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Directed by: Ahmed Driouchi
(IEAPS, Al Akhawayn University, Ifrane, Morocco)

With Contributions by:

Alae Gamar (IEAPS, Al Akhawayn University, Ifrane, Morocco)
Cristina Boboc (The Bucharest Academy of Economic Studies, Bucharest, Romania)
Emilia Titan (The Bucharest Academy of Economic Studies, Bucharest, Romania)
Amale Achehboune (IEAPS, Al Akhawayn University, Ifrane, Morocco)

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Inequality, Intergenerational Mobility of Women Educational Attainment and Inclusive Policies in Arab Countries

By:
Ahmed Driouchi, Alae Gamar, Cristina Boboc (*), Emilia Titan (*) and Amale Achehboune, IEAPS, Al Akhawayn University, Ifrane, Morocco & *The Bucharest Academy of Economic Studies, Bucharest, Romania (*)*

Abstract

This paper emphasizes the status of women through the assessment of their intergenerational mobility and inequality in educational attainment in Arab countries. This is based on Barro-Lee per country aggregated annual data (1950-2010) on school attainment. Besides the gains from an extensive literature, the attained results show recent higher trends in education mobility with lower but persistent gender and female inequalities. Also, intergenerational educational mobility is higher compared the ones assessed over most Eastern and Central European Economies (ECE). This appears also when estimating inequalities and intergenerational mobility for males and females by educational level. Arab countries have been experiencing an increasing trend of educational attainments that are higher most of the time for males than for females. Even with decreasing inequalities, lower equality is observed for females. In addition, an increasing intergenerational mobility is established. But, when related to inequalities, variations between Arab countries show high discrepancies. This implies that the social ladder of social mobility might be less operational than in the past with increasingly highly educated potential job seekers. The Gatsby curves confirm these results over most Arab countries but show their limited use for ECE economies.

Keywords: Intergenerational; Mobility; Inequality; Educational attainment, Females, Arab economies, Comparisons, Eastern and Central Europe.

JEL: I320, J620

I. Introduction and Previous Contributions

Intergenerational educational mobility refers to the extent to which education attainments are able to change across generations. If there were no intergenerational mobility in education, at all (that is, the intergenerational education elasticity is equal to 1), all poor children would become poor adults and all rich children would become rich adults assuming that higher levels of education lead to higher incomes. In the case of complete intergenerational mobility (the intergenerational education elasticity is close to zero), there would be no relationship between family background and the adult education outcomes. While education inequality can be thought of as an indicator of equality of outcome, the intergenerational education mobility indicator can be thought of as an indicator of equality of opportunity.

The current research emphasizes the needs of knowing more about educational attainment inequality and intergenerational mobility of women in Arab countries with comparisons with Eastern and Central European Economies (ECE). This research follows the contribution of Driouchi and Gamar (2015) on the existence of a Gatsby Curve for educational attainment in Arab Countries.

The literature shows that education provides new opportunities (Bourguignon, Ferreira and Menendez, 2003). Reeves and Venator (2014) have already underlined the similarity between income and education. While reference to inequality is common in social science research, intergenerational mobility has been used mainly in specialized literature such as in sociology and economics.

Balcázar, Narayan and Tiwari (2015) have addressed the issue of inequality in educational achievement across the World. For OECD (2007), intergenerational mobility is defined as the extent to which some key characteristics and outcomes of individuals differ from those of their parents. The economic literature has mainly focused on movements between income (or earnings) classes or percentiles of the distribution. The sociological literature has mainly dealt with movements between occupations ranked according to their prestige or social class. As shown in the literature (D'addio, 2007; OECD, 2007) several reasons relate to the importance of intergenerational mobility. A relatively recent contribution by OECD (2014) has shown the diversity of situations throughout out OECD countries. The trend described for OECD countries is consistent with the work of Causa, Dantan, and Johansson (2009). Other authors such as Schneebaum, Rumpmaier and Altzinger (2014) analyze intergenerational educational persistence in 20 European countries, studying

intergenerational mobility in addition to the role of gender in determining educational persistence across generations.

