP sample we retain one observation per person. Our SOEP sample consists of 12,970 men and 11,496 women.

3.4 Macro Data

We draw data on per capita GDP in Germany and the US for the years 1900 to 2008 from data compiled by Angus Maddison (www.ggdc.net/Maddison). Those data report GDP for each country in 1990 International Geary-Khamis dollars. For each birth year of our sample, we average these data over the first sixteen years of life and over the years a person was 16 to 21. Table 1 describes basic characteristics of our combined sample.

[3] We used Census Bureau crosswalk files to reconcile US occupation data coded with SOC 1990 (prior to 2003) and SOC 2000. The SOEP occupation data use the ISCO-88 codes.

Table 1 Basic Characteristics of the Combined Sample

	Men		Women	
Variable	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
Age	42.93	(12.17)	42.38	(11.86)
Post WWII adult (22-32 in 1945-1955)	0.02	(0.14)	0.02	(0.13)
Immigrated to US	0.06	(0.23)	0.10	(0.31)
Per capita GDP in US when aged 0-15*10^{-6}	1.45	(0.39)	1.48	(0.39)
Per capita GDP when aged 16-21*10^{-6}	1.82	(0.49)	1.85	(0.48)
N	13775		12843	

Source: 1994-2010 CPS and 1984-2008 SOEP

Table 2 presents the distribution of occupations in our sample. We retain the 108 respondents who worked in the military in our analysis sample but do not analyze it as a separate occupational choice.

Table 2 Distribution of Occupations

	Men		Women	
Occupation category	**Freq.**	**Percent**	**Freq.**	**Percent**
Managerial and professional	4,869	35.35	4,184	32.58
Technical, sales, and administrative	2,183	15.85	4,719	36.74
Service	956	6.94	2,629	20.47
Farming, forestry, and fishing	380	2.76	225	1.75
Precision production, crafts, and repair	3,337	24.23	391	3.04
Operators, fabricators, and laborers	1,943	14.11	694	5.4
Military	107	0.78	1	0.01
Total	13,775	100	12,843	100

Source: 1994-2010 CPS and 1984-2008 SOEP

4. Method

As many others have observed, one expects individuals who immigrate to have unobserved characteristics that will make them more successful than people who did not migrate. The nature of the selection might lead immigrants to be healthier (Newbold /Danforth, 2003; McDonald /Kennedy, 2004), more educated

(Feliciano, 2005; Chiquiar /Hanson 2005), or more skilled (Dostie / Léger, 2009) relative to those who do not migrate.

To address this issue, we use a standard instrumental variables (IV) approach to first model the probability a person migrates and then examine the occupational choice. We estimate a standard model of migration in the first stage that is identified from time-varying measures of economic conditions in the US in two life-cycle periods and by individuals of migration age during the years that the US operated the "Displaced Persons" program. Our model assumes that the observed act of migration occurs after a long period of planning so that the probability of migration varies with conditions in different periods of a person's life-course. That is, we assume the decision to migrate results through a forward-looking process. The second stage estimates whether a migrant is more or less likely to work in one of the six occupations listed above than is his/her observationally equivalent non-mover in Germany who chose not to migrate. In the empirical analysis, we also differentiate between Germans who migrated "involuntarily" (as children brought by parents) and Germans who migrated as adults.

Empirically, in this IV model, we use the predicted immigrant status in the second stage, which is identified from the variation in per capita US GDP when individuals were children (0-15) and young adults (16-21) and by birth cohorts who were 22-32 immediately after WWII.

We specify our migration model as:

$$\text{Prob(migrant)} = \delta_0 \text{ Intercept} + \delta_1 \text{Demographic controls} + \delta_2 \text{ US GDP(0-15)} + \delta_3 \text{ US GDP(16-21)} + \gamma_t \text{ (Survey year fixed effects)}$$

The second stage equation reads:

$$\text{Prob(occupation}_k\text{)} = \beta_0 \text{ Intercept} + \beta_1 \text{ Immigrant status} + \beta_2 \text{ Demographic controls} + \gamma_t \text{ (Survey year fixed effects)} \quad (k=1,\ldots,6)$$

where we have suppressed subscripts for individuals. Our instruments vary by year of birth (i.e., everyone born in the same year gets assigned the same value of per capita GDP).

