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Intergenerational Earnings Mobility in South Korea: A Gender Comparison

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An abstract of
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Abstract

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This study decomposes the transmission effects of earnings based on gender in South Korea from 1998 to 2007. Using data from the Korean Labor and Income Panel Study (KLIPS), a dataset of 2,048 households are extracted based on parent-child pairs living together in 1998. Using the Solon's model (model 1) and a variation (model 2), this study identifies how each parent's earnings and education levels separately transmit to their children's earnings and education levels. The findings are as follow: (1) Fathers influence sons' earnings directly through their own earnings and education levels. (2) Fathers' earnings or education levels do not directly impact daughters' earnings. (3) Mothers' education levels positively impact both sons' earnings and daughters' earnings. (4) Mothers' earnings do not impact sons' earnings but do positively impact daughters' earnings.

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Intergenerational Earnings Mobility in South Korea:

A Gender Comparison

I. Introduction

Inter-generational earnings mobility refers to the movement within or between earning levels from a generation to the next. It differs with intra-generational earnings mobility, which refers to change of individuals' earning levels within their lifetime. The economic concept of intergenerational mobility was given resurgent political interest when Alan B. Krueger, U. S. Council of Economic Advisers chair, addressed mobility in his speech in January 2012. He spoke of mobility in relation to the economic inequality in the nation. Since then, there has been ongoing debate regarding whether immobility goes hand-in-hand with inequality. Miles Corak is one of the most famous advocates for the positive relationship between income inequality and intergenerational earnings elasticity across countries. Krueger introduced the "Great Gatsby Curve (Figure 1)," a graph that represents this correlation, based on Corak's data. Figure 1 shows a clear international comparison of how countries with higher Gini coefficients have higher mobility elasticity, which is associated with lower mobility. This graph shows a global perspective of how immobility is positively correlated with income inequality in nations. The idea is that the less mobile country's economy is, the higher the extent of inequality in the economy.