Regarding the methods used in the estimation of intergenerational mobility and its relations to other variables, series of publications exist. They all consider that the intergenerational mobility indicates opportunities offered to people relative to their parents. Its level is a measure of the economic openness of a society in offering new opportunities (Gibbons, 2011). However, generational mobility is not the only measure (Corak, 2006; d'Addio, 2007). The limits of intergenerational mobility are addressed in series of papers (Andrews and Leigh, 2009; Blanden, 2008; Blanden and Machin, 2004; Corak, 2006; d'Addio, 2007; Roemer, 2004). In addition, Reeves (2015), Torche (2015), Chetty, Hendren, Kline and Saez (2015) besides Diewald, Schulz and Baier (2015), Solon (2015), Lefgren, McIntyre and Sims (2015), Altzinger, Cuaresma, Rumplmaier, Sauer and Schneebaum (2015), Mare (2015), Behrman and Rosenweigh (2002) have added new features to intergenerational estimation. Turcotte (2011), Magnani and Zhu (2015) Mok and Wu (2015), Andreou and Koutsampelas (2015), Mehtabul and Bhatt (2012), Erzsebet and Goldthorpe (2014 and 2015), Güell, Pellizzari, Pica, and Rodriguez (2015) apply new measurement models to intergenerational mobility. Van Heka, Kraaykampa and Wolbers (2015), Gurbuz and Polat (2015), Tansel (2015), Diewald, Schulz and Baier (2015), Magnani and Zhu (2015), Mazumder (2015a), Isacs (2008), Daw and Gaddis, (2016) and Mok, (2016) besides Celhay and Gallegos (2015) introduce series of country applications. Jerrim and Macmillan (2015) focus on the relationship, known as the Great Gatsby Curve. But, the authors consider that relatively little cross-national work has empirically examined the mechanisms related to this curve particularly the role of educational attainment. Other empirical investigations appear in Binzel (2011) and in Binzel and Carvalho (2015), Mazumder (2015a and 2015b), Azevedo and Bouillon (2010), Dumas and Lambert (2011), Corak, (2004, 2006; 2013a and 2013b) and Binzel, (2011) focusing on estimates of correlations since the earliest contributions of Solon (1992 and 1999). In this sense, Black, Devreux, Lundborg, and Majlesi (2015), Björklund and Jäntti, (1997) and Gustafsson, (1994) consider that the wealth of parents matters in intergenerational mobility. Such is the case also for Checchi, Ichino and Rutichini (1999), Black and Devreux (2010). Black, Devreux and Salvanes (2004) observe that parents with high education, have children with higher education. Solon (2002) shows the importance of international comparisons of the transmission of economic status. Chadwick and Solon (2002) present new evidence in the United States on daughters' intergenerational mobility. Mazumder (2005a and 2005b) considers that previous studies have estimated the intergenerational

elasticity in earnings to be approximately 0.4. In a more recent contribution, Mazumder (2015b) emphasizes that the needed data to conduct intergenerational mobility analysis are not available for all countries. Machin (2004), Buchmann and Hannum (2001), Behrman, Graviria, Székely, Birdsall, and Galialni (2001), Breen and Jonsson (2005), Pastore and Roccisano (2015), Chusseau and Hellier in collaboration with Ben-Halima (2012), Blanden (2014), Ding (2013), Lillard and Willis (1994) explore evidence concerning the relationship between parents and children education. Jin-Yeong, Byung and Seung-Rae (2015) compare the social mobility of OECD countries using PISA data. Shahe and Shilpi (2015), Shahe, Green and Shilpi (2016). Bukodi, Goldthorpe, Waller and Kuha, (2015), Blossfeld, P.N., Blossfeld, G. and Blossfeld, H.P. (2015), Goldthorpe (2015) and Torche (2014) add series of new approaches to inequality and intergenerational mobility. Solon (1992) in addition to more recent papers of Lawrence (2016), Mohanty (2016), Ruiz (2016), Mare (2016), Mitra and Tsujita (2016), Neidhöfer (2015) testing how countries with a high level of inequality also show low intergenerational mobility. Brahim and McLeod (2016) provide new methodological insights to inequality and mobility in Latin American countries.

Other authors show that many countries, do exhibit the same problems as in Arab countries. Mok and Neubauer (2015), Dang (2015), Goldthorpe (2013), Azam and Bhatt (2014), Ianelli and Paterson (2005), Greenstone, Looney, Patashnik, and Yu (2013) and Ichino, Karabarbounis and Moretti, (2010). Lambert, Ravaillon, and Van de Walle (2014) address intergenerational mobility and interpersonal inequality in series of economies. For Arab countries, Binzel and Carvalho (2015), Binzel (2011), Ragui, Krafft, Roemer, and Salehi-Isfahani, (2016), Ragui and Saleh (2013) in addition to Salehi-Isfahan, Belhaj-Hassine, and Ragui, (2014) are the most relevant contributions. But, that of Driouchi and Gamar (2015) is directly related to this research as it assesses intergenerational mobility and inequalities in educational attainment in Arab countries and searching for Gatsby curve for education. Salehi-Isfahan (2015) updates the earlier literature on youth transitions based on the evidence on inequality of opportunity. Salehi-Isfahan, Belhaj-Hassine, and Ragui, (2014) have ensured the first empirical investigation of inequality of education opportunities in the Middle East and North Africa (MENA) based on data from tests administered by the international consortium Trends in Mathematics and Science Study (TIMSS) for a number of countries and over time since 1999. Ragui & Saleh (2013) examine the effect of increased local supply of schooling on intergenerational mobility in education in Jordan using a unique data set that links individual data on own schooling and parents' schooling for adults, from a household survey, with the supply of schooling in the sub-district of birth, from Jordanian

Ministry of Education data. Chusseau, Hellier and Ben-Halima (2012) review the literature on the impacts of several dimensions of education on intergenerational inequality persistence. Ramadan, Hlasny, and Intini, (2015) find that inequality is high and growing across the Arab region. The empirical evidence gathered shows that this process is already started in most economies of the Arab region, but needs to be further supported to ensure economic and social mobility with the quality of the human resources required for growth and development. Different authors such as Sika (2011), Bibi and Nabli, (2010) have devoted research to the situation of Arab countries.