We also estimate a naïve model consisting only of the second stage. It assumes immigrants are randomly drawn from the German population.

5. Results

Table 3 and Table 4 report results from two different samples of men and women. The first sample excludes migrants who arrived in the US before age 21. The second sample includes them. All models are estimated as probits. We also show how the probability of choosing a particular occupation would change if every German were to immigrate to the US. Results in the top half of each panel report the naïve results (i.e., not accounting for selection). Results in the bottom half report results adjusted for selection. We also report the Wald test statistic on the hypothesis that immigration is exogenous.

In the sample restricted to Germans who immigrated as adults, the naïve model suggests that German men are less likely to work in managerial occupations, and more likely to work in service and crafts occupations than they would have had they remained in Germany. When one accounts for migration selectivity, the occupational choices of migrants and non-migrants do not differ except for one occupation. German men who migrate are twice as likely to choose a technical occupation relative to those who remained in Germany. For all but the technical occupation category, the model fails to reject the hypothesis that German men migrate randomly.

The naïve model suggests that German women are less likely to work in managerial occupations, and more likely to work in service, farming and manual labor occupations than they would have had they remained in Germany. When one accounts for migration selectivity, women are marginally less likely to choose technical occupations and significantly more likely to work in farming, forestry and fishing occupations. In both of those occupation categories, the model rejects the hypothesis that German women migrate randomly.

Table 3 Probability of Choosing each Occupational Category - (excludes migrants who arrive before age 21)

						Men						
Variable	**Manager**		**Tech.**		**Service**		**Farmer**		**Crafts**		**Worker**	
Naive model (N=13775)												
Immigrant	-0.3255	***	0.0292		0.3125	***	0.1008		0.4554	***	-0.0084	
	(0.0554)		(0.0608)		(0.0832)		(0.1205)		(0.0691)		(0.0904)	
Marginal effect	-0.07		0.01		0.05		0.01		0.13		0.00	
	(0.03)		(0.00)		(0.02)		(0.00)		(0.07)		(0.00)	
IV model (N=13775)												
Immigrant	-1.1771		2.4680	***	0.7335		1.4270		-0.6814		-0.1588	
	(1.0179)		(0.7992)		(1.4719)		(1.5041)		(1.0767)		(1.3728)	
Marginal effect	-1.11		2.32		0.69		1.34		-0.64		-0.15	
	(0.28)		(0.58)		(0.17)		(0.33)		(0.16)		(0.04)	
Wald test	0.66		6.18		0.08		0.7		1.06		0.01	
Prob>chi2	0.415		0.013		0.776		0.404		0.303		0.913	
						Women						
Variable	**Manager**		**Tech.**		**Service**		**Farmer**		**Crafts**		**Worker**	
Naive model (N=13015)												
Immigrant	-0.3094	***	0.0478		0.2164	***	0.2968	**	0.1403		0.2190	***
	(0.0461)		(0.0435)		(0.0497)		(0.1166)		(0.0972)		(0.0774)	
Marginal effect	-0.07		0.02		0.05		0.01		0.01		0.02	
	(0.03)		(0.01)		(0.03)		(0.01)		(0.01)		(0.01)	
IV model (N=13015)												
Immigrant	-0.0589		-0.8803	*	0.7042		1.8600	**	0.4936		-0.2033	
	(0.5991)		(0.5273)		(0.5490)		(0.8598)		(1.0246)		(1.0592)	
Marginal effect	-0.05		-0.78		0.62		1.64		0.44		-0.18	
	(0.02)		(0.28)		(0.23)		(0.60)		(0.16)		(0.06)	
Wald test	0.18		2.88		0.77		2.49		0.12		0.16	
Prob>chi2	0.675		0.090		0.380		0.115		0.731		0.691	

Notes: z-statistics in parentheses. ***, **, * denote estimates that differ from zero with p-value <= .01, .05, and .10 respectively

Table 4 presents comparable results but uses the sample that includes Germans who migrated when they were younger than 21. In this sample the naïve model suggests that German immigrants are less likely to be work in managerial occupations and more likely to work in every other occupation than they would have had they remained in Germany.