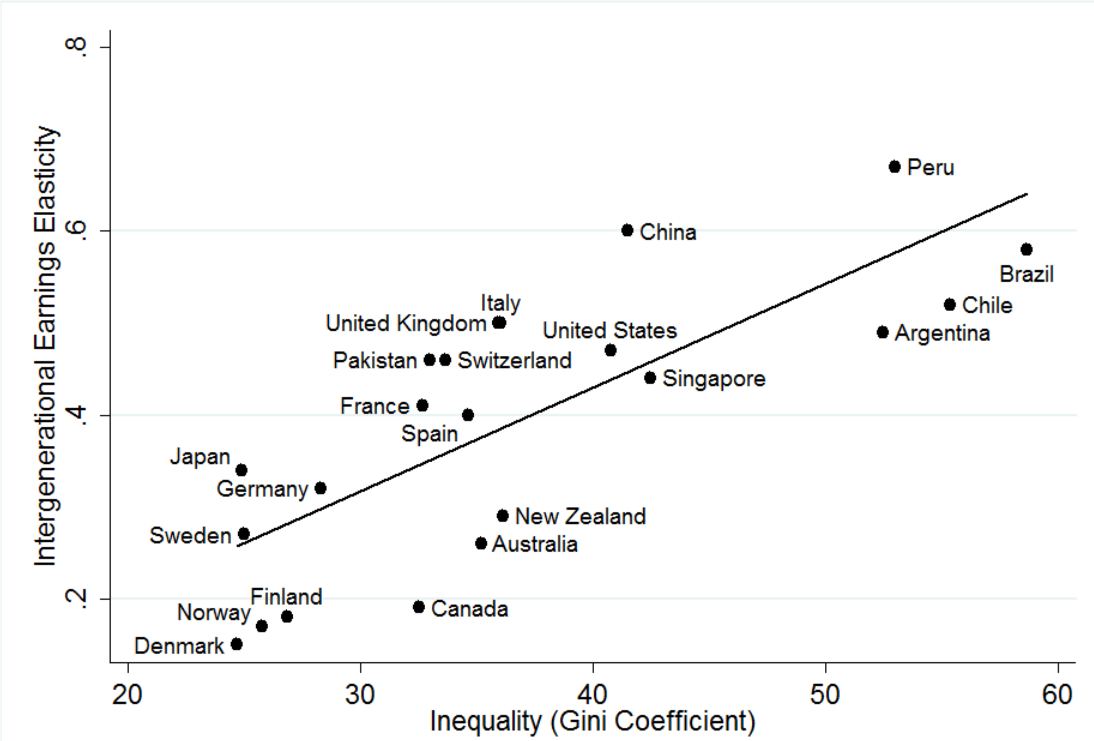

Figure 1: Great Gatsby Curve (Source: Corak 2013)

While this paper will not delve into proving or disproving the great hypothesis that immobility directly leads to inequality, this paper makes the assumption that intergenerational income mobility is an important indicator of how probable it is for people with less fortunate backgrounds are likely to succeed financially in a society. In particular, this study will observe the influence of an individual's family background on his/her long-term income level. This analysis will give insight as to how much an individual's economic success is accounted for by his/her parents' income levels.

As developed countries started to focus on distribution of wealth, they started to look into how mobile their economic participants can be across generations. In particular, South Korea is one of the countries that have achieved rapid development in the past decade in East Asia. This study observes how mothers' earnings levels have an influence on the daughters' permanent economic status. Most of the literature on intergenerational mobility focus on the father-son income levels due to lack of data on mothers' economic statuses and mothers' small roles in the economy. In addition to analyzing father-child mobility, this study observes mother-daughter relationships because South Korean remains to have one of the least working female population rates among the OECD nations, with 59.7% of female labor force participation rate compared to the OECD average of 64.6%. This study will observe and measure to what extent mothers' economic activities and income levels influence their daughters in their economic activities and permanent economic status.

II. Literature Review

Solon (1992) built a foundational framework for measuring intergenerational income mobility within a nation using panel data for a span of multiple years. Solon argued that most estimates of intergenerational correlation in income have been biased downward by measurement error and unrepresentative samples. By using data from the Panel Study of Income Dynamics (PSID), he built a framework of an ordinary least squares regression model to measure income elasticity, on which further research on the topic has built on.

An and Jeon (2008) uses Korean Labor and Income Panel Study data to identify that parents with higher education level earn more income than those with lower education levels. They also find that educational achievement and earning levels of parents influence children's earning levels positively via positively influencing children's education levels. This channel of education is an interesting one that this study incorporates as well. My conjecture is that although a big percentage of females do not continue to work when they become mothers, those with higher education degrees are likely to influence their children's income levels indirectly by investing more in their education. This channel of higher investment on children's education will result in higher education levels, leading to higher earning levels for the children's generation.

Ueda (2013) implements Solon's methods to measure South Korea's intergenerational earnings mobility for father-son and father-daughter paired samples. She does not include interpretations of mother-child relationships. She finds through the two-stage method that the elasticity is estimated to be approximately 0.25 for sons in 30s and 0.35 for daughters in their 30s; elasticity is 0.35 for sons and 0.4 for daughters of age 25 to 54. She also finds through nonparametric regression that sons from low-income families in the younger generation have a lower elasticity than that of the older generation. This implies that the newer generation has more equal economic opportunities. My study builds on Ueda's study by gaining perspective on how female labor participation rate and earning levels have been developing based on their previous generations.

Jantti and Jenkin (2013) explain that women's labor mobility is hard to analyze because around the age men are in their long-run income earning process, many women are likely to choose to withdraw from employment to take care of their children and home. Thus it is common to observe household income rather than individual earnings to analyze what impact mothers have on the children's long-term earnings.

III. Data

This study utilizes data obtained from the 1998-2007 rounds of Korean Labor Income and Panel Study (KLIPS) conducted by the Korea Labor Institute. KLIPS is one of the most comprehensive panel surveys related to labor statistics in South Korea, covering a sample of 5,000 urban households and 13,000 members of age over 15. The retention rate of the same sample of households is as high as 88%. This panel study follows the same households over a span of ten years and tracks even the children that break apart to form their own families.

