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Schooling, Parents and Country

By Ira N. Gang*

Summary

We argue that the importance of parents' schooling and the female share of employment on children's schooling will vary by gender, ethnicity, and economic system. We examine this issue using data from Germany, Hungary, and the former Soviet Union. Our results indicate that there is a direct effect of economic system on educational attainment. Also, the degree of responsiveness varies by country, ethnicity, and gender. There are also differences in the quantity and type of human capital accumulated in the human capital across ethnic groups and gender within these countries. While there is some assimilation across generations, it is far from complete.

1. Introduction

This paper addresses the issue of how much economic system and ethnicity matter in schooling attainment. Schooling is examined in a "cross-cultural" context by comparing results across countries, as well as across ethnic groups and gender within a country. In particular, we focus on how the role of parents' schooling varies by country, ethnic group, and gender in determining the schooling achievement of children.

Our working hypothesis is that the inter-group variation in educational outcomes is not simply a matter of discrimination — the achievement of children in schools is subject to a number of influences. Parental schooling, for example, may be a proxy for a host of unobservable determinants, such as parental preferences for education, children's ability, and assistance given by parents in school work. That is, parental schooling variables are proxies for the efficiency with which parents can invest in children's education (a price effect) and the economic resources parents have available to invest in their children (an income effect).

Family and culture may interface with the schooling environment in different ways for different ethnic groups and under different economic systems. The educational achievement of students will in part reflect the learning conditions and social support provided by their community and country. Country (or economic system) and subculture (ethnic group) may proxy for community support for schooling (for example, educational policy), competition for different schools, and the life experience of students (war, business cycles, country policy, and the role of immigrants in the economy). Furthermore, we might expect the economic system itself to directly impact schooling attainment. For example, we would expect the socialized educational system of the former Soviet Union to produce different outcomes than the German system.

If country and culture matter, we expect to see variations in the items that influence educational attainment across countries and subgroups that face different relative prices of market versus non market activity, and across countries and subgroups that have differing elasticities of child-rearing activity with respect to labor force activity. The next section outlines the data we employ. Section 3 analyzes different aspects of the determinants of schooling, accounting for country, culture, and gender. Section 4 concludes. This paper draws heavily on the analysis of Gang and Zimmermann (1996) and Gang (forthcoming). The reader is referred to these papers for a more detailed and thorough analysis of the issues addressed here.

2. Data

The study makes use of three household-level data sets: the German Socio-Economic Panel (GSOEP) (Wagner, Burkhauser, and Behringer 1993), the Hungarian Household Panel Survey (HHPS) (Sik 1995), and the Soviet Interview Project (SIP) (Gang and Stuart forthcoming). Each of these data sets contains information on various subgroups of the population: the GSOEP consists of Germans and immigrants into Germany and their families; the HHPS makes it possible to distinguish Gipsies and Hungarian non-Gipsies; and the SIP allows us to identify each person's place of birth by republic of the former Soviet Union. We use these data to analyze demographically comparable groups, as defined below. Of course, the idiosyncracies of each data set do not allow perfectly comparable samples.

From the GSOEP we use primarily the first wave, drawn in 1984. In 1986 a question was asked on parents' education, and we match this to the 1984 respondents. From the sample of foreigners, we include those who were born in Germany or who arrived before the age of 16, and who were aged 17 to 38 in 1984. These are considered to be the second generation migrants. It is important to note that these are not the children of the foreigners in the GSOEP (for an analysis of this group see Haisken-DeNew, Büchel, and Wagner (forthcoming); rather, these are adults in the GSOEP who were born in Germany or entered Germany before age 16. Our total sample is 4,594 Germans and second generation immigrants.

The first wave of the HHPS was drawn in 1992. In 1993 a question on parents' education was asked, and we draw our data from the 1993 wave. The interviewers were asked whether they thought the respondent was a Gipsy or not, and we use this to identify Gipsies versus those Hungarians who are not Gipsies. We restricted our sample to those who were aged 17 to 47 in 1993, leaving us with a sample of 2,031 individuals.