The current research is motivated by the continuous need for updating and feeding policy making with new inputs. Inequality in educational attainment and its related intergenerational mobility with their links have not yet been fully addressed in the context of Arab countries, mainly in relation to the provision of new policy insights.

The paper starts with the overall framework used for the analyzes. It then addresses the methods used in computations and assessment, with emphasis on the data used. Results are then introduced before engaging in policy issues and discussion.

II. Overall Framework for the Analysis

There have been several attempts to setting an overall theoretical framework for the intergenerational mobility and its links with inequality. Becker, Kominers, Murphy and Spenkuch (2015) develop a model of the intergenerational transmission of resources that emphasizes the link between inequality and intergenerational mobility. Across countries, inequality and intergenerational mobility are strongly negatively correlated, a phenomenon referred to as “The Great Gatsby Curve”. By drawing on first principles of human capital theory, the authors derive several new results. Fan, Junjian, and Zhang (2015) provide the first systematical analysis of the temporal patterns of cross-sectional inequality and intergenerational mobility in China. In a most recent contribution, Alonso-Carrera, Caballé and Raurich (2016) use an overlapping generation model to address intergenerational mobility under education-effort complementarity.

According to Piketty (2000), following the development of large panel data sets with economic variables spanning across several generations, economists have started to measure intergenerational mobility. Ichino, Karabarbounis and Moretti (2010) introduce a parsimonious political economy model and show how the interaction between private and collective decisions determines the equilibrium level of mobility. Corak (2013) provides

evidence that countries with more inequality at one point in time also experience less earnings mobility across the generations. This author outlines how to interpret the common statistic measuring intergenerational earnings mobility and its relationship to equality of opportunity.

These theoretical and empirical research trends are considered while mobilizing empirical analyzes of inequality, intergenerational mobility in educational attainment of women and their relationships through using the Gatsby Curves.

III. Data and Empirical Methods Applied

The methods used in this research cover the calculation of GINI measures and intergenerational mobility related to education attainment. The relationships between inequality and intergenerational mobility are also introduced. The empirical methods used for each of these estimations are introduced in this section and are based on Barro and Lee (2010, 2013 and 2014) datasets.

1. Data

The research uses the updated data retrieved from the Barro and Lee (2014) dataset. This includes data ranging from 1950 to 2010 for the Arab countries namely: Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Libya, Morocco, Mauritania, Qatar, Syria, Saudi Arabia, Sudan, Tunisia, United Arab Emirates and Yemen. The variables used include average years of total schooling and the four categories of education that captures the status of people in education. The first one concerns those with no education (no schooling), the second those that completed primary education, the third those that completed Secondary education and the fourth those that completed tertiary education. The panel data set of Barro and Lee (2010, 2013, and 2014) on educational attainment is updated for 146 countries from 1950 to 2010. The data are disaggregated by gender and by 5-year age intervals. The authors consider then that the estimates of educational attainment do provide a reasonable proxy for the stock of human capital. In these data, average years of schooling at all levels are also measured for each country and for regions in the world. The current research aiming at studying the relationship between inequalities in educational attainment and the intergenerational mobility is fully based on the above data. The average years of total schooling measured in years is used to determine the elasticity of the intergenerational mobility in education while the four educational levels that represent percentages are mobilized to determine the yearly GINI coefficients for each of the Arab countries.

2. Education GINI index to measure inequalities

The direct method to compute the GINI index is based on a formula (Deaton 1997) with:

$$GINI\ index = \frac{1}{\mu\, N\ (N-1)} \sum_{i>j} \sum_{j} |y_i - y_j|$$

Where μ is the average years of schooling and N is the total number of observations.

In general to compute the income GINI index, $y_i\ and\ y_j$ are dollar values of income of individuals. However, when computing the GINI index for education $y_i\ and\ y_j$are years of school attainment of individuals.