The dataset is constructed to identify parent-child pairs living together in 1998 (wave 1). Most parental information for the regression is obtained from the first wave and then the same households are tracked to identify children information in 2007 (wave 10). When taking multiyear averages for earnings, information is taken from certain waves to measure averages. Parental averages are taken from the oldest available data.

Table 1: Summary statistics of parents in 1998

Variable	Father (1998)					Mother (1998)				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Age	1777	52.5	(8.0)	32	94	1960	49.2	(8.1)	25	86
Earning	1154	48.5	(38.7)	1.7	674.8	625	26.6	(19.5)	1.7	168.7
Education	1777	4.7	(1.4)	2	9	1959	3.9	(1.2)	2	9
Schooling	1777	10.5	(3.8)	0	20	1959	8.5	(3.7)	0	20

- Earning: Amount of average monthly earnings from main job (unit: krw 10,000)
- Education refers to level of education: (1) before school age (2) no schooling (3) elementary school (4) lower secondary (5) upper secondary (6) 2-years college, vocational, technical, associate degree (7) university (4 years) (8) master's degree (9) doctorate degree
- Schooling refers to the number of years of education.

Table 2: Summary statistics of children in 2007

Variable	Son (2007)					Daughter (2007)				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Age	962	32.6	(6.6)	23	64	663	30.7	(4.8)	24	54
Earning	702	208.1	(123.4)	10	1400	369	153.7	(75.8)	5	600
Education	961	6.1	(1.1)	2	9	663	6.2	(1.0)	2	9
Schooling	961	14.1	(2.4)	0	20	663	14.3	(2.2)	0	20

- Earning: Amount of average monthly earnings from main job (unit: krw 10,000)
- Education refers to level of education: (1) before school age (2) no schooling (3) elementary school (4) lower secondary (5) upper secondary (6) 2-years college, vocational, technical, associate degree (7) university (4 years) (8) master's degree (9) doctorate degree
- Schooling refers to the number of years of education.

After households with parent-child pairs living together in 1998 are tracked in 2007 for the children's information when they become active members of the economy, a total of 2,048 households are left. Tables 1 and 2 summarize descriptive statistics for the oldest available parental information and most recent offspring information. Parent's ages average to around late 40's and early 50's, ages higher than the recommended 40's from previous literature. Offspring, at the time of observation, range from 20's to 60's, a skewed big range that average to early 30's. Inflation is taken into account for the earnings measure so that the earnings for both tables are at the price level of 2007. Even with the correction for inflation, the offspring population seems to be making around 4 times more than their parent generation. While the parents completed lower secondary education on average, in 2007, most offspring have a college degree, adding around 5 years to the average number of years of schooling. Increase in education level can be attributed to the heightened accessibility of higher education and a cultural shift of finding more value in higher education in recent years.

IV. Empirical Strategy

IV.i. Model 1

I adopt Solon (1992)'s model to measure intergenerational mobility. The basic framework of the analysis will utilize an ordinary least squares method studying the following relationship:

(1) $$y_{1i} = a_0 + \rho y_{0i} + \varepsilon_i$$

where y_{1i} denotes the permanent earnings for an offspring in family *i;* y_{0i} refers to the permanent earnings for a parent in family *i;* α_0 is the constant term and ε_i is the error term. The coefficient of the parent's earnings, ρ, is the elasticity estimate of interest that indicates the correlation between the permanent earnings of the parent and that of the child. The bigger the elasticity coefficient, the more correlation there exists between the parent's earnings and the child's earnings, meaning lower mobility opportunities to those with low-income parents. This study revolves around identifying the elasticity coefficient for father-son, father-daughter, mother-son, and mother-daughter relationships.

Short-term earnings are used as proxies to substitute for measures of permanent earnings. The short-term earning of the child in family *i* at time *t,* y_{1it}, can be expressed as an equation of the age of the child, A_{1it}, and the quadratic term of the age, A_{1it}^2.

