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## The intergenerational transmission of education: A case study from Iceland

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The Intergenerational Transmission of Education: A Case Study from Iceland

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# The Intergenerational Transmission of Education: A Case Study from Iceland

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## Abstract

We estimate the relation between parents' education on the education of their children using survey data from Iceland. We find a positive correlation between the education of parents and their children as well as a positive correlation between parents' emphasis on the importance of education and their children's education. The mother's education appears to matter more than that of the father. The correlation between the educational levels is lower than in other countries, including the egalitarian Nordic countries, which suggests a weaker transmission between generations. Moreover, parents who have not received higher education can influence the choices made by their children by emphasizing the importance of education to them.

*Keywords:* Education, generations, transmission.

*JEL classification:* I21, J13

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## I. Introduction

It has been observed in many countries that children whose parents have higher education tend to seek more education for themselves. This positive relation between the educational level of parents and children can be due to genetic factors, the values instilled in children in their home, to the role modeling of parents, and to the attention they receive by parents.

The intergenerational transmission effects can be classified into two distinctive categories; direct and indirect effects (Black and Devereux, 2011). These two categories are also sometimes referred to as nature versus nurture. The former effect can be viewed as an inherited ability that parents with higher education simply give to their children who then find it easier to acquire higher education for themselves. Studies by Black, Devereux and Salvanes (2005), Dominique et al. (2015),<sup>1</sup> Rustichini et al. (2017) and Silles (2017) found evidence supporting this hypothesis. However, there is also the effect of nurture when educated parents emphasize the importance of education to their children and act as mentors and teachers. Research by Davis-Kean (2005) and Dubow, Boxer, and Huesmann (2009) found support for this hypothesis. Thus, evidence has been found for both direct and indirect effects explaining the educational performance of children while not determining which effect is more important.

We study how educational attainment persists across generations using data from Iceland. The countries most comparable to Iceland are the other four Nordic countries. It has been found that the Nordic countries have on average lower parent-child education correlation than other OECD countries (see Black and Devereux, 2011; Hertz et al., 2008). For example, Hertz et al. (2008) found that the Nordic countries had an average correlation of .34 when education is measured by the number of years spent in school while the non-Nordic average was .41.<sup>2</sup>

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<sup>1</sup> This study found that genetics can contribute to what level of education a person receives by identifying genetic markers that contribute to a person's level of education using a pool of 125,000 people from Western Europe, Australia, and the U.S.

<sup>2</sup> Four Nordic countries had a fairly low correlation coefficient, indicating high mobility. These were Denmark (.30), Finland (.33), Norway (.35), and Sweden (.40). Peru had the highest correlation coefficient (.66) – indicating low educational mobility between generations – followed by six other Latin-American countries with coefficient of .55 to .61.

In this study we will explore whether Iceland's intergenerational education transmission is similar to that of other Nordic nations.<sup>3</sup> The paper intends to answer these questions by starting with a comparison of the distribution of educational attainment levels among the Nordic countries and other European countries. The comparison should give insight into how educational distributions reflect social mobility and opportunities. Next, we estimate the correlation between the educational attainment of parents and children using our data. Finally, a multiple linear regression analysis is performed where the dependent variable is the child's educational attainment and the regressors include the educational attainment of the parents as well as a measure of how much they emphasize education in the household. We also include the individual's age, gender and a dummy variable for the capital region.<sup>4</sup> A key result is the estimated coefficient of parent's educational attainment level as a predictor of their child's educational achievements. The results are discussed in the final section of the paper.

## II. Previous Studies that Include Iceland

To our knowledge, there are no papers on the intergenerational transmission of education in Iceland. However, *Eurostat* collected data from 36 countries, including Iceland, on the transmission of educational attainment from parents to children. The number of participants was 1,026, aged from 25 to 59 years. Educational levels were categorized using the *International Standard Classification of Education* (ISCED). The education of parents was categorized according to ISCED97, which has six classes of education. The children's education was classified by ISCED2011, which has nine levels. Both parent's and current adult's educational levels were aggregated into three distinctive groups which are shown in Table 1.