* The manuscript has benefitted from comments made by Gail M. Alterman, Thomas Bauer, and Robert C. Stuart. The author is affiliated with the Department of Economics, Rutgers University.

The SIP data we employ provide detailed background information on persons who emigrated from the Soviet Union to the United States in the period from January 1, 1979, to April 30, 1982. The SIP data was collected in 1983 and reports on a variety of aspects of household behavior of respondents during their lifetime in the Soviet Union through the date on which they declared their intention to emigrate from the Soviet Union, which is considered the end of their last normal period (LNP). The concept of LNP is important. It was assumed that once a family declared its intention to emigrate its circumstances would change, possibly dramatically, due to official hostility. Our study is based upon a subsample of 919 emigrants for whom both basic and extended household characteristics are known, and who were born in the various republics of the former Soviet Union. Of these, we further restricted the sample to the 519 participants who were between 25 and 50 years old in 1983. While our GSOEP and HHPS samples consist of respondents born after World War II, our SIP sample includes individuals born as early as 1933. This was necessary to ensure an adequate sample size. In our analysis, we control for the differences in cohort by including age as a regressor.

While each data set has its own definition of each variable, we attempted to make the variables comparable. The critical variables of the study are children's and parents' schooling. For children's schooling, we translated the different educational degrees into years of schooling for all three data sets. This allowed us to more easily make cross-country comparisons on level of schooling and allowed for easier calculation of elasticities. The GSOEP provides data for each individual on the type of school attended. To convert these into years of schooling, we followed the procedure outlined in Gang and Zimmermann (1996). Instead of simply adding the standard years for the various educational degrees, we used a more conservative measure that adjusts for "duplicate" degrees and discounts alternative post-schooling degrees (vocational training, university, etc.) by one year. A similar procedure was employed in translating the degrees in the HHPS and the SIP into years of schooling. For parents' schooling, using the HHPS and the SIP, we also directly translated degrees into years of schooling. Though there were significant changes in the structure of schooling in the Soviet Union and Hungary, on balance parents went through the same general type of school system as the children (see Dobson 1984). We followed the same approach for the parents of Germans in the GSOEP. To obtain the schooling levels acquired by migrants in their home countries in the GSOEP, we looked at the number of years a basic degree takes and assuming these years to persons who have at least "compulsory with degree," and half that amount to those who lack the degree (see Gang and Zimmermann 1996 for a discussion of this procedure). We did several robustness checks, including assigning those without a degree zero years of schooling, and found no differences in our estimates.

We also account for female labor force participation. Because of the lack of data across countries and over time on actual female labor force participation rates, we use the female share of total employment at the time the respondent was 10 years old. Where possible, we distinguish this by ethnic group and gender. We might, for example, expect a big difference in female labor force participation across these economic systems, and we might expect this to have an impact directly on children's schooling attainment and indirectly through the role of mothers' educational background on children's attainment.

3. Analysis

We approach our questions in four ways. First, we examine whether there is an overall economic system effect. To do this, we combine our country samples, using dummy variables to capture country/economic system effects. Second, instead of pooling the data we run separate regressions for each country. Third, we run separate regressions for each ethnic group. Fourth, we look at ethnic effects in more detail, focussing only on Germany, where we can identify five separate ethnic groups.

Overall Economic System Effects

West Germany is a highly developed market economy; Hungary a small, relatively open socialist economy; the former Soviet Union a large, controlled, planned socialist country. We can see some of the differences by examining simple (unweighted) means. Among the post-World War II cohorts, those in Germany have 11.5 years of schooling, Hungarians 12.3 and those in the former Soviet Union 10.5. Among the parents, mothers have 5.2 years of schooling in Germany (remember this includes guest workers who are overrepresented in the sample), 9.4 in Hungary, and 7.7 in the Soviet Union. Fathers in Germany have 5.3 years of schooling, Hungary 9.9, and the Soviet Union 8.3. Finally, the share of women in total employment at the time the respondents were 10 years old was 35.1 percent in Germany, 44.5 percent in Hungary and 40.3 percent in the Former Soviet Union.