(2) $$y_{1it} = y_{1i} + \alpha_1 + \beta_1 A_{1it} + \gamma_1 A_{1it}^2 + u_{1it}$$

Similarly, the short-term earning of the parent in family *i* at time *s,* y_{0is}, can be written as an equation of A_{0is} and A_{0is}^2:

(3) $$y_{0is} = y_{0i} + \alpha_0 + \beta_0 A_{0is} + \gamma_0 A_{0is}^2 + u_{0is}$$

By solving for y_{1i} and y_{0i} from equations (2) and (3), plugging them into equation (1), and re-arranging as a function of the offspring's short term earnings, we obtain the following equation:

(4) $$y_{1it} = (\alpha_1 - \rho\alpha_0) + \rho y_{0is} + (\beta_1 A_{1it} + \gamma_1 A_{1it}^2) - (\rho\beta_0 A_{0is} + \rho\gamma_0 A_{0is}^2) + (\varepsilon_i + u_{1it} - \rho u_{0is})$$

Equation (4) shows the short-term earning of the offspring as a function of the short-term earning of the parent, constant terms, age variables, and error terms. The correlation between the parent's short-term earning, y_{0is}, and the error term, u_{0is}, brings about measurement error that results in a downward biased $\hat{\rho}$. More specification on the measurement error can be found in Solon (1992).

We attempt to correct this biased estimator by using multi-year average method and an instrumental variables (IV) method. The average method will use the following equation:

(5) $$y_{1it} = (\alpha_1 - \rho\alpha_0) + \rho \frac{1}{T}\sum_{s=1}^{T} y_{0is} + (\beta_1 A_{1it} + \gamma_1 A_{1it}^2) - (\rho\beta_0 \frac{1}{T}\sum_{s=1}^{T} A_{0is} + \rho\gamma_0 \frac{1}{T}\sum_{s=1}^{T} A_{0is}^{2}) + (\varepsilon_i + u_{1it} - \rho \frac{1}{T}\sum_{s=1}^{T} u_{0is})$$

Using averaged variables will reduce the magnitude of the downward bias. Specific explanations on how averaged earnings and IV estimation can contribute to producing consistent estimates can be found in Bjöklund and Jäntti (1997).

The IV method is consisted of two stages: the first stage predicts parental earnings based on parental education level and the second stage regresses the offspring earnings on the predicted earnings from the first stage. Solon (1992) explains that while averages may become a lower bound, IV estimates serve as an upper bound. This regression is also a log-linear regression, which makes the child's log income a linear function of parent log income.

IV.ii. Model 2

I will also include a model where I control for years of parents' education. This model will single out the effect of the sole impact of parent's earnings on children's earnings, holding age and education constant. This model is portrayed by the following equations:

$$(6) \qquad y_{0is} = y_{0i} + \alpha_0 + \beta_0 A_{0is} + \gamma_0 A_{0is}^2 + \delta_0 E_{0is} + u_{0is}$$

By plugging in equations (2) and (6) into equation (1), the following is obtained:

$$(7) \qquad y_{1it} = (\alpha_1 - \rho\alpha_0) + \rho y_{0is} + (\beta_1 A_{1it} + \gamma_1 A_{1it}^2) - (\rho\beta_0 A_{0is} + \rho\gamma_0 A_{0is}^2 + \rho\delta_0 E_{0is}) + (\varepsilon_i + u_{1it} - \rho u_{0is})$$

An OLS regression using equation (7) will result in a $\hat{\rho}$ that includes the effect of parent's earnings on the child's earnings both through and not via child's education. A multi-year average method will also be used in this model.