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<sup>3</sup> Bratberg et al. (2016) examined income mobility differences between Germany, Norway, Sweden and the US and found that the US is less intergenerationally mobile than the three European countries when it comes to income. Landerso and Heckman (2016) found that measured by income mobility Denmark is a more mobile society than the US but not when measured by educational mobility, the former being a consequence of the redistributive tax system.

<sup>4</sup> Other important factors that influence children's educational attainment are the returns to education as well as family and public investments in the education of children through educational systems and public policy (Huang, 2012). Van Doorn, Pop, and Wolbers (2011) found that both the level of industrialization and female labor force participation have a positive effect on the educational level of respondents.

Table 1. *Classifications of ISCED97 and ISCED2011*

Education	ISCED97 (parents)	ISCED2011 (children)
Low	Pre-primary, primary and lower secondary education (levels 0-2)	Less than primary, primary and lower secondary (levels 0-2)
Medium	Upper secondary and post-secondary non-tertiary education (levels 3 and 4)	Upper secondary and post-secondary non-tertiary (levels 3 and 4)
High	First and second stage of tertiary education (levels 5 and 6)	Short-cycle tertiary, bachelor or equivalent, master or equivalent and doctoral or equivalent (levels 5-8)

Gathered from: [https://circabc.europa.eu/sd/a/3b3f4939-5e18-478d-b954-42e112f8ed05/SECTION1\\_EA\(0\).htm](https://circabc.europa.eu/sd/a/3b3f4939-5e18-478d-b954-42e112f8ed05/SECTION1_EA(0).htm)

In Table 2 we show data from ten countries from the Eurostat data; the five Nordic countries and Britain, France, Italy, Germany and Ireland. The table shows the proportion of children belonging to each educational group for each educational group of parents. Thus, each line can be read as showing how the children of each group of parents' fare. The parent's education is on the vertical left side in each table and children's education on the horizontal top row.<sup>5</sup> The table shows that the Nordic countries educational distribution patterns were more similar to one another than to the other EU countries. What mainly distinguished the Nordic and non-Nordic countries is that in the Nordic countries a lower proportion of children of university educated parents also went to university and a higher proportion of children of parents who belong to the lowest education group went to university. Iceland shares the pattern of the other Nordic countries. The proportion of children of university educated parents who attend university was similar to that in the other Nordic countries and also the proportion who end up in the lowest educational category.

It is interesting that the Nordic countries differed from the rest of the countries in children of university educated parents not choosing to go to university while the proportion of children of the least-educated parents who did make it to university was similar across the whole sample. Differences in the return to education might help us explain this pattern in the data. Blanden (2013) showed that countries with a higher return to education typically had a lower inter-generational income mobility coefficient.

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<sup>5</sup> First, to be able to compare the children's educational proportional distributions within each level of parental education from the EU-SILC 2011 data, it was necessary to recode how the distributions were represented. Instead of showing the proportions of parent's educational level within each group of their children's education, like in the original representation of the data, the proportions were rearranged so as to show the proportions of children in each group for each parental group.

He took France and Italy as examples of countries with a high return to education and low income mobility.

