

Der Open-Access-Publikationsserver der ZBW – Leibniz-Informationszentrum Wirtschaft  
*The Open Access Publication Server of the ZBW – Leibniz Information Centre for Economics*

Schnitzlein, Daniel D.

Working Paper

## How important is cultural background for the level of intergenerational mobility?

IWQW discussion paper series, No. 06/2011

**Provided in cooperation with:**

Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)

Suggested citation: Schnitzlein, Daniel D. (2011) : How important is cultural background for the level of intergenerational mobility?, IWQW discussion paper series, No. 06/2011, <http://hdl.handle.net/10419/45029>

**Nutzungsbedingungen:**

Die ZBW räumt Ihnen als Nutzerin/Nutzer das unentgeltliche, räumlich unbeschränkte und zeitlich auf die Dauer des Schutzrechts beschränkte einfache Recht ein, das ausgewählte Werk im Rahmen der unter

→ <http://www.econstor.eu/dspace/Nutzungsbedingungen> nachzulesenden vollständigen Nutzungsbedingungen zu vervielfältigen, mit denen die Nutzerin/der Nutzer sich durch die erste Nutzung einverstanden erklärt.

**Terms of use:**

*The ZBW grants you, the user, the non-exclusive right to use the selected work free of charge, territorially unrestricted and within the time limit of the term of the property rights according to the terms specified at*

→ <http://www.econstor.eu/dspace/Nutzungsbedingungen>  
*By the first use of the selected work the user agrees and declares to comply with these terms of use.*

# IWQW

Institut für Wirtschaftspolitik und Quantitative  
Wirtschaftsforschung

Diskussionspapier  
Discussion Papers

No. 06/2011

**How important is cultural background for the level of  
intergenerational mobility?**

Daniel D. Schnitzlein  
University of Erlangen-Nuremberg

ISSN 1867-6707

# How important is cultural background for the level of intergenerational mobility?

Daniel D. Schnitzlein \*

March 2011

Word count: 1,869

## Abstract

Using results on brother correlations of different groups of second generation immigrants based on administrative data from Denmark, this note analyzes the role of cultural background in the determination of the level of intergenerational mobility. The estimated correlations indicate that cultural background is not an important factor for the level of intergenerational mobility.

**Keywords:** Intergenerational mobility; Sibling correlations

**JEL-Code:** J62

*Correspondence to:*

Daniel D. Schnitzlein

University of Erlangen-Nuremberg

Lange Gasse 20

D - 90403 Nuremberg

Germany

E-mail: [daniel.schnitzlein@wiso.uni-erlangen.de](mailto:daniel.schnitzlein@wiso.uni-erlangen.de)

---

\*I thank Regina T. Riphahn as well as seminar participants in Nuremberg for helpful comments and suggestions. This research was carried out during a research visit at Aarhus School of Business. I thank Tor Eriksson for helpful comments and valuable support during this stay.

*All of us do not have equal talent, but all of us should have  
an equal opportunity to develop our talents.  
(John F. Kennedy, San Diego, June 6, 1963)*

## **1 Introduction and background**

Equality of opportunities in the sense of "leveling the playing field" (Roemer, 1998) is widely seen as a normative goal policy should reach in modern societies. Intergenerational economic mobility (hereafter IM) is often interpreted as an indicator of equality of opportunities. While there is a substantial literature on IM, both in economics and sociology (Solon, 1999; Black and Devereux, 2010), there is still a lack of knowledge regarding the determinants of the transmission process. This note analyzes the importance of cultural background for the level of intergenerational mobility.

Theoretical models (e.g. Becker and Tomes (1979); Solon (2004)) as well as empirical studies on the determinants of IM suggest that the transmission process can be influenced by numerous factors. In principle, these can be divided into two groups: first, institutional factors such as the educational system, tax system, and family policy; second, family related factors such as parental attitudes, parental behavior, and, as a result, parental resources. I assume in the following that these family related factors are heavily influenced by cultural background.

Recent contributions followed different empirical strategies to analyze the determinants of IM. First, cross-national comparisons (e.g. Björklund et al. (2002)) show that there are substantial differences in the level of IM for different types of welfare states. As in international comparison institutional factors and cultural background are change conjoined it is not clear which group causes the differences in the level of IM.