On the other hand the indirect method consists of constructing the Lorenz curve for education. This curve holds the cumulative percentage of the schooling years on the vertical axis and the cumulative percentage of population on the x-axis. It also includes a 45 degree line that represents a perfect equality in schooling. The GINI index is estimated using the ratio of the area included between the equality line and the Lorenz Curve lines (Area A) to the area between the x-axis and equality line (Area OWQ). Figure 1 depicts the Lorenz curve and the respective areas mentioned to illustrate the areas used to estimate the GINI index. The GINI index for education is given by:

$$GINI\ index = \frac{Area\ of\ A}{Area\ of\ OWQ}$$

This paper uses this second method to compute the GINI index for education for the Arab countries using the Barro and Lee (2014) dataset. The four schooling categories "no schooling", "primary schooling", "secondary schooling" and "tertiary schooling" as they appear in Barro and Lee database are used to graph the Lorenz curve and to compute the cumulative area under it. This area then subtracted from 0.5 (half of total area) to get the surface that is located between the 45° line and the Lorenz curve (area A indicated in the graph below) each year and for each country. The GINI is then the result of the division by the area of OWQ as in the above formula and as indicated in the following graph (Vinod, 2000). This means that the attained figure is a measure of inequality between schooling levels and for each country and each year. This has been applied for school attainment for men and women.

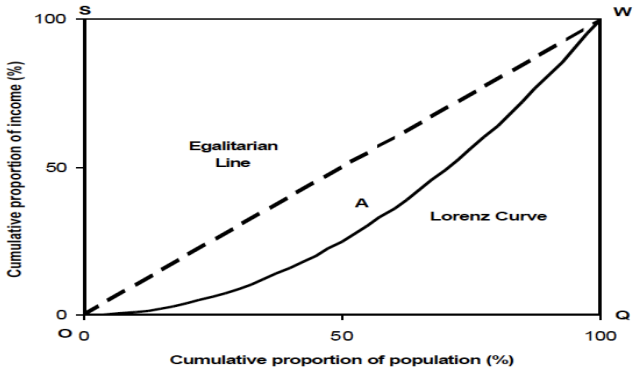

Figure 1: The Lorenz curve (source: Vinod and al., 2000)

3. Intergenerational Mobility

Intergenerational income mobility is usually measured by a simple linear regression model in which the logarithm of the child's education Ychild (in adulthood) is a function the logarithm of the parent's education Yparent: $\ln(Ychild) = \alpha + \beta \ln(Yparent) + \varepsilon$. The regression coefficient ß is the intergenerational elasticity of education and ε is the error term indicating other influences not associated with the education of parents. Roughly speaking, the value of elasticity (ß) represents the fraction of education that is on average transmitted across generations.

In order to determine the intergenerational mobility using education as an indicator, the data set is divided to generations with the first half representing the oldest one. The data are then transformed to logarithms. Then, regressions are run to estimate elasticity of mobility for the average years of schooling (Total, Primary, Secondary and Tertiary) to determine the education mobility from a generation to another for Arab and ECE Countries.

4. The Great Gatsby curves

These curves as indicated before, attempt to link inequality and intergenerational mobility. These curves illustrate the relationships revealed through regression analysis. Krueger (2012) referred to this relationship as the "Great Gatsby curve". Krugman (2012) and Krueger (2012 and 2015) emphasize that Great Gatsby Curves relate intergenerational elasticity to inequality. Inequality in skills and the Great Gatsby curve by Mazumder (2015) introduces evidence relating cross-country differences in intergenerational mobility to differences in inequality of skills. The Great Gatsby curve shows the relationship between inequality and intergenerational mobility as in Corak (2013). The x-axis plots the Gini coefficient, which is one commonly used measure of inequality. The y-axis plots what is known as the

intergenerational elasticity. Chauvel and Hartung (2016) look at complementing the "economic" income-based regressions approach with a class-based categorical modelling approach to test the robustness of the Great Gatsby Curve (GGC) by proposing an innovative methodological approach. Newer publications such as those of Tinson, Aldridge and MacInnes, (2016), Perez-Arce, Amaral, Huang, and Price, (2016), Mitra and Pradhan (2016) have discussed the links between inequalities and intergenerational mobility in the contexts of developed countries but also in India. They all provide theoretical and empirical grounds to the limits offered by Gatsby curves in the interpretation of the results.

IV. Results

These results are respectively introduced as they relate to the assessment of time trends in the average of schooling for total, females and males at different levels of education. These are followed by the trends taking place in the GINI coefficient related to the average schooling. The time pattern of the average years of schooling is then assessed before introducing the results related to the estimation of the intergenerational mobility elasticity. The relationship between the GINI values and intergenerational mobility is then estimated before for the introduction of Gatsby curves (Krueger, 2015). These results concern respectively Arab and ECE countries. Statistical comparisons of all the estimated coefficients within Arab countries, within ECE economies and between Arab and ECE are then introduced with emphasis on male female comparisons and also for females in Arab and ECE countries.