Table 2. *Educational distribution tables from EU-SILC 2011 results*

<b>Iceland</b>	<i>Children's edu. level proportions</i>				<b>Britain</b>	<i>Children's edu. level proportions</i>		
<i>Parents' distrib.</i>	Level 0-2	Level 3-4	Level 5-8	<i>Sum across columns</i>	<i>Parents' distrib.</i>	Level 0-2	Level 3-4	Level 5-8
Level 0-2	48.26%	32.81%	18.92%	100%	Level 0-2	47.06%	32.64%	20.31%
Level 2-4	32.20%	36.15%	31.65%	100%	Level 2-4	18.15%	42.04%	39.81%
Level 5-6	13.84%	25.65%	60.52%	100%	Level 5-6	5.60%	25.81%	68.59%
<b>Denmark</b>	<i>Children's edu. level proportions</i>				<b>France</b>	<i>Children's edu. level proportions</i>		
<i>Parents' distrib.</i>	Level 0-2	Level 3-4	Level 5-8		<i>Parents' distrib.</i>	Level 0-2	Level 3-4	Level 5-8
Level 0-2	46.90%	33.75%	19.35%	100%	Level 0-2	40.80%	37.39%	21.81%
Level 2-4	33.99%	36.43%	29.58%	100%	Level 2-4	15.27%	26.51%	58.21%
Level 5-6	15.68%	27.76%	56.56%	100%	Level 5-6	8.94%	17.65%	73.41%
<b>Norway</b>	<i>Children's edu. level proportions</i>				<b>Italy</b>	<i>Children's edu. level proportions</i>		
<i>Parents' distrib.</i>	Level 0-2	Level 3-4	Level 5-8		<i>Parents' distrib.</i>	Level 0-2	Level 3-4	Level 5-8
Level 0-2	50.33%	34.13%	15.54%	100%	Level 0-2	45.61%	34.28%	20.12%
Level 2-4	32.85%	39.29%	27.86%	100%	Level 2-4	8.82%	36.71%	54.48%
Level 5-6	21.17%	25.35%	53.48%	100%	Level 5-6	2.30%	16.86%	80.84%
<b>Finland</b>	<i>Children's edu. level proportions</i>				<b>Germany</b>	<i>Children's edu. level proportions</i>		
<i>Parents' distrib.</i>	Level 0-2	Level 3-4	Level 5-8		<i>Parents' distrib.</i>	Level 0-2	Level 3-4	Level 5-8
Level 0-2	43.70%	34.66%	21.64%	100%	Level 0-2	72.22%	17.01%	10.76%
Level 2-4	31.84%	34.68%	33.48%	100%	Level 2-4	29.75%	42.20%	28.05%
Level 5-6	13.76%	28.85%	57.40%	100%	Level 5-6	13.44%	27.71%	58.86%
<b>Sweden</b>	<i>Children's edu. level proportions</i>				<b>Ireland</b>	<i>Children's edu. level proportions</i>		
<i>Parents' distrib.</i>	Level 0-2	Level 3-4	Level 5-8		<i>Parents' distrib.</i>	Level 0-2	Level 3-4	Level 5-8
Level 0-2	53.06%	32.98%	13.96%	100%	Level 0-2	47.45%	34.38%	18.18%
Level 2-4	31.78%	38.25%	29.98%	100%	Level 2-4	25.21%	35.62%	39.18%
Level 5-6	13.92%	26.65%	59.43%	100%	Level 5-6	6.18%	24.26%	69.57%

### III. Correlations in the Data

Our dataset was collected specifically for this study by the marketing research firm *Maskína* in 2017. The survey included five questions in addition to background questions. The first asked about the participant's own highest educational level. Next,

respondents were asked about the highest level of their mother or the individual who represented a mother in the participant's upbringing and the third asked the same question about the father. Finally, there were questions about the mothers and the father's emphasis on education.

These first three questions had a scale from "not finishing primary education" to the last option of "finished a doctoral degree". The answer to the two questions about parents' emphasis on their children's education ranged from "very much" to "very little too none".

The total number of participants in the survey was 871, chosen randomly from the National Registry of Iceland. Individuals between 25 and 69 years of age were included. Table 3 shows the number of observations, the mean, range and standard deviation of the data.

**Table 3. *Summary statistics for data with separate parent's educational attainment levels***

Variables	N	Mean	Range	Standard deviation
Children's education	871	4.81	1 to 8	1.53
Mother's education	871	3.19	1 to 8	1.67
Father's education	871	3.87	1 to 8	1.67
Mother's educational emphasis	864	6.13	1.6 to 8	1.69
Father's educational emphasis	856	6.04	1.6 to 8	1.70
Highest Parent's education	871	4.22	1 to 8	1.66
Highest Parent's educational emphasis	856	6.44	1.6 to 8	1.54
Average Parent's education	871	3.54	1 to 7.5	1.43
Average Parent's educational emphasis	871	3.81	1.6 to 8	1.56

Data source: Maskína's Intergenerational transmission survey, 2017.