Another approach is followed for example in Björklund et al. (2009) who studied the change in the importance of family background and community factors on the success of offspring in Sweden. Holding constant family related factors influenced by cultural background, a change in institutions

was accompanied by a rise in IM. Another example can be found in Bauer and Riphahn (2009) who used regional variation in institutions (age at school entry) in Switzerland to analyze effects on intergenerational educational mobility.

In contrast to the studies mentioned above that held constant cultural background and used institutional variation as an identification strategy, this note adds to the literature by identifying the importance of cultural background by holding constant the institutional setting. Based on a unique Danish data set I analyze intergenerational mobility among different ethnic groups of second generation immigrants. As the data are collected in the same country and the same time for all groups, they all face the same institutional framework. If institutions are the main determinant, the different ethnic groups should face similar levels of IM. If instead cultural background matters most, the groups should differ in the estimated mobility levels.

## 2 Estimation strategy and data

There are several suggestions how to measure IM in the literature. Most authors focused on intergenerational correlations or elasticities. However, recent contributions analyzed sibling correlations instead (Mazumder, 2008; Björklund et al., 2009). These correlations offer a broader measure of the influence of family background and community effects on the economic outcome of offspring and are thus more adequate to assess IM and the equality of opportunities.

Following this approach, I use sibling correlations in permanent earnings as a measure of IM. The correlations are estimated as the within-cluster correlation  $\rho$  in the following multilevel model:

$$\log y_{ijt} = X_{ijt}\beta + \alpha_i + \mu_{ij} + \epsilon_{ijt} \quad (1)$$

with  $y_{ijt}$  being an annual earnings observation of sibling  $j$  of family  $i$  in year  $t$ . The matrix  $X$  contains year indicators and polynomials of age, controlling for fixed age earnings profiles and year effects.  $\beta$  are coefficients to be estimated.  $\alpha_i$  and  $\mu_{ij}$  denote the family specific and the individual

specific component of the error term.  $\epsilon_{ijt}$  captures transitory fluctuations. The sibling correlation  $\rho = \sigma_{\alpha}^2 / (\sigma_{\alpha}^2 + \sigma_{\mu}^2)$  is calculated as the ratio of the variance of the family specific component and the sum of the variances of the family specific and the individual specific component of the error term. The sibling correlation is interpreted as the share of the variance (inequality) in permanent earnings that can be attributed to factors shared by siblings. The multilevel model is estimated via restricted maximum likelihood.

I use data from the Danish Integrated Database for Labor Market Research (IDA) which combines information from various registers of administrative data collected by the Danish government and administered by Statistics Denmark. Being administrative data the IDA database covers the entire Danish population. So there is no problem of sample selection or panel attrition (except for natural attrition). The large number of individuals in the data allows me to analyze IM not only for all second generation immigrants in Denmark but also separately for immigrants with German, Pakistani, Turkish, Moroccan, and Yugoslavian background. The analysis is restricted to men because there might be a selection bias connected to the labor market participation of women in these subgroups. I use annual earnings for the years 2002-2006 for individuals aged 26-41. Following the literature, I exclude observations with annual earnings lower than 9000 DKK (around 1200 Euro in 2005 prices). The main descriptive statistics of the remaining sample are shown in Table 1.

### **3 Results**

The estimated brother correlations for Danish natives show the well known result that IM is very high in Denmark (Björklund et al., 2002). Only about 17 percent of inequality in permanent earnings can be attributed to family and community factors (first element in bold type row of Table 2). The results for all second generation immigrants excluding those from Yugoslavia and the results for immigrants with German, Pakistani, Turkish, and Moroccan background are very similar. They vary between 0.24 and 0.29. This is remarkable for two reasons: first, even though the cultural background varies significantly between these groups this seems to have no influence on the level

of IM. Second, IM estimates based on brother correlations for Germans in Germany lie around 0.45 (Schnitzlein, 2011). I interpret these results as support for the hypothesis that cultural background is not a major influence factor and that instead the institutional framework is an important determinant of IM. This is in line with the result, mentioned above, that the change in the institutional framework in Sweden was accompanied by a rise in intergenerational mobility (Björklund et al., 2009).