1. Trend line Regressions for Average Years of Schooling by schooling level during the period 1950-2010

For Arab countries, the time trends for the average years of schooling for total, primary, secondary and tertiary are all highly statistically significant and positive with the minimal trends observed for total education in Mauritania and Yemen and maximal time trends shown for the UAE. For primary schooling, Kuwait and Yemen have minimal trends while the UAE and Libya have the maximal values. Sudan, Yemen and Mauritania exhibit the lowest trends with the maximal values shown by the UAE and Jordan for secondary schooling. Tertiary schooling shows the lowest trends for Yemen, Sudan and Mauritania while trends for all other countries are low in comparison with those related to primary and secondary education (Table A.1). For females and for total schooling, the maximal value is for Libya, the UAE followed by Jordan and Bahrain while Yemen and Mauritania have the minimal trends. For primary education, the maximum is expressed the UAE and Jordan with the minimum for Sudan and

Mauritania. Sudan, Mauritania and Yemen show minimal trends over secondary education with the UAE and Jordan having the maximum. Low values are shown by all Arab countries with Sudan, Mauritania and Yemen having the minimal values (Table A.2). For males, at the level of total education, Iraq, Algeria, the UAE, Libya and Tunisia have the maximal values. At the level of primary, Iraq has the highest values with Kuwait showing minimal trend. Jordan has the highest trend over secondary education while Mauritania has the minimum. Again, the tertiary education shows low values with the minimum shown by Yemen and Sudan (Table A.3).

For Central and Eastern European Countries, it could be observed an increasing trend in average years of schooling during the observed period for total population and on levels of schooling, and on genders, with a level of significance of 1%. The highest trends for total education are observed in Albania, Bulgaria, Lithuania and Latvia for all samples: total, female and male samples. However, high differences are observed between variables (different levels of schooling) on each sample (total, female, male). For example, in Albania it is observed the highest trend for primary school and the lowest trend for tertiary school for all samples. Estonia and Slovenia are the countries with the highest trends in secondary education for all samples. Tertiary schooling shows the highest trends for Estonia, Lithuania and Bulgaria for all samples (Tables A.4, A.5 & A.6).

2. Trends in Educational Attainment Inequality

As shown by the estimated time trends, inequalities in educational attainment have been decreasing over the period 1950-2010. Females and males show trends that are negative and highly statistically significant (Table A.7). While for Arab countries there is an observed decreasing trend in inequality, for Central and East European countries the decreasing trend is only for Albania, Croatia and Serbia for females and males, and for Romania, Poland, Lithuania, and Bulgaria only for females. All else have positive trends, meaning that in these countries the inequality increased during the analyzed period. Most of ECE countries show no statistically significant trends in inequality during the analyzed period (Table A.8).

3. Estimation of Intergenerational mobility

a. The Elasticity for intergenerational Mobility for total education in Arab countries

The elasticity for intergenerational Mobility for total education in Arab countries is analyzed for total education, by gender and by level of education. As shown in table 1, all Arab countries enjoy higher mobility in education except Mauritania (Table 1).

Table 1: The Elasticity for Intergeneration Total Education Mobility for Arab Countries

Countries	Total	
	Elasticity	t-statistics
Algeria	0.6429	4.5721
Bahrain	0.3778	5.8349
Egypt	0.7496	7.2206
Iraq	0.5099	14.4771
Jordan	0.6916	17.7490
Kuwait	0.4856	5.8311
Libya	0.5952	8.1222
Mauritania	1.2687	17.8472
Morocco	0.6699	11.9104
Qatar	0.5902	9.7938
Saudi Arabia	0.7800	7.6956
Syria	0.5663	8.2241
Sudan	0.7779	12.3392
Tunisia	0.6551	13.4366
UAE	0.6992	4.5720
Yemen	0.7469	13.8059

Males and females do show highly statistically significant educational estimates of mobility over total education. This is also confirmed for each level of education at the exception. But these values are high for Mauritania, Saudi Arabia and Yemen implying immobility in education in these countries. Bahrain and Kuwait have the lowest elasticity that implies higher mobility in education (Table A.9). The elasticity for intergenerational Mobility for education by schooling levels in Arab world confirm the trends discussed, but many exceptions need to be noted (Table A.10). Secondary education level for females in Libya and Yemen seems to be statistically not significant. For Sudan, Bahrain and Kuwait the estimates are not statistically significant for tertiary education for males. Otherwise elasticity is low for countries like Kuwait, Bahrain, Jordan and Qatar for both males and females. The elasticity is high for Saudi Arabia except for males at the tertiary level. It is also high for Yemen and Mauritania.

When looking at the elasticity related to ECE countries and over total education, on the total sample (males and females) the estimated coefficients show a statistically significant

mobility except for the Czech Republic, Estonia and Hungary. The highest educational mobility is observed in Albania, Bulgaria and Romania (Table 2).