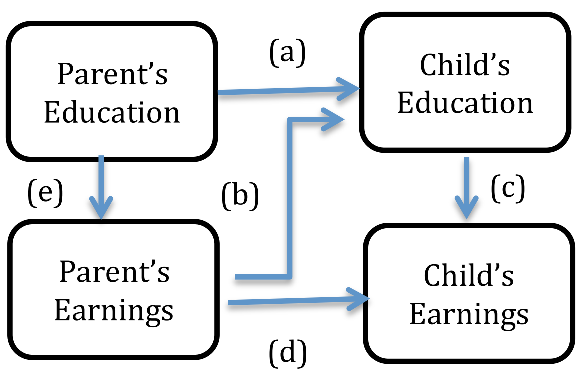

Figure 2: Relationship between variables

Figure 2 summarizes models 1 and 2. Model 1's multi-year average method will take into account the relations (a) through (e) from figure 2. Model 1's IV method chooses parent's education as an instrumental variable, but we can see that this may be an inappropriate IV because parent's education affects child's earnings both through parent's earnings and child's education, as shown in relations (e), (a), and (c). Solon (1992) explains that we use this IV for the purpose of correcting for measurement errors and that the inconsistency of this IV produces an upward-biased estimator. Model 2 singles out the direct effect parental earnings have on children's earnings as shown in relations (b) and (d).

V. Results

V.i. Economic Status

Table 3 reports the economic statuses of parents in 2000 and that of their children in 2007. Parental information on economic activity was recorded beginning in 2000, thus parent's economic activities are based on wave 3 data instead of wave 1 data. From the table, it is notable that for both fathers and sons in 2000 and in 2007, over 70% indicated that they mainly work and less than 1% mainly look after home or children. For women, however, there has been a jump from 37.8% of mainly working mothers to 52.6% mainly working daughters. The gender roles are clearly noticeable in this table in that males are the main bread-winners while females are the main homemakers, and there has been a slow transition for female labor participation.

Table 3: Economic status rates for family members

Economic Status (%)	**Father (2000)**	**Mother (2000)**	**Son (2007)**	**Daughter (2007)**
Mainly working	72.4	37.8	73.3	52.6
Mainly homekeeping, studying, or other, but also working	0.8	11.5	1.3	4.7
Looking after family or home; Child-caring	0.8	41.9	0.1	29.1
Attending school only	0.1	0.1	8.9	3.2
Doing nothing	24.8	7.9	15.2	9.5
Other	1.1	1.0	1.3	0.9

Table 4: Labor force participation and type of work for family members

(%)		**Father (1998)**	**Mother (1998)**	**Son (2007)**	**Daughter (2007)**
Labor Force Participation Rate		67.08	44.13	72.97	55.96
Type of Work	**Part-Time**	9.87	22.72	2.16	4.13
	Full-Time	90.13	77.05	97.84	95.87

Table 5: Type of workplace for family members

Place of Work (%)	**Father (2002)**	**Mother (2002)**	**Son (2007)**	**Daughter (2007)**
At Home	0	5.26	0.17	0.59
At Workplace, office, or designated place	100	94.74	99.83	99.41

We can also observe in table 4 that the labor force participation rate has risen for male from 67% to 73% and for females from 44% to 56%. Among the population that participates in the labor force, women were more likely to hold part-time jobs than men for both the parent and offspring generations. Table 5 shows place of work for both generations and women are more likely to work at home than males.

V.ii. Earnings

The results published in table 6 and table 7 show the elasticity measures for parent-child pairs for time frames of a single year and multi-year averages. The types of earnings used for the analysis are amount of average monthly pay from main job for wage earners and average monthly earnings from main job for non-wage earners. The earnings are converted to real terms by adjusting for inflation using the consumer price index. The real earnings are analyzed in log terms.

Table 6: Elasticity measurements for father-child pairs in model 1

Time Frame	Father-Son ρ		N	Father-Daughter ρ		N
Single Year	0.095***	(0.036)	381	0.019	(0.056)	220
Two-Year Average	0.082**	(0.036)	439	0.026	(0.051)	265
Three-Year Average	0.089**	(0.035)	464	0.027	(0.051)	277
Four-Year Average	0.093***	(0.034)	472	0.018	(0.047)	288
Five-Year Average	0.091***	(0.034)	480	0.032	(0.048)	289

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 7: Elasticity measurements for mother-child pairs in model 1

Time Frame	Mother-Daughter			Mother-Son		
	ρ		N	ρ		N
Single Year	0.099	(0.062)	118	0.017	(0.047)	201
Two-Year Average	0.184***	(0.066)	150	0.008	(0.047)	268
Three-Year Average	0.209***	(0.069)	164	0.071	(0.048)	289
Four-Year Average	0.191***	(0.072)	179	0.053	(0.047)	309
Five-Year Average	0.150**	(0.066)	190	0.029	(0.045)	328

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

For single year measures, parents' earnings are taken from the oldest year (1998) and the children's earnings are from the most recent year (2007). For the multi-year averages, earnings are averaged across the oldest years for the parents and regressed on children's most recent earning. For example, a two-year average of the father is the average of his earnings in 1998 and 1999.