If cultural background is not the major influence factor, at first, with a given institutional framework, one would expect all groups to have equal brother correlations. The results in Table 2 show that this is not the case. There are two deviations to explain: first, the overall estimates for migrants are higher than those for native Danes. As mentioned above, a sibling correlation is a broad omnibus measure of intergenerational mobility. It covers not only the influence of family related factors but also neighborhood and community effects. In the absence of perfect integration these neighborhood and community effects should lead to higher brother correlations for migrants than for natives. Second, the group of second generation immigrants from Yugoslavia faces, even in the institutional framework of Denmark, a brother correlation of 0.52 which is remarkably high. This high estimate can be explained by the difference in the migration history of this group compared to the others. The parent generation in all groups of my sample came to Denmark as labor market migrants. But in contrast to other immigrant groups, in the 1990s migrants from Yugoslavia were accompanied by a large group of war refugees. As I only include second generation immigrants in this analysis, these refugees are not part of my sample. As most of them, at least in the beginning, expected to return home, they integrated less into the Danish society compared to other groups. Although this does not have to be the case for the brothers in this study, this group of refugees could have acted as their peer group. This would create large neighborhood effects. If these are strong enough they can override the positive effects of the Danish institutional framework.

## 4 Conclusion

Using results on brother correlations for different groups of second generation immigrants based on administrative data from Denmark, this note analyzes the role of cultural background in the determination of the level of IM. The results indicate that cultural background is not a major determinant and that instead the institutional framework has an important impact on the level of IM. This means that low IM in a society is not an unchangeable fact related to cultural background but could be influenced by means of social policy. To derive detailed policy advice, future research should more explicitly try to identify the most important institutions.

## References

- Bauer, P. C., Riphahn, R. T., 2009. Age at school entry and intergenerational educational mobility. *Economics Letters* 103 (2), 87–90.
- Becker, G. S., Tomes, N., December 1979. An equilibrium theory of the distribution of income and intergenerational mobility. *The Journal of Political Economy* 87 (6), 1153–1189.
- Björklund, A., Eriksson, T., Jäntti, M., Raaum, O., Österbacka, E., 2002. Brother correlations in earnings in Denmark, Finland, Norway and Sweden compared to the United States. *Journal of Population Economics* 15 (4), 757–772.
- Björklund, A., Jäntti, M., Lindquist, M. J., 2009. Family background and income during the rise of the welfare state: Brother correlations in income for Swedish men born 1932-1968. *Journal of Public Economics* 93 (5-6), 671–680.
- Black, S. E., Devereux, P., 2010. Recent developments in intergenerational mobility. In: Ashenfelter, O., Card, D. (Eds.), *Handbook of Labor Economics*. Vol. 4B. Elsevier, pp. 1487–1542.
- Mazumder, B., 2008. Sibling similarities and economic inequality in the US. *Journal of Population Economics* 21 (3), 685–701.



Roemer, J. E., 1998. *Equality of Opportunity*. Harvard University Press, Cambridge/London.

Schnitzlein, D. D., 2011. How important is the family? Evidence from sibling correlations in permanent earnings in Denmark, Germany and the US. IWQW-DP 5/2011, University of Erlangen-Nuremberg, Nuremberg.

Solon, G., 1999. Intergenerational mobility in the labor market. In: Ashenfelter, O., Card, D. (Eds.), *Handbook of Labor Economics*. Vol. 3A. Elsevier, pp. 1761–1800.

Solon, G., 2004. A model of intergenerational mobility variation over time and place. In: Corak, M. R. (Ed.), *Generational Income Mobility in North America and Europe*. Cambridge University Press, Cambridge, pp. 38–47.