Table 2: Total Educational Elasticity for ECE countries

Countries	Total	
	Elasticity	t-statistics
Albania	0.577	5.183
Bulgaria	0.553	5.518
Croatia	0.994	12.567
Czech	1.028	10.483
Estonia	1.219	28.112
Hungary	1.450	7.287
Latvia	0.906	16.667
Lithuania	0.686	16.526
Poland	0.811	15.630
Romania	0.524	9.775
Serbia	0.919	15.028
Slovakia	0.918	8.336
Slovenia	0.649	8.342

The estimates for both females and males are all statistically significant for total education. The estimates of elasticity of education are higher than one for females in Croatia, Czech Republic, Estonia, Hungary and Slovakia showing high intergenerational immobility for females in these countries. In case of males only in Estonia, Hungary and Serbia there is high intergenerational immobility for total education (Table A.11). When analyzing the estimates of elasticity for intergenerational mobility by educational levels, those related to secondary and tertiary education in Albania for both females and males are not statistically significant. The estimates for primary education for females in Hungary, Slovakia and Slovenia exhibit coefficients not significant. The same concerns males in primary education in Croatia, Czech Republic, Slovakia, Serbia, Romania, and Slovenia. All estimated coefficients for primary education, both for males and females show high intergenerational mobility. In case of secondary education only Croatia and Serbia have high immobility for both females and males. In case of tertiary education high intergenerational immobility is observed in Croatia, Estonia and Poland for both males and females and in Romania for females (Table A.12).

4. Relationship between Education Inequalities and the Intergenerational mobility for Arab countries

a. Relationship between Education Inequalities and the Intergenerational mobility for total education

A highly statistically significant relationship is obtained for males for 1980, 1985 and 1990 and for females but with lower significance in 1950 and 2010. The negative coefficient means that higher elasticity of intergenerational mobility (low mobility) is related to higher level of inequality while lower elasticity (high mobility) is related to lower level of inequality (Table 3).

Table 3: Coefficients and t-statistics of the regressions that characterizes the relationship between Education Inequalities and the Intergenerational mobility for total education in Arab countries

Years	Females		Males		N
	Coefficient	t-statistics	Coefficient	t-statistics	
1950	-1.697*	-1.927	-0.259	-0.247	13
1955	-1.509	-1.574	-0.064	-0.056	13
1960	-1.260	-1.325	-0.111	-0.095	13
1965	-1.166	-1.208	0.242	0.229	13
1970	-0.790	-0.749	1.376	1.122	13
1975	-0.568	-0.493	-1.204	-0.631	13
1980	-0.087	-0.065	-4.969**	-2.613	13
1985	0.207	0.103	-3.974**	-3.256	13
1990	-2.346	-1.148	-2.739**	-3.018	13
1995	0.996	0.825	-0.368	-0.308	13
2000	1.176	1.195	0.516	0.465	13
2005	2.023	1.647	1.313	0.792	13
2010	2.416*	1.977	2.579	1.432	13

b. Relationship between Education Inequalities and the Intergenerational mobility by schooling levels

Table 4: Coefficients and t-statistics of the regressions that characterizes the relationship between education inequality and the intergenerational mobility in education for Arab Countries by schooling level 1950-2010

Years	**Females**			**Males**			**N**
	Primary	**Secondary**	**Tertiary**	**Primary**	**Secondary**	**Tertiary**	
1950	-0.311 (-0.426)	-0.392 (-0.481)	-1.450 (-1.388)	-0.120 (-0.081)	-0.391 (-0.303)	-2.176 (-1.324)	13
1955	-0.431 (-0.570)	-0.303 (-0.355)	-1.557 (-1.437)	-0.002 (-0.001)	-0.415 (-0.291)	-2.444 (-1.350)	13
1960	-0.577 (-0.801)	-0.292 (-0.354)	-1.774* (-1.763)	-0.275 (-0.169)	-0.645 (-0.453)	-3.341* (-1.980)	13
1965	-0.382 (-0.520)	-0.387 (-0.470)	-1.819* (-1.815)	1.164 (0.806)	-0.659 (-0.510)	-2.503 (-1.546)	13
1970	-0.450 (-0.584)	-0.013 (-0.015)	-1.610 (-1.463)	0.777 (0.431)	0.249 (0.156)	-2.669 (-1.314)	13
1975	-0.743 (-0.916)	0.422 (0.452)	-1.405 (-1.148)	-2.670 (-1.025)	-1.373 (-0.581)	-4.480 (-1.500)	13
1980	-0.900 (-0.968)	1.265 (1.248)	-0.956 (-0.654)	-3.388 (-1.045)	-3.521 (-1.261)	-3.165 (-0.797)	13
1985	-1.126 (-0.798)	3.397* (2.690)	2.162 (1.012)	-0.481 (-0.201)	-3.520* (-1.929)	-1.794 (-0.633)	13

1990	-1.540 (-1.031)	2.307 (1.436)	2.037 (0.876)	-0.779 (-0.457)	-2.576* (-1.981)	-1.445 (-0.714)	13
1995	0.546 (0.617)	0.408 (0.408)	1.239 (0.929)	-0.420 (-0.250)	-0.518 (-0.352)	0.953 (0.475)	13
2000	0.884 (1.248)	-0.151 (-0.178)	0.283 (0.244)	0.556 (0.355)	-0.505 (-0.367)	-0.368 (-0.195)	13
2005	0.924 (0.970)	0.295 (0.267)	1.176 (0.793)	0.448 (0.188)	0.226 (0.107)	1.667 (0.589)	13
2010	0.543 (0.535)	0.947 (0.848)	2.205 (1.534)	-0.993 (-0.363)	2.912 (1.290)	4.437 (1.465)	13

Similar results are attained when accounting for levels of schooling. The only statistically significant relationships are shown for 1985 and 1990 for secondary education males and for females at the secondary level but with a positive sign (Table 4).