The sample size N increases as the time frame expands because the multi-year averages are taken ignoring missing values, and so the average will be taken for the years earnings are specified. Therefore, the estimates for a bigger time frame better portray the notion of permanent earnings. This also means that the elasticity measure for the longest time frame may be the best indicator of the elasticity for long-term earnings.

The results show that fathers' earnings have a significant impact on only sons' earnings and mothers' earnings impact only the daughters' earnings. Elasticity measures for father-son pairs range from 0.082 to 0.095 and averages 0.09 and are mostly constant to the measurements in previous literature. Ueda (2013)'s elasticity measurements ranges from 0.067 to 0.187 and averages 0.1234. The discrepancy arises due to the addition of the earnings data of 2007 and the fact that this dataset accounts for missing variables by using the existing data. Mothers' earnings are more largely correlated with their daughters' earnings, with elasticity measures ranging from 0.099 to 0.209, averaging 0.167.

Table 8: Single year elasticity measures using IV estimation

	ρ		N
Father-Son	0.297***	(0.111)	381
Father-Daughter	0.076	(0.137)	220
Mother-Son	0.763*	(0.402)	201
Mother-Daughter	0.401**	(0.172)	118

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8 reports estimates that result from an instrumental variable estimation. For single year measures, the years of schooling serve as an instrument for the earnings of the parents. While the multi-year average method estimates are lower bounds, IV estimates are upper bounds for the elasticity estimates. Using an IV estimation, mother-son pairs have a bigger significance than for the multi-year estimation. Father-son and mother-daughter estimates are also bigger than results from multi-year averages.

Table 9: Elasticity measures for father-child pairs in model 2

Time Frame	Father-Son ρ		N	Father-Daughter ρ		N
Single Year	0.068*	(0.039)	381	0.008	(0.061)	220
Two-Year Average	0.052	(0.037)	439	0.008	(0.055)	265
Three-Year Average	0.057	(0.036)	464	0.005	(0.056)	277
Four-Year Average	0.064*	(0.036)	472	0.000	(0.051)	288
Five-Year Average	0.061*	(0.035)	480	0.017	(0.053)	289

Table 10: Elasticity measures for mother-child pairs in model 2

Time Frame	Mother-Daughter ρ		N	Mother-Son ρ		N
Single Year	0.046	(0.066)	118	-0.008	(0.051)	201
Two-Year Average	0.151**	(0.071)	150	-0.032	(0.049)	268
Three-Year Average	0.167**	(0.074)	164	0.027	(0.049)	289
Four-Year Average	0.141*	(0.076)	179	0.016	(0.049)	309
Five-Year Average	0.101	(0.070)	190	-0.009	(0.047)	328

Tables 9 and 10 report elasticity estimates when parent's education is controlled for (model 2). All coefficients in model 2 are lower than that of model 1, acknowledging that parent's education plays a role in the model. Tables 11 through 14 show full regression results for model 2 and we can observe that the parent's education definitely plays a role for all pairs except father-daughter pairs. It is especially interesting to note that although mothers' earnings do not impact sons' earnings, mothers' education levels positively affect sons' earnings.