We classify our education levels in a way comparable to that used in the EU-SILC 2011 data, shown in Table 2. The first part of the table shows the distribution of children's education for each level of the mother's education. The next part shows the same for the father's education. In the bottom part the parent's education was measured by the education of the parent with the higher level. Using only the highest education of parents in each household is a common method of displaying parent's education and is the only comparable way to tables built from the EU-SILC 2011 data.<sup>6</sup>

<sup>6</sup> Van Doorn, Pop, and Wolbers (2011) used the measure for only the better educated parent and stressed that the most important effect is that of the parent with the highest educational attainment. Another



A comparison can be made between Tables 2 and 4 by only including the highest education of either parent in Table 4. We see that no dramatic differences exist between the two tables. Some features were different though. The most noticeable change being a slight lean in Table 4 towards high education in both the low and the high-educated parental groups, implying that children had better education than their parents. The difference between the two tables could indicate some sort of a time trend since the table made from EU-SILC data were collected in 2011 and the data in Table 4 are from 2017. We see that some elements in Iceland's educational attainment distribution have changed, showing some evidence of a lean towards higher education.

**Table 4. *The education of children and their parents***

Mothers education		Children's edu. level			
Classification		Level 0-2	Level 3-4	Level 5-8	Sum
Level 0-2		40.82%	32.40%	26.78%	100%
Level 2-4		21.08%	40.67%	38.25%	100%
Level 5-8		10.72%	27.30%	61.97%	100%

  

Fathers education		Children's edu. level			
Distributions		Level 0-2	Level 3-4	Level 5-8	Sum
Level 0-2		46.66%	28.51%	24.83%	100%
Level 2-4		28.46%	40.16%	31.38%	100%
Level 5-8		11.62%	25.81%	62.57%	100%

  

Highest education		Children's edu. level			
Distributions		Level 0-2	Level 3-4	Level 5-8	Sum
Level 0-2		49.09%	26.52%	24.39%	100%
Level 2-4		31.53%	41.20%	27.26%	100%
Level 5-8		11.00%	27.74%	61.26%	100%

A common measure for intergenerational education persistence is the correlation between parent's and children's educational attainment, which tells us how the educational attainment of the child varies with a change in parent's education.<sup>7</sup> We

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common form of measuring parent's education is measuring the average education level of parents in a household. Which method is preferred is irrelevant for a "correct" interpretation, as pointed out by Hertz et al. (2008, p. 26): "Whether parental education should be summed or averaged, or assigned the value of the better educated parent. In each case, the issue is not which choice is structurally correct, but which best accords with our conception of status, or status difference."

<sup>7</sup> Hertz et al. (2008) pointed out that the advantages of the correlation coefficient are that it takes the dispersion of status into account for each generation. Also, it has proven more robust to alternative coding assumptions and is less volatile over time than the regression coefficient. Another advantage of the correlation coefficient is that it does not change with trends across generations in contrast to the regression coefficient. Hertz et al. (2008) found that the regression coefficient fell substantially over the last 50 years while this trend was not observed in the correlation coefficient.

measured the variable “parents’ education” in three separate ways. First, by only including the educational attainment of the mother, next, by only including the education of the father, and finally, by only including the higher educational attainment of either parent.

Table 5 shows the correlation between the children’s education, on the one hand, and that of their mother and father and the emphasis put on education by either parent, on the other hand.