5. Relationship between Education Inequalities and the Intergenerational mobility for ECE

a. Relationship between Education Inequalities and the Intergenerational mobility for total education

This relationship between Education Inequalities and the Intergenerational mobility for total education is statistically significant in 1950, 1980, 1985, 1990, 1995, 2000, 2005 and 2010 for females and in 1980, 1985, 1990 and 2010 for males. The positive and significant coefficients means that low intergenerational mobility (high elasticity) are related to high inequalities. Only for the year 1950, the coefficient is negative for females, meaning that only in this year low level of intergenerational mobility is related to lower inequality (Table 5).

Table 5: Coefficients and t-statistics of the regressions that characterizes the between Education Inequalities and the Intergenerational mobility for total education in ECE

Years	Females		Males		N
	Coefficient	t-statistic	Coefficient	t-statistic	
1950	-2.849*	-1.750	-0.250	-0.440	16
1955	-1.614	-1.086	-0.211	-0.412	16
1960	-0.529	-0.401	-0.120	-0.259	16
1965	0.318	0.293	0.017	0.039	16
1970	0.897	1.078	0.409	1.047	16
1975	1.054	1.561	0.535	1.503	16
1980	1.138*	2.336	0.643*	1.926	16
1985	1.067**	2.732	0.639*	2.006	16
1990	1.009**	2.861	0.640*	2.005	16
1995	0.944**	2.878	0.568	1.613	16
2000	0.942**	2.898	0.519	1.339	16
2005	0.938**	2.636	0.547	1.338	16
2010	1.076*	2.387	0.818*	1.881	16

b. Relationship between Education Inequality and the Intergenerational mobility by schooling levels

By schooling levels, all significant coefficients are positive, proving that the low intergenerational mobility (high elasticity) is related to high inequality, for both samples (males and females) (Table 6).

Table 62: Coefficients and t-statistics of the regressions that characterizes the relationship between education inequality and the intergenerational mobility in education for ECE Countries by schooling level

Years	Females			Males			N
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	
1950	-3.345* (-2.109)	7.680 (1.498)	-4.490* (-2.000)	-0.390 (-0.578)	-1.034 (-1.433)	1.807* (1.950)	16
1955	-2.080 (-1.420)	7.028 (1.609)	-3.455* (-1.739)	-0.307 (-0.503)	-0.995 (-1.544)	1.703* (2.063)	16
1960	-0.967 (-0.733)	6.382* (1.702)	-2.454 (-1.391)	-0.172 (-0.312)	-0.926 (-1.609)	1.570* (2.135)	16
1965	-0.019 (-0.018)	5.157 (1.691)	-1.693 (-1.148)	0.001 (0.002)	-0.891* (-1.723)	1.323* (1.935)	16
1970	0.655 (0.763)	4.013 (1.648)	-0.998 (-0.834)	0.453 (0.965)	-0.808 (-1.602)	1.198* (1.790)	16
1975	0.904 (1.291)	2.919 (1.385)	-0.839 (-0.830)	0.5993 (1.393)	-0.869* (-1.873)	0.792 (1.184)	16
1980	1.019* (1.984)	1.244 (0.718)	-0.382 (-0.474)	0.751* (1.870)	-0.882* (-1.959)	0.535 (0.797)	16
1985	0.971* (2.340)	0.693 (0.470)	-0.290 (-0.426)	0.780* (2.059)	-0.895* (-2.096)	0.332 (0.506)	16
1990	0.944* (2.535)	0.427 (0.314)	-0.307 (-0.493)	0.811* (2.162)	-0.877* (-2.037)	0.186 (0.282)	16
1995	0.906** (2.647)	0.150 (0.118)	-0.319 (-0.550)	0.745* (1.805)	-1.041* (-2.378)	-0.059 (-0.085)	16
2000	0.924** (2.756)	-0.412 (-0.328)	-0.308 (-0.535)	0.773* (1.728)	-1.141* (-2.447)	-0.442 (-0.594)	16
2005	0.922** (2.526)	-0.970 (-0.739)	-0.329 (-0.540)	0.806* (1.707)	-0.885 (-1.647)	-0.514 (-0.658)	16
2010	1.056* (2.287)	-0.842 (-0.518)	-0.579 (-0.781)	1.051* (2.061)	-0.765 (-1.222)	-0.986 (-1.160)	16

Table 7: Coefficients and t-statistics of the regressions that characterizes the relationship between education inequality and the intergenerational mobility in education for Arab and ECE countries by schooling level 1950-2010