Table 1: Descriptive statistics

	Natives		German		Pakistani		Turkish		Moroccan		Yugoslavian	
	Earnings	Age	Earnings	Age	Earnings	Age	Earnings	Age	Earnings	Age	Earnings	Age
<b>2002</b>	260,252	33.57	266,501	34.80	200,348	27.38	192,019	27.63	212,132	28.29	231,874	28.74
<b>2003</b>	270,561	33.69	273,997	34.81	210,920	27.84	201,167	27.81	209,578	28.66	236,150	29.20
<b>2004</b>	280,379	33.79	279,368	35.01	225,833	28.45	201,180	27.93	230,989	28.98	247,756	29.56
<b>2005</b>	291,579	33.87	298,395	35.29	238,450	28.88	217,261	28.16	232,983	29.17	253,108	29.92
<b>2006</b>	308,586	33.92	311,344	35.18	264,614	29.32	231,791	28.42	262,680	29.41	265,441	30.37

Note: Descriptive statistics for natives and five different groups of second generation immigrants; given are median earnings and mean age for every group; only male individuals aged 26-41 with annual earnings higher than 9,000 DKK are included. All figures in 2005 real values. Included is the full population of second generation immigrants and a 10 percent random sample of natives.

Table 2: Brother correlations

	Natives	all 2nd generation	all 2nd generation without Yugoslavia	German	Pakistani	Turkish	Moroccan	Yugoslavian
Family component ( $\sigma_\alpha^2$ )	0.059 (0.004)	0.131 (0.020)	0.126 (0.021)	0.105 (0.054)	0.109 (0.035)	0.105 (0.046)	0.144 (0.090)	0.211 (0.059)
Individual component ( $\sigma_\mu^2$ )	0.298 (0.004)	0.342 (0.021)	0.353 (0.022)	0.337 (0.057)	0.315 (0.038)	0.308 (0.048)	0.362 (0.093)	0.196 (0.054)
Transitory component ( $\sigma_\nu^2$ )	0.142 (0.000)	0.274 (0.004)	0.275 (0.004)	0.156 (0.007)	0.299 (0.011)	0.360 (0.013)	0.303 (0.022)	0.257 (0.012)
<b>Correlation (<math>\rho</math>)</b>	<b>0.165***</b> (0.010)	<b>0.277***</b> (0.041)	<b>0.263***</b> (0.042)	<b>0.238**</b> (0.119)	<b>0.256***</b> (0.079)	<b>0.255**</b> (0.108)	<b>0.285*</b> (0.169)	<b>0.519***</b> (0.132)
Observations	240,737	15,028	13,512	1,384	2,502	2,518	601	1,564
Families	49,584	4,064	3,661	328	611	843	152	427
Individuals	63,829	4,885	4,423	392	832	982	209	485

Note: REML-estimates based on a sample of male 2nd generation immigrants, lower earnings limit of 9,000 DKK, age between 26 and 41; brother correlations are calculated via bivariate delta method; standard errors in parentheses; \*\*\* indicate significance on 1 percent level; \*\* indicate significance on 5 percent level; \* indicates significance on 1 percent level. Included is the full population of second generation immigrants and a 10 percent random sample of natives.

## Diskussionspapiere 2011

### Discussion Papers 2011

- 01/2011 **Klein, Ingo, Fischer, Matthias, Pleier, Thomas:** Weighted Power Mean Copulas: Theory and Application
- 02/2011 **Kiss, David:** The Impact of Peer Ability and Heterogeneity on Student Achievement: Evidence from a Natural Experiment
- 03/2011 **Zibrowius, Michael:** Convergence or divergence? Immigrant wage assimilation patterns in Germany
- 04/2011 **Klein, Ingo, Christa, Florian:** Families of Copulas closed under the Construction of Generalized Linear Means
- 05/2011 **Schnitzlein, Daniel:** How important is the family? Evidence from sibling correlations in permanent earnings in the US, Germany and Denmark