IV.iii. Education

Table 11: Regression Coefficients for Years of Education

Regressand / Regressor	Son (2007) OLS estimate		N	Daughter (2007) OLS estimate		N
Father (1998)	0.111***	(0.029)	777	0.167***	(0.034)	573
Mother (1998)	0.140***	(0.031)		0.078**	(0.037)	

Standard errors in parentheses
*** p<0.01, ** p<0.05

Table 11 shows very explicitly that both the father and mother's education levels impact the children's education levels. Table 12 shows how parent's education levels, when broken down, affect the children's education. The parent's education levels are classified as low, middle, and high levels, low being less than upper secondary school level (high school), middle being high school education, high being college level and up. For sons, having at least one low educated parent negatively affect their education level at a significant level. On the other hand, for daughters, having at least both middle-level educated parents positively affects their own education levels at a significant level. It is interesting to note that none of the positive correlations of education levels for sons are statistically significant and that none of the negative estimates for daughters are significant. It seems that sons are demotivated by under-educated parents while daughters are motivated by their higher educated parents. Sons may also have more pressure to start making a living as opposed to their female counterparts. Upon observing their parents with low education, sons may decide that education is not crucial for making a living. These findings, however, should be discussed with caution, as direct causal relationships are hard to identify and the regression results may simply signify correlations.

Table 12: Effect of parents' education level on children's education level

Parent's Education Levels	**Son** OLS estimate		N	**Daughter** OLS estimate		N
Both low	-1.342***	(0.293)	961	0.265	(0.325)	663
One low, one middle	-0.758**	(0.335)		0.431	(0.360)	
Both middle	0.043	(0.299)		0.641*	(0.347)	
One low, one high	-1.497***	(0.297)		-0.431	(0.360)	
One middle, one high	-0.043	(0.299)		1.314***	(0.311)	
Both high	0.389	(0.282)		1.841***	(0.293)	

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

VI. Discussion

We can learn from the results that fathers have an influence on their sons mostly through their education levels and also directly through their earnings. The direct transmission of earnings from fathers to sons may occur from forms of endowments. This is especially the case for self-employed fathers, where passing on the leadership roles to their sons is the cultural norm. Fathers' earnings or education level, however, do not have a direct impact on the daughters' earnings, although fathers' education positively impact their daughters' education. Mothers' education levels have positive impact on both daughters and sons' earnings. Although sons of rich mothers do not necessarily grow up to earn more money, sons of highly educated mothers do tend to make more money. This shows an indirect effect of mothers' education levels. In South Korea, many females choose not to work despite their high educational background and skills. Even if they do not make an earning, however, highly educated mothers would tend to better educate their sons and impact their sons' earnings in this means.

Limitations of this research include the fact that earnings differ from disposable income, a measure that may better portray living standards. The data available for South Korean disposable income, however, was not available at the individual level in this particular dataset. Another limitation would be that this analysis does not incorporate nonparametric relations. Ueda (2013) finds that mobility differs for high-, middle-, and low-income families. This study does not consider for the nonlinearities across income levels of households or across age groups. Another limitation involves not including husband's earnings to account for a household income rather than just measuring the daughters' earnings. However, this last point was intentionally manipulated so that we could observe the gender differences in the transmission of earnings.

I also do not offer international comparisons in this paper due the ambiguities of the methodologies used to compute the elasticity measures in other papers on different nations. Further research could focus on gender comparisons of earning transmission in the international context to give a more global perspective. There could also be more consideration on how mothers play as role-model figures to their daughters. There could be differences among high-, middle-, and low- earning mothers in terms of how they play role models to their daughters. Daughters of lower earning mothers may be discouraged from working at all, whereas higher earning mothers may have more significant impact on their daughters' willingness to stay in the labor force and maximize their earnings. Moreover, more generations can be incorporated in the intergenerational study. The roles of grandparents' generation on the parents' generation also interplay with their effect on the children's generation. More generations can provide more cultural and macroeconomic factors of the different time periods and give a broader picture of transmission of earnings and mobility issues.