When our three samples are combined and we estimate a pooled regression, the elasticities of respondent's education with respect to mother's schooling, father's schooling, and share of women in total employment are small and significant and differ for males and females (bottom panel of Table 1). There are significant differences in the role of mother's and father's schooling. Mother's schooling matters more for women than men (0.11 verses 0.07). Father's schooling has the same effect on women and men (0.12 and 0.14). A rise in the female share of employment raises children's schooling, and this effect is larger for women (0.59) than for men (0.49). Female share of employment

may proxy for income or perhaps it may be that with more women working, children start their socialization into schooling systems earlier and this affects their total schooling levels. Moreover, we find a significant difference by country in the determinants of educational attainment (the dummy variables for Soviet Union and Hungary are significantly different from zero). Generally, Soviets and Hungarians received 3.5 to 4.0 years less schooling than comparable people in Germany, *ceteris paribus.*

Separate Regressions for Each Country

Estimating separate regressions for each country instead of pooling the data allows country or economic system to interact with all of the right-hand-side variables. We expect that the determinants of schooling, particularly the role of parents' level of education and ethnicity, differ among the Soviet Union, West Germany, and Hungary. The pattern of results from Table 1 holds up, and the response of respondent's schooling to the included attributes is highly inelastic. However, we do see large variations in our elasticity estimates across countries. The German elasticity with respect to mother's schooling is much less (0.08) than the Hungarian (0.14) or Soviet (0.13), though they are all similar with respect to father's schooling, between 0.12 and 0.14. German females respond more to mother's schooling than do German males (0.12 verses 0.04); Hungarian females respond less; and males and females in the former Soviet Union respond equally to mother's

Table 1

System/Country Effects on Schooling

	Country Samples			Total Sample		
	West Germany	Hungary	Former Soviet Union	All	Males	Females
Sample Size	4,594	591	2,031	7,216	3,598	3,618
Years of Schooling of Respondent	11.46 (3.20)	12.30 (2.57)	10.54 (2.39)	11.27 (2.99)	11.38 (2.97)	11.16 (3.00)
Years of Schooling of Respondent's Mother	5.17 (1.53)	9.40 (3.75)	7.69 (3.19)	6.23 (2.77)	6.19 (2.78)	6.26 (2.75)
Years of Schooling of Respondent's Father	5.33 (1.73)	9.86 (4.05)	8.35 (3.37)	6.55 (3.03)	6.49 (3.03)	6.61 (3.03)
Share of Women in Total Employment (in percent)	35.14 (4.79)	44.47 (4.65)	40.34 (3.28)	37.37 (5.40)	37.17 (5.42)	37.56 (5.37)
Pooled Regression Results						
Elasticity of Respondent's Education with Respect to Mother's Education				0.09 (0.01)	0.07 (0.01)	0.11 (0.01)
Elasticity of Respondent's Education with Respect to Father's Education				0.12 (0.01)	0.14 (0.01)	0.12 (0.01)
Elasticity of Respondent's Education with Respect to Share of Women in Total Employment				0.53 (0.04)	0.49 (0.05)	0.59 (0.06)
Fewer Years of Schooling Received by Respondent in Hungary Compared to Respondent in West Germany, ceteris paribus				3.58 (0.08)	4.02 (0.12)	3.18 (0.13)
Fewer Years of Schooling Received by Respondent in Former Soviet Union Compared to Respondent in West Germany, ceteris paribus				3.92 (0.16)	4.04 (0.22)	3.83 (0.24)

Note: Standard deviations and errors are in parentheses. Elasticities are derived from pooled OLS regressions with respondent's years schooling as the dependent variable. All coefficient and elasticity estimates are significant at 0.01. The regression includes these control variables: mother's schooling, father's schooling, share of women in total employment at time respondent was age 10, respondent's age (capturing cohort effects), a dummy variable for still in school, and dummy variables Hungarian and former Soviet Union.

Source: Author's calculations using SHAZAM 7.0 from a combined sample of the GSOEP, HHPS, and SIP.