*Table 5. Correlations between children’s education and parents’ education and emphasis on education*

	Children’s education	Mother’s education	Father’s education	Mother’s emphasis	Father’s emphasis
Children’s education	1.00	.29	.27	.23	.22
Mother’s education		1.00	.45	.25	.14
Father’s education			1.00	.20	.27
Mother’s emphasis				1.00	.69
Father’s emphasis					1.00

Note. 855 observations, 5% critical value (two-tailed) = .07.

The correlation between children’s education and mother’s education of .29 was slightly higher than the correlation between children’s education that of the father, which is .27. The correlation between each parent’s emphasis on education and the education of the children was only slightly lower than the correlation between their educational level and that of their children. These findings show that the relation may not be explained by nature alone, nurture seems to play a role as well.

The correlation between the education of the mother and the father was much higher than the correlation between either individual parent’s education and that of their children. The correlation between parent’s education was .45, which indicates that individuals tended to choose partners with similar education. The same applies to an even greater extent to their emphasis on education where the correlation coefficient was .69. The correlation between the parent’s education and their emphasis on education was not strong as one can see in Table 5, or .25 and .27. This finding does indicate that parents with strong educational emphasis do not necessarily need to have high educational attainment.

For a more detailed analysis, the education of parents and their educational emphasis was combined into a single variable to show the collective parental effect of each household on their children. Two variables showed the higher educational attainment of the parents in the household as well as their emphasis on the importance of education, the other variable showed the average of the educational attainment of the parents and the average educational emphasis. In Table 6, we see that the correlation of parent's education, both measured as the higher level and the average, with children's education was somewhat higher than the correlation between either parent's emphasis in Table 5. The same applies to the emphasis on education.

*Table 6. Correlations between children's education and parents' higher and average education, and parents' higher and average emphasis on education*

	Higher education level	Higher educational emphasis	Average education level	Average educational emphasis
Children's education	.31	.25	.33	.25
Higher education level of parents	1.00	.26	-	-
Higher emphasis of parents		1.00	-	-
Average education level of parents			1.00	.28
Average educational emphasis of parents.				1.00

Note. 871 observations. 5% critical value (two-tailed) = .07

For a comparison we rely on Hertz et al. (2008) paper where they compared 42 countries' coefficients and correlation over a fifty-year trend. In Table 6 we found a correlation coefficient for the higher educational attainment of either parent with their children to be .31 for Iceland and a correlation for the average educational attainment level of both parents with their children to be .33. This correlation was slightly lower than the average correlation for the Nordic countries in Hertz et al. (2008) paper, which was .34 and Iceland had the same correlation as Finland. The only country with a lower correlation than what we found for Iceland was Denmark, which had a correlation coefficient of .30 while Norway and Sweden had higher correlation coefficients, .35 and .40 respectively.

## IV. Multiple Regression Analysis

We next move on to estimate equations that take into account personal characteristics when estimating the intergenerational education linkages. Table 7 shows the results of ten regression analyses. In models 1-3 we used the father and the mother's educational level, in model 4 we added the emphasis on education, then in models 5 through 9 we added gender, age, age-squared and a dummy variable for the capital region. The coefficients in Table 7 were all statistical significant.<sup>8,9</sup>

Both coefficients for parent's education were statistically significant although both models had quite low adjusted R-squared. Thus, the education of the parents did matter somewhat but there were many other factors that also mattered. The coefficient for mother's education was slightly larger than the father's coefficient. In the mother's case, as seen in Table 7, model 1, an increase by one educational category would impact the individual's own highest educational attainment level such that it would increase by 0.27 parts towards the next education level. In the second model, we see the same effect only for the father's education. In model 3, both parent's educational levels were included.

In model 4 both parent's education and their educational emphasis were included in the regression. The estimated coefficient for the mother's education was again larger than the parameter for the father but both coefficients decreased somewhat. Also, the parent's emphasis on education did influence children's education with both coefficient estimates highly significant. Here, the effects of parent's educational emphasis were smaller than the effects of parent's education on children's education.<sup>10</sup>

In model 5 we added gender to the regression. We see that gender's impact was highly significant and increased adjusted R-square somewhat and the sign of its coefficient

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<sup>8</sup> In all eight models, the F-statistic shows that our included regressors are jointly significant.