VII. Appendix

Table 13: Regression results for father-son pairs (model 2)

	Single-year	Two-year	Three-year	Four-year	Five-year
father's earnings	0.068* (0.039)	0.052 (0.037)	0.057 (0.036)	0.064* (0.036)	0.061* (0.035)
father's education	0.014** (0.007)	0.019*** (0.007)	0.017*** (0.006)	0.016** (0.006)	0.016** (0.006)
son's age	0.328*** (0.052)	0.327*** (0.049)	0.322*** (0.047)	0.317*** (0.046)	0.313*** (0.046)
son's age -squared	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)
father's age	-0.028 (0.048)	-0.062 (0.040)	-0.054 (0.039)	-0.054 (0.039)	-0.055 (0.039)
father's age -squared	0.000 (0.000)	0.001 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)
constant	-0.371 (1.149)	0.600 (0.987)	0.470 (0.973)	0.537 (0.974)	0.662 (0.985)
observations	381	439	464	472	480
R-squared	0.183	0.170	0.176	0.172	0.170

Table 14: Regression results for father-daughter pairs (model 2)

	Single-year	Two-year	Three-year	Four-year	Five-year
father's earnings	0.008 (0.061)	0.008 (0.055)	0.005 (0.056)	0.000 (0.051)	0.017 (0.053)
father's education	0.006 (0.013)	0.009 (0.011)	0.010 (0.010)	0.009 (0.010)	0.007 (0.010)
daughter's age	0.200 (0.124)	0.161 (0.110)	0.182* (0.106)	0.183* (0.103)	0.186* (0.102)
daughter's age -squared	-0.003 (0.002)	-0.002 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)

father's age	-0.001 (0.083)	0.019 (0.072)	0.006 (0.070)	0.013 (0.068)	0.014 (0.068)
father's age -squared	0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
constant	1.560 (1.820)	1.581 (1.649)	1.607 (1.621)	1.514 (1.601)	1.355 (1.643)
observations	220	265	277	288	289
R-squared	0.034	0.037	0.039	0.033	0.034

Table 15: Regression results for mother-daughter pairs (model 2)

	Single-year	Two-year	Three-year	Four-year	Five-year
mother's earnings	0.046 (0.066)	0.151** (0.071)	0.167** (0.074)	0.141* (0.076)	0.101 (0.070)
mother's education	0.030** (0.014)	0.017 (0.014)	0.019 (0.012)	0.025* (0.013)	0.025** (0.013)
daughter's age	0.327*** (0.120)	0.384*** (0.124)	0.394*** (0.116)	0.408*** (0.119)	0.426*** (0.110)
daughter's age -squared	-0.005** (0.002)	-0.006*** (0.002)	-0.006*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)
mother's age	0.020 (0.096)	-0.056 (0.100)	-0.065 (0.092)	-0.109 (0.095)	-0.108 (0.082)
mother's age -squared	-0.000 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.000 (0.000)
constant	-1.443 (1.581)	-0.747 (1.746)	-0.749 (1.655)	0.278 (1.755)	0.001 (0.001)
observations	118	150	164	179	190
R-squared	0.213	0.163	0.168	0.147	0.138

Table 16: Regression results for mother-son pairs (model 2)

	Single-year	Two-year	Three-year	Four-year	Five-year
mother's earnings	-0.008 (0.051)	-0.032 (0.049)	0.027 (0.049)	0.016 (0.049)	-0.009 (0.047)
mother's education	0.024*** (0.009)	0.024*** (0.008)	0.025*** (0.008)	0.024*** (0.008)	0.025*** (0.008)
son's age	0.140*** (0.048)	0.193*** (0.044)	0.206*** (0.044)	0.194*** (0.045)	0.199*** (0.044)
son's age -squared	-0.002** (0.001)	-0.002*** (0.001)	-0.003*** (0.001)	-0.002*** (0.001)	-0.003*** (0.001)
mother's age	-0.037 (0.052)	-0.075* (0.042)	-0.059 (0.042)	-0.064 (0.043)	-0.070 (0.044)
mother's age -squared	0.000 (0.001)	0.001 (0.000)	0.001 (0.000)	0.001 (0.000)	0.001 (0.000)
constant	3.269*** (1.252)	3.509*** (1.053)	2.668** (1.034)	2.991*** (1.066)	3.193*** (1.081)
observations	201	268	289	309	328
R-squared	0.115	0.127	0.124	0.114	0.111

VIII. References

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