Table 2

Country and Gender Specific Effects on Schooling

Sample	Mean Years of Respondent's Schooling	Elasticity of Respondent's Schooling with Respect to		
		Mother's Schooling	Father's Schooling	Share of Women in Total Employment
German Socio-Economic Panel				
All	11.46	0.08	0.14	0.53
	(3.20)	(0.02)	(0.02)	(0.05)
Male	11.67	0.04	0.16	0.45
	(3.18)	(0.03)	(0.02)	(0.06)
Female	11.25	0.12	0.12	0.63
	(3.20)	(0.02)	(0.02)	(0.07)
Hungarian Household Panel Survey				
All	10.54	0.14	0.15	0.68
	(2.39)	(0.02)	(0.02)	(0.13)
Male	10.39	0.11	0.15	0.39
	(2.19)	(0.02)	(0.02)	(0.17)
Female	10.69	0.17	0.16	0.92
	(2.57)	(0.02)	(0.02)	(0.18)
Soviet Interview Project				
All	12.30	0.13	0.12	0.18
	(2.57)	(0.02)	(0.02)	(0.09)
Male	12.48	0.13	0.15	0.28
	(2.63)	(0.03)	(0.03)	(0.13)
Female	12.15	0.14	0.08	0.08
	(2.51)	(0.04)	(0.03)	(0.13)

Note: Standard deviations and standard errors are reported in parentheses. Elasticities and regressions are the same as reported in the notes to Table 1. Here, the regressions are run separately for each country and for males and females.

Source: Author's calculations using SHAZAM 7.0 from the GSOEP, HHPS, and SIP.

schooling. Father's schooling has virtually the same effect for Hungarians and Germans; for the Soviets the male response is nearly double the female response, 0.15 compared to 0.08. The response to females in the workforce overwhelms the effects of parents' schooling. Here, the variation is quite large, with females in Hungary having an almost unitary elasticity (0.92), while females in the former Soviet Union have an almost completely inelastic response (0.08). Overall, the response to females working is much smaller in the former Soviet Union than in Germany or in Hungary.

Separate Regressions for Each Ethnic Group

To more fully capture the effects of ethnic group subculture, we performed separate analyses for each subgroup in each country. In Table 3, we present a summary of those results for some ethnic groups. For a more complete discussion and analysis, see Gang (forthcoming). We further break down the ethnic populations into males and females. This allows us a complete set of interactions of ethnicity and gender with the explanatory variables, rather than a limited interaction with ethnic differences forced into the intercept term. Doing so, we gain a better picture of the effect of parents' schooling on children's schooling by ethnicity and gender, as well as by country. Female share of total employment is not included as a regressor, as there is not enough variation in this variable within the ethnic groups.

For Germans, the estimated elasticities of parents' schooling on children's schooling are very small, but significantly different from zero. Children's education is very inelastic with respect to parents' schooling. Father's schooling is more important than mother's, on the order of three times as important for males (0.15 versus 0.05) and twice as important for females (0.13 versus 0.07). This pattern is not maintained among Germany's second generation immigrants. For the Turks, parents' schooling has a weak, sometimes negative relationship, to children's schooling. Indeed, the only significant elasticity is the effect

of father's education on sons, and it is strong at 0.22. Schultz (1984) also found, for the United States, that there is a weaker link between second generation immigrants and their parents than between the children of native-born Americans and their parents. One possibility is that the shock of immigration may weaken the intergenerational transfer of human capital.

In Hungary, the average non-Gipsy born after 1945 had 10.7 years of schooling, while the Gipsy had a much lower 7.5 years. The level of Gipsy education is more comparable to the parental generation of non-Gipsy Hungarians. Gipsy mothers averaged 3.6 years, and fathers 4.6 years of schooling. For non-Gipsy Hungarians, while the point estimates suggest that parents' schooling matters to children, the