<sup>9</sup> An alternative measure commonly used is years of schooling (Hertz et al., 2008). This measure is usually employed when a cross-country comparison is performed (Blanden, 2013). The main reason not to use standardized educational classification is that the classifications might vary between countries (Blanden, 2013). However, a weakness of using years of schooling is that it implies that the effects of years of schooling on the next generation is linear and monotonic, which seems unlikely (Blanden, 2013). Another problem that might arise using years of schooling as a measure is that it does not necessarily represent educational success.

<sup>10</sup> Pionunik (2014) studied the compulsory schooling reforms that were implemented in West German states between 1946 and 1969 and found that an additional year of schooling for women strongly affects the education of their sons. He found that individuals with more schooling value their children's educational success more than other parents. Similar results were found for Sweden by Holmlund et al. (2011).

implies that males had lower educational levels on average than females.<sup>11</sup> In models 6 and 7, age and age-squared were included in the regression respectively. Education decreased both with age and age-squared. The latter regression had a higher adjusted R-squared proportion where age was marginally significant and age-square was even more significant. This shows that children's educational level is decreasing in age in a non-linear concave function. The explanation can be found in educational attainment rising over time so that the older cohorts have lower levels of education, other things being equal. In model 8, a dummy variable measuring whether the individual lived in the capital region or not was included. Its coefficient of .56 was significant at the .01 level. This may be partly due to the migration of educated individuals to the capital region where demand for their services is greater.

We have found that parents' emphasis on children's education had a sizable effect on the individual's educational level. To further address the question whether parent's educational emphasis or their own education explains children's education more, the standardized coefficient beta was added to the analysis. Model 9 shows the same regression as in model 8 (age-squared is excluded) with standardized coefficients. Because dispersion differ between predictors, their standard deviations need to be accounted for to be able to compare effects of the predictors on the dependent variable.<sup>12</sup> Therefore, we used a standardized beta to answer our question. In model 9 the strongest predictor was capital area (.18), followed by mother's education (.13), age (.13), and mother's emphasis on education (.12). Again, we find evidence that parent's educational emphasis was almost as important factor for children's education as the parent's education.

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<sup>11</sup> Rustichini et al. (2017) also found that males had lower educational attainment levels than females. This is, however, in contrast to the results of Van Doorn, Pop, and Wolbers (2011) who found that the male variable had significant small positive effects on education.

<sup>12</sup> In our data the Variance Inflation Factor (VIF) is low between mothers and fathers' educational attainment and their emphasis. The highest value for mother and father's education and emphasis is mothers' education a VIF of 3.3. Usually if the VIF exceeds 5 a multicollinearity problem should be considered.

Table 7. OLS results

<i>Models</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<i>Predictors</i>	<b>Standardized beta</b>								
<i>Constant</i> ( <i>t-ratio</i> )	3.96 *** (36.99)	3.85 *** (30.54)	3.57 *** (26.94)	2.75 *** (13.12)	2.84 *** (13.49)	3.78 *** (12.05)	1.68* (1.81)	1.38 (1.507)	
<i>Mother's edu.</i>	.27 *** (9.00)		.19 *** (5.92)	.17 *** (5.09)	.17 *** (5.17)	.14 *** (4.04)	.15 *** (4.26)	.12 *** (3.60)	.13 *** (3.60)
<i>Father's edu.</i>		.25 *** (8.33)	.16 *** (4.92)	.13 *** (3.84)	.13 *** (3.89)	.13 *** (3.81)	.12 *** (3.69)	.10 *** (2.88)	.10 *** (2.90)
<i>Mother's emph.</i>				.08 ** (1.98)	.10 ** (2.38)	.10 ** (2.54)	.11 ** (2.59)	.11 *** (2.71)	.12 *** (2.70)
<i>Father's emph.</i>				.09 ** (2.15)	.08 * (1.84)	.08 * (2.03)	.09 ** (2.17)	.09 ** (2.18)	.10 ** (2.18)
<i>Male</i>					-.30 *** (3.00)	-.27 *** (2.73)	-.25 ** (2.53)	-.22 ** (2.51)	-.07 ** (2.29)
<i>Age</i>						-.02 *** (-3.95)	.07 * (1.88)	.08 ** (2.12)	-.13 ** (2.12)
<i>Age^2</i>							-.0009 ** (2.37)	-.001 *** (2.62)	
<i>Capital area</i>								.56 *** (5.72)	.18 *** (5.72)
Adjusted R-squared	.08	.07	.11	.13	.14	.15	.16	.19	.19
F-statistic	80.978	69.504	53.648	32.893	28.365	26.644	23.763	25.665	23.334