Table 4 Probability of Choosing each Occupational Category - (includes migrants who arrive before age 21)

					Men							
Variable	**Manager**		**Tech.**		**Service**		**Farmer**		**Crafts**		**Worker**	
Naive model (N=18295)												
Immigrant	-0.5176	***	0.1901	***	0.4059	***	0.2346	***	0.1066	***	0.0784	**
	(0.0299)		(0.0295)		(0.0386)		(0.0563)		(0.0329)		(0.0382)	
Marginal effect	-0.08		0.03		0.05		0.01		0.02		0.01	
	(0.07)		(0.02)		(0.04)		(0.01)		(0.02)		(0.01)	
IV model (N=18196)												
Immigrant	-0.6376	**	-0.0670		0.2844		0.3012		-0.0836		0.3700	
	(0.2924)		(0.2991)		(0.3753)		(0.5027)		(0.3045)		(0.3369)	
Marginal effect	-0.45		-0.05		0.20		0.21		-0.06		0.26	
	(0.29)		(0.03)		(0.13)		(0.14)		(0.04)		(0.17)	
Wald test	0.17		0.7		0.1		0.03		0.45		0.68	
Prob>chi2	0.680		0.403		0.748		0.867		0.500		0.410	
					Women							
Variable	**Manager**		**Tech.**		**Service**		**Farmer**		**Crafts**		**Worker**	
Naive model (N=17608)												
Immigrant	-0.3115	***	0.2021	***	0.0755	**	-0.0126		-0.0566		0.0200	
	(0.0282)		(0.0262)		(0.0306)		(0.0786)		(0.0602)		(0.0500)	
Marginal effect	-0.05		0.05		0.01		0.00		0.00		0.00	
	(0.04)		(0.04)		(0.01)		(0.00)		(0.00)		(0.00)	
IV model (N=17441)												
Immigrant	-0.9876	**	1.1759	***	-0.3119		-1.7953	***	0.6627		-0.8912	
	(0.4366)		(0.3651)		(0.4760)		(0.4369)		(0.8427)		(0.6522)	
Marginal effect	-0.65		0.77		-0.21		-1.18		0.44		-0.59	
	(0.47)		(0.56)		(0.15)		(0.85)		(0.31)		(0.42)	
Wald test	2.17		5.62		0.59		7.54		0.64		1.72	
Prob>chi2	0.141		0.018		0.441		0.006		0.422		0.189	

Notes: z-statistics in parentheses. ***and **, denote estimates that differ from zero with p-values<=.01 and .05 respectively

After correcting for selective migration, only one difference remains statistically significant: Male immigrants are less likely to work in managerial occupations than they would have had they remained in Germany. Note that the model fails to reject the hypothesis that migration is random.

In the full sample of German women, the naïve model suggests that German immigrants are less likely to be work in managerial occupations and more likely to work in technical and service occupations than they would have had they remained in Germany. The differences in probability of employment in managerial and technical occupations remain after correcting for selective migration. After correcting for selection, women migrants are not more likely to work in service occupations than non-migrants. Correcting for selection, instead, reveals that German migrant women are much less likely to work in farming, forestry and fishing than women who did not migrate. For technical and farming occupations, the model strongly rejects the hypothesis that migration is random.

6. Discussion and Conclusion

We have shown that people who migrate selectively differ from those who do not and that these differences are observed in the occupations they choose. Most of these differences disappear when one statistically adjusts for the selective migration. Our results suggest that migration does affect occupational choices and that the effects differ for Germans who migrated as adults and Germans who came as children. Choices of German men who arrived as adults are largely unaffected by migration but the migrants are more likely to enter technical occupations. It is unclear what sort of mobility this represents. By contrast, migration causes German women who arrived as adults to more often enter occupations in farming, forestry, and fishing. The biggest effects of migration show up when one includes German women who arrived in the US before they turned 21. In that sample, migration causes women to be more likely to enter technical occupations and less likely to choose occupations in farming, forestry, and fishing. Our analysis investigates international migration from a less-studied perspective. It asks the Robert Frost question about the life outcome to which the path not taken might have led. After adjusting for selective migration, we find that the occupational choice of immigrants mostly resembles the choices

of those who remained at home. These causal effects of migration are more likely for women and for people who migrated when young. It is unclear what sort of mobility these differences constitute. But we can definitively say that migration alters occupational choices.