Table 3

Country, Gender and Ethnic Effects on Schooling

	Sample Size	Respondent's Education (Years of Schooling)	Estimated Elasticities	
			Respondent's Education with Respect to Mother's Education	Respondent's Education with Respect to Father's Education
Germans from GSOEP				
Male	1920	12.30 (2.50)	0.05 (0.02)	0.15 (0.02)
Female	1920	11.90 (2.40)	0.07 (0.02)	0.13 (0.02)
Turks from GSOEP				
Male	161	8.30 (3.80)	−0.21 (0.12)	0.22 (0.09)
Female	132	6.70 (4.40)	−0.20 (0.17)	−0. 08 (0.28)
Non-Gipsy Hungarians from HHPS				
Male	935	10.50 (2.10)	0.10 (0.23)	0.12 (0.24)
Female	990	10.90 (2.40)	0.14 (0.22)	0.12 (0.20)
Gipsies from HHPS				
Male	54	7.80 (2.10)	−0.03 (0.03)	0.18 (0.09)
Female	52	7.10 (2.70)	0.03 (0.06)	0.10 (0.67)
Russians from SIP				
Male	105	13.60 (2.10)	0.09 (0.05)	0.14 (0.05)
Female	143	12.70 (2.40)	0.08 (0.05)	0.10 (0.05)
Ukrainians from SIP				
Male	101	12.30 (2.50)	0.15 (0.06)	0.07 (0.06)
Female	80	11.60 (2.40)	0.11 (0.07)	0.04 (0.06)

Note: Standard deviations and standard errors are reported in parentheses. Control variables include those listed in the note for Table 1 plus respondent's age squared. In addition, for the Hungarian sample, an indicator for urban residence and for the Soviet sample, indicators for urban, Jewish and migrated within the former Soviet Union are included for the SIP. Female share of total employment is not included in any of the regressions.

Source: Gang (1966). Calculations using SHAZAM 7.0. Samples were ethnic groups drawn from GSOEP, HHPS, and SIP for the subset of data described in the text.

standard errors are quite large, indicating no real influences. It is a different matter for Gipsies. For females, parents' schooling has no effect, but for males, father's education matters. The effect is quite strong, 0.18, and very much in line with results for Turks in Germany. According to this estimate, if the Gipsy father had twice the average level of education, the Gipsy son would have approximately 1.5 additional years of schooling.

For the cohort from the former Soviet Union, we find the mean level of schooling quite high, and it is higher among males than females. Even parents' schooling is relatively high. The greatest gains in schooling occurred outside of Russia and among females. It is quite clear that parents' education matters. The point estimates suggest that the effects of mother's and father's schooling on the children's schooling are of similar magnitudes. However, the large standard errors indicate that only father's education matters, 0.14 for sons and 0.10 for daughters. The Ukrainian case is different from all the preceding results. The largest and only significant elasticity (0.15) is the son's with respect to the mother's schooling.

Contrary to conventional wisdom, overall the evidence indicates that father's education is more important than mother's, and that mother's schooling is relatively more important for females than for males. However, this general statement does not apply to all of the ethnic groups. Furthermore, we find interesting differences within countries. For example, the effect of parents' schooling is generally negative for second generation immigrants in Germany, and generally weaker for Gipsies compared to non-Gipsies in Hungary. This may result from the low schooling attainments of the parents and the institutionalization of schooling in the children's generation.

Detailed Analysis of Germany

Country, ethnicity, and to some extent gender proxy for a host of attributes that vary among subgroups and affect schooling attainment. They may, as mentioned earlier, proxy for community support for schooling, competition for different schools' places, and the life experience of students (such as war, business cycles, and the role of immigrants in the economy). This study explores some of these attributes using the GSOEP and examines the variation by immigrant versus nonimmigrant status. In Gang and Zimmermann (1996) we compare the educational attainment of the children of guest workers in Germany to the achievements of the comparable group of Germans, using the same sample we described above We highlight some of the results here, without reproducing the tables. In Germany, Germans receive markedly more education than other ethnic groups in the same age cohorts. In terms of years spent in school Germans average 12.1, Spaniards 9.5, Greeks 8.9, Italians 8.3, Yugoslavs 8.0, and Turks 7.6 years. Forty-seven percent of the Germans obtained at least a high school degree, while only 6 percent of the Turks did so.

For native Germans, parents' educational background plays a significant role, with father's education being more important than mother's in influencing children's educational outcomes. Parents' educations have positive impacts on both total years of education and receipt of educational certificates, while vocational training is affected negatively. Highly educated parents have children who generally choose forms of education other than vocational training.