Note. This table shows the coefficients for each predictor and their t-ratios in brackets below. \*\*\* < .01. \*\* < .05. \* < .10

To address the doubts whether separate predictors or a single predictor should be used for parent's education we recoded the dataset to only include the highest and average education of either parent as well as only the strongest as well as the average level of emphasis on education. Another multiple linear regression analysis with eight different models was performed with the rearranged data, which can be viewed in Table 8.

In the first model, only the education of the parent with a higher educational level was used. The coefficient for parent's education as a predictor of their children's education in this model was .29. In model 2, the variable for parent's emphasis was added (.16) and at the same time the coefficient for parent's education decreased to .25. In models 3 and 4 we added the average level of parent's education and the average level of emphasis on education and found that the former had a larger coefficient than the latter. In models 5-8 we included gender, age, and age-squared and also whether individuals lived in the capital area or not. These results provide more evidence indicating that parent's educational emphasis was a relevant factor in explaining children's education. The three added variables were all highly significant.

To address yet again whether parent's education or educational emphasis played a larger role in determining children's education the standardized beta coefficient for average parent's educational emphasis and average parent's education was compared. Model 9 shows that the effects of the two was comparable (.20) with capital area coming in third (.18).

Table 8. *More OLS results*

<i>Models</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<i>Predictors</i>	<b>Standardized beta</b>								
<i>Constant</i> ( <i>t-ratio</i> )	3.61 *** (26.78)	2.76 *** (12.89)	3.56 *** (27.14)	2.73 *** (13.09)	1.89 ** (2.04)	1.54 * (1.69)	1.76 * (1.92)	1.48 (1.64)	
<i>Parent's higher edu.</i>	.29 *** (9.67)	.25 *** (8.38)	-	-	.23 *** (7.58)	.19 *** (6.17)	-	-	-
<i>Parent's higher emph.</i>		.16 *** (5.05)	-	-	.17 *** (5.61)	0.17 (5.78)	-	-	-
<i>Parent's average edu.</i>			.36 *** (10.35)	.31 *** (8.65)	-	-	.28 *** (7.65)	.23 *** (6.18)	.20 *** (5.86)
<i>Parent's average emph.</i>				.17 *** (5.10)	-	-	.19 *** (5.87)	.19 *** (5.97)	.20 *** (6.07)
<i>Male</i>					-.23 ** (-2.36)	-.21 ** (-2.15)	-.26 *** (-2.70)	-.24 ** (-2.48)	-.07 ** (-2.25)
<i>Age</i>					.06 * (1.72)	.07 ** (1.97)	.07 * (1.79)	.07 ** (2.00)	-.13 ** (2.08)
<i>Age^2</i>					-.0008** (-2.21)	-.0009 ** (-2.46)	-.0009 ** (-2.27)	-.0009** (-2.50)	
<i>Capital area</i>						.57 *** (5.83)	-	.55 *** (5.55)	.18 *** (5.72)
Adjusted R-squared	.10	.12	.11	.13	.15	.18	.16	.19	.19
F- statistic	93.503	60.792	107.02	62.692	31.006	32.489	33.875	34.341	34.341

Note. This table shows the coefficients for each predictor and their t-ratios in brackets below. \*\*\* < .01. \*\* < .05. \* < .10 The empty cells are present because average and highest education and emphasis was not included together in a single regression.