## Diskussionspapiere 2010

### Discussion Papers 2010

- 01/2010 **Mosthaf, Alexander, Schnabel, Claus and Stephani, Jens:** Low-wage careers: Are there dead-end firms and dead-end jobs?
- 02/2010 **Schlüter, Stephan and Matt Davison:** Pricing an European Gas Storage Facility using a Continuous-Time Spot Price Model with GARCH Diffusion
- 03/2010 **Fischer, Matthias, Gao, Yang and Herrmann, Klaus:** Volatility Models with Innovations from New Maximum Entropy Densities at Work
- 04/2010 **Schlüter, Stephan, Deuschle, Carola:** Using Wavelets for Time Series Forecasting – Does it Pay Off?
- 05/2010 **Feicht, Robert, Stummer, Wolfgang:** Complete closed-form solution to a stochastic growth model and corresponding speed of economic recovery.
- 06/2010 **Hirsch, Boris, Schnabel, Claus:** Women Move Differently: Job Separations and Gender.
- 07/2010 **Gartner, Hermann, Schank, Thorsten, Schnabel, Claus:** Wage cyclicalities under different regimes of industrial relations.
- 08/2010 **Tinkl, Fabian:** A note on Hadamard differentiability and differentiability in quadratic mean.

09/2010 **Tinkl, Fabian:** Asymptotic theory for M estimators for martingale differences with applications to GARCH models.

## Diskussionspapiere 2009 Discussion Papers 2009

- 01/2009 **Addison, John T. and Claus Schnabel:** Worker Directors: A German Product that Didn't Export?
- 02/2009 **Uhde, André and Ulrich Heimeshoff:** Consolidation in banking and financial stability in Europe: Empirical evidence
- 03/2009 **Gu, Yiquan and Tobias Wenzel:** Product Variety, Price Elasticity of Demand and Fixed Cost in Spatial Models
- 04/2009 **Schlüter, Stephan:** A Two-Factor Model for Electricity Prices with Dynamic Volatility
- 05/2009 **Schlüter, Stephan and Fischer, Matthias:** A Tail Quantile Approximation Formula for the Student t and the Symmetric Generalized Hyperbolic Distribution
- 06/2009 **Ardelean, Vlad:** The impacts of outliers on different estimators for GARCH processes: an empirical study
- 07/2009 **Herrmann, Klaus:** Non-Extensivity versus Informative Moments for Financial Models - A Unifying Framework and Empirical Results
- 08/2009 **Herr, Annika:** Product differentiation and welfare in a mixed duopoly with regulated prices: The case of a public and a private hospital
- 09/2009 **Dewenter, Ralf, Haucap, Justus and Wenzel, Tobias:** Indirect Network Effects with Two Salop Circles: The Example of the Music Industry
- 10/2009 **Stuehmeier, Torben and Wenzel, Tobias:** Getting Beer During Commercials: Adverse Effects of Ad-Avoidance
- 11/2009 **Klein, Ingo, Köck, Christian and Tinkl, Fabian:** Spatial-serial dependency in multivariate GARCH models and dynamic copulas: A simulation study
- 12/2009 **Schlüter, Stephan:** Constructing a Quasilinear Moving Average Using the Scaling Function
- 13/2009 **Blien, Uwe, Dauth, Wolfgang, Schank, Thorsten and Schnabel, Claus:** The institutional context of an "empirical law": The wage curve under different regimes of collective bargaining

14/2009 **Mosthaf, Alexander, Schank, Thorsten and Schnabel, Claus:** Low-wage employment versus unemployment: Which one provides better prospects for women?

## Diskussionspapiere 2008 Discussion Papers 2008

01/2008 **Grimm, Veronika and Gregor Zoettl:** Strategic Capacity Choice under Uncertainty: The Impact of Market Structure on Investment and Welfare

02/2008 **Grimm, Veronika and Gregor Zoettl:** Production under Uncertainty: A Characterization of Welfare Enhancing and Optimal Price Caps

03/2008 **Engelmann, Dirk and Veronika Grimm:** Mechanisms for Efficient Voting with Private Information about Preferences

04/2008 **Schnabel, Claus and Joachim Wagner:** The Aging of the Unions in West Germany, 1980-2006

05/2008 **Wenzel, Tobias:** On the Incentives to Form Strategic Coalitions in ATM Markets

06/2008 **Herrmann, Klaus:** Models for Time-varying Moments Using Maximum Entropy Applied to a Generalized Measure of Volatility

07/2008 **Klein, Ingo and Michael Grottko:** On J.M. Keynes' "The Principal Averages and the Laws of Error which Lead to Them" - Refinement and Generalisation