For second generation immigrants, as a whole, parental education is not a good proxy for parental influence. Migrants' education has no effect on the educational attainment of their children. These parents seem to have made their human capital investment in their children through their decision to immigrate. With regard to their families' educational background, second generation immigrants have an equal start in the educational system of Germany.

Ethnicity does matter for the second generation migrants. This happens via various channels. The size of the ethnic network has an inverted U-shape effect on total years of education and on the schooling level: as the network size increases, educational attainment at first increases and then decreases. Gender also matters. A female Turk has about 7 years less German education than an otherwise similar German woman. Next are Italians (6 years), Yugoslavs (4.5 years), Greeks (4 years), and Spaniards (2 years). Whereas males in general get half a year more education than their female ethnic counterparts, the Turkish man has in total about 2 more years. Generally, competition in numbers and quality from Germans has little effect on the educational attainment of second generation immigrants. Where there are effects (a quantity effect on years of education and a quality effect on vocational training), they appear to be complements.

In summary, ethnic origin matters significantly in educational attainment in Germany. Germans, Italians, Yugoslavs, Turks, Greeks, and Spaniards in Germany have very different educational experiences. However, assimilation in the acquisition of education is taking place. Second generation immigrants possess educational profiles that are closer to their comparable German cohort than their parents had in comparison to their German counterparts.

4. Conclusion

This paper addresses several questions. It asks to what extent children follow in parents' footsteps, how this differs between immigrant and nonimmigrant groups, and how various factors enter into the investments parents and children make in children's schooling. Our argument is that the importance of these factors varies by gender, ethnicity, and economic system. Unfortunately, to enable a comparison across these three data sets, we had to make some very strong assumptions and severely restrict the variables in our analysis.

The major lesson to learn from this paper is that country and ethnicity do matter in schooling attainments. There is a direct effect of economic system (or country). Also, the

degree of responsiveness to various factors, such as parental education, varies by countries, ethnicity, and gender. There are large differences in the human capital quantity and quality accumulation across ethnic groups and gender. While there is some assimilation of immigrants across generations, it is far from complete.

References

Dobson, Richard B. 1984. "Soviet Education: Problems and Policies in the Urban Context." In Henry W. Morton and Robert C. Stuart (eds.), The Contemporary Soviet City. Armonk, N.Y.: M.E. Sharpe, pp. 156-177.

Gang, Ira N. Forthcoming. "Who Matters Most? The Effect of Parent's Schooling on Children's Schooling." In Hermann Korte and Gert G. Wagner (eds.), Changing Family and Living Arrangements — An International Comparison. Frankfurt and New York: Campus Press.

Gang, Ira N. and Robert C. *Stuart.* Forthcoming. "What Difference Does a Country Make ? Earnings of Soviets in the Soviet Union and in the United States," Quarterly Review of Economics and Finance, Special Issue on Migration edited by Barry R. Chiswick.

Gang, Ira N. and Klaus F. *Zimmermann.* 1996. "Is Child Like Parent? Educational Attainment and Ethnic Origin," SELAPO, University of Munich, mimeo.

Haisken-DeNew, John, F. *Buechel,* and Gert G. *Wagner.* 1997. "Foreigner Assimilation and Other Determinants of School Attainment in Germany: Do Ali's Kids Perform as Well as Hans?" in this volume.

Schultz, T. Paul. 1984. "The Schooling and Health of Children of U.S. Immigrants and Natives." In T. Paul Schultz and Kenneth J. Wolpin (eds.), Research in Population Economics, 5: 251-288.

SHAZAM. 1993. User's Reference Manual Version 7.0. NY: McGraw Hill.

Sik, Endre. 1995. "Measuring the Unregistered Economy in Post-Communist Transformation," Eurosocial Report 52, Vienna, Austria.

Wagner, Gert G., Richard V. *Burkhauser,* and Friederike *Behringer.* 1993. "The English Language Public Use File of the German Socio-Economic Panel," Journal of Human Resources, 28(2) (Spring): 429-433.