To further study the different effects of highest and average education level of parents and emphasis on education we analyzed another three different regressions where both the average as well as the higher level of education and emphasis on education were included together, see Table 9. All the coefficients are standardized betas. In the first model we see that parent's average education had a greater effect than the higher parent's education which was non-significant. Throughout the four models parent's highest education never became a significant predictor while the coefficient of parent's average education stayed strong and highly significant, emphasizing that the combined effect of both parents explained individual's educational level more than only the most educated parent in the household. Similarly, in models 2 and 3 we see that parents' average educational emphasis had the same effect on an individual's educational level as the highest emphasis in a household. In model 4, neither parent's highest nor average educational emphasis were significant, and only the average level of education was significant.

*Table 9. OLS results with parents' data merged*

<i>Models</i>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<i><b>Predictors</b></i>				
<i>Parent's higher edu.</i>	.04 (0.42)	.04 (0.34)	.06 (0.60)	.05 (0.49)
<i>Parent's average edu.</i>	.36 *** (3.52)	.25 *** (3.19)	.23 *** (2.81)	.23 *** (2.88)
<i>Parent's higher edu. emph.</i>		.17 *** (4.82)		.12 (1.39)
<i>Parent's average emph.</i>			.17 *** (5.12)	.06 (0.62)
Adjusted R-squared	.11	.13	.13	.13
F- statistic	53.551	44.341	44.927	34.215

Note. \*\*\* < .01. \*\* < .05. \* < .10. Coefficients are standardized beta and t-test is in the brackets.

The measured effect of parent's education in Iceland was lower than in almost all other countries that Hertz et al. (2008) studied. Our highest estimate for the coefficient of parent's education for Iceland was .36 when both parents' educational levels were assembled into a single explanatory variable. After standardization, the coefficient became .38. Hertz et al. (2008) found that the estimated coefficient for the other Nordic

countries were .49 for Denmark, .40 for Norway, .58 for Sweden, and .48 for Finland. All these coefficients are higher than what we found in our data for Iceland.

To address the different measurement methods used in the comparative research we need to point out that in our research we used the highest educational attainment level of both parents and children, while Hertz et al. (2008) used the average number of schooling years for either parent and the number of schooling years for children. They also tested grouping measured years of schooling into four different categories (none, primary, secondary, college) and found that the intergenerational correlation was not greatly affected. This indicates that our correlation coefficient was comparable to Hertz et al. (2008) findings. This confirms our findings of a particularly low regression coefficient in Iceland for the effect of parent's education on their children's education and a comparably high educational mobility in Iceland.

## **V. Conclusions**

In this paper, we examined how parents' education and their emphasis on education are correlated with their children's level of education. We found that Iceland's intergenerational correlation was lower than the average of the Nordic countries. This indicates that educational mobility in Iceland is higher on average than in the Nordic countries. In addition, the estimated coefficient for Iceland proved considerably lower than the coefficients reported in Hertz et al. (2008) for other countries. In particular, Iceland's coefficient was the second lowest in all their comparison countries.

There is evidence that the transmission of these effects runs partly through parents' emphasis on their children's education and not only through the possible genetic link from educated parents to educated children or the parents being role models. We found that parents' educational emphasis was a strong determining factor in their children's education, having almost the same effects on children's educational attainment as the parent's education level. Other factors such as gender and residence also had a significant effect on children's education. A surprising result was that we found that mother's education had stronger effect on her children's education than that of the father, the strength of which depends on whether they lived in the capital area or not.

The high level of educational mobility in Iceland can be explained by the absence of social classes in its homogenous society, the equal income distribution and a student loan fund that give students with limited means the opportunity to go to university supported

by subsidized student loans. Conversely, the absence of social classes and income inequality may be caused by the low intergenerational transmission of education.

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