7. References

Akresh, I.R. 2006. “Occupational Mobility Among Legal Immigrants to the United States.” *International Migration Review*, 40(4): 854-884.

Bernardi, F., Garrido, L., and Miyar, M. 2011. “The Recent Fast Upsurge of Immigrants in Spain and Their Employment Patterns and Occupational Attainment.” *International Migration*, 49(1): 148-187.

Brodmann S./ Polavieja, J.G. 2011. “Immigrants in Denmark: Access to Employment, Class Attainment and Earnings in a High-Skilled Economy.” *International Migration*, 49(1): 58-90.

Card, D. 2005. “Is the New Immigration Really So Bad?.” *The Economic Journal*, 115: 300-323.

Chiquiar, D./ Hanson, G. 2005. “International Migration, Self-Selection, and the Distribution of Wages: Evidence from Mexico and the United States.” *Journal of Political Economy*, 113(2): 239–281.

Chiswick, B. 2008. “Are Immigrants Favorably Self-Selected? An Economic Analysis.” In Caroline B.

Chiswick, B., Lee, Y.L., and Miller, P.W. 2005. “A Longitudinal Analysis of Immigrant Occupational Mobility: A Test of the Immigrant Assimilation Hypothesis.” *International Migration Review*, 39(2): 332-353.

Dostie, B./ Léger, P.T. 2009. “Self-Selection in Migration and Returns to Unobservable Skills," *Journal of Population Economics*, 2009, 22(4), 1005-1024.

Feliciano, C. 2005. "Educational Selectivity in U.S. Immigration: How Do Immigrants Compare to Those Left Behind?" *Demography*, 42(1): 131-52.

Frick, J.R., Jenkins, S.P., Lillard, D.R., Lipps, O. and Wooden, M. 2007. “The Cross-National Equivalent File (CNEF) and its Member Country Household Panel Studies.” Schmollers Jahrbuch (Journal of Applied Social Science Studies). 127 (4): 627-654.

Genizi, H. 1993. America’s Fair Share: The Admission and Resettlement of Displaced Persons, 1945-1952. Detroit: Wayne State University Press, 1993.

Haisken-DeNew, J.P./ Frick, J.R. 2005. DTC: Desktop Companion to the German Socio-Economic Panel (SOEP). Edited by John P. Haisken-DeNew (RWI Essen) & Joachim R. Frick (DIW Berlin). Accessed online at http://www.diw.de/documents/dokumentenarchiv/17/diw_01.c.38951.de/dtc.409713.pdf.

Kogan, I. 2011. "New Immigrants – Old Disadvantage Patterns? Labour Market Integration of Recent Immigrants into Germany." *International Migration*, 49(1): 91-117.

Maddisson, A. 2010. "Background Note on "Historical Statistics of the World Economy: 1-2008 AD"" www.ggdc.net/Maddison (March 2010).

Massey, D.S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino, A. and Taylor, E.J. 1993. "Theories of International Migration: A Review and Appraisal." *Population and Development Review.* Vol. 19(3): 431-466.

McAllister, I. 1995. "Occupational Mobility among Immigrants: The Impact of Migration on Economic Success in Australia." *International Migration Review* Vol. 29 (2): 441-468.

McDonald J.T./ Kennedy, S. 2004. "Insights into the 'Healthy Immigrant Effect': Health Status and Health Service Use of Immigrants to Canada", *Social Science and Medicine*, 59: 1613-1627.

Newbold K.B./ Danforth, J. 2003. "Health Status and Canada's Immigrant Population", *Social Science and Medicine*, 57(10): 1981-1995.

Sjaastad, L.A. 1962. "The costs and returns of human migration." *Journal of Political Economy* Vol 70S: 80-93.