	Females				**Males**			
	Total	**Primary**	**Secondary**	**Tertiary**	**Total**	**Primary**	**Secondary**	**Tertiary**
R-square	0.668	0.563	0.320	0.370	0.522	0.510	0.176	0.256
Constant	1.472 (5.517)	0.569 (2.025)	1.776 (3.963)	1.742 (2.066)	0.905 (4.783)	0.426 (1.259)	1.151 (2.758)	2.120 (2.657)
1950	-1.692 (-0.874)	5.037 (2.468)	-1.591 (-0.489)	-5.224 (-0.854)		5.031 (1.639)		-2.090 (-0.289)
1960	-0.982 (-0.321)	-9.405 (-2.914)	2.134 (0.415)	-8.915 (-0.922)	-3.687 (-2.840)	-9.615 (-2.169)	-2.357 (-0.968)	-7.174 (-0.686)

1970	-0.761 (-0.255)	4.711 (1.498)	-6.395 (-1.277)	23.341 (2.477)	4.340 (2.594)	6.179 (2.261)	1.316 (0.423)	10.320 (1.601)
1980	4.410 (2.184)	0.489 (0.230)	5.941 (1.751)	-15.008 (-2.352)	-0.729 (-0.464)	-2.135 (-0.911)	1.852 (0.635)	-4.436 (-0.802)
1990	-2.503 (-2.052)	-1.506 (-1.172)	-0.467 (-0.228)	8.617 (2.236)	-0.819 (-0.582)	1.333 (0.640)	-2.257 (-0.863)	6.473 (1.317)
2000	0.725 (0.862)	2.225 (2.511)	-1.272 (-0.901)	-4.634 (-1.745)	1.252 (1.616)	1.111 (0.775)	0.805 (0.467)	-5.714 (-1.689)
2010	0.408 (0.625)	-1.010 (-1.468)	-0.507 (-0.463)	0.460 (0.223)		-1.247 (-1.154)	-0.582 (-0.465)	0.526 (0.206)

The attained regression results while combining both Arab and ECE countries in one sample show significant relationships for females in total, primary and tertiary education, while they show significant relationships only in total and primary education. Significant coefficients are fluctuating between positive and negative values. Still, it attests the link between the intergenerational mobility and inequality (Table 7).

These results provide grounds for illustrating the shapes of the Gatsby curves related to educational attainment in Arab and ECE countries.

6. Gatsby Curves

Gatsby curves of the intergenerational mobility for female total education: With almost a linear trend where Saudi Arabia and Mauritania show high levels of intergenerational mobility with the first country having low inequality among females while the second shows higher inequalities. Morocco, Sudan and Yemen express higher inequalities and relatively higher levels of immobility. The other set of countries show Bahrain, Kuwait, Qatar and others with relatively higher mobility and with lower inequalities (Figure 2).

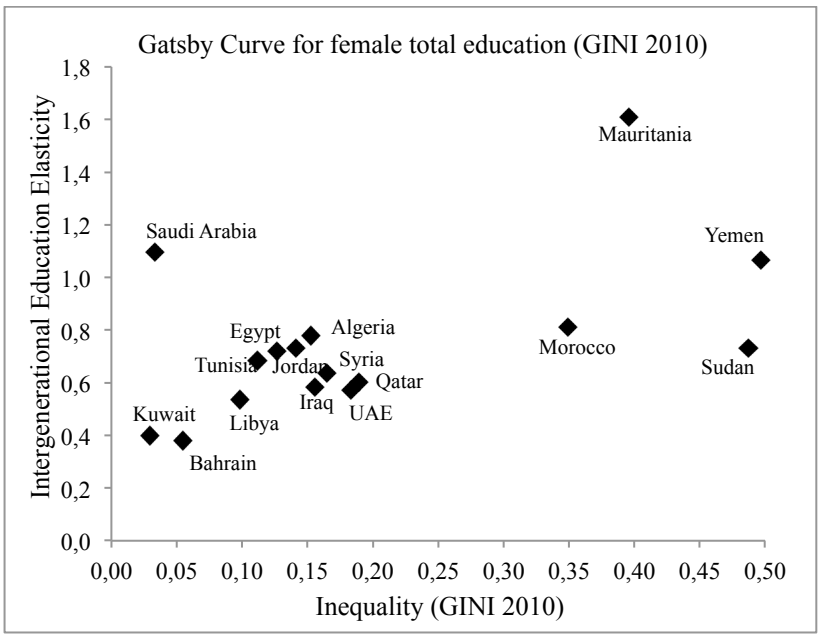

Figure 1: Gatsby Curve for female in Arab countries total education (GINI 2010)

Gatsby curves of the intergenerational mobility for male total education: A linear trend is observed for total education of males. Mauritania, Saudi Arabia and Yemen show high immobility with Saudi Arabia having the lowest level of inequality. The other countries have higher mobility with different levels of inequality. Bahrain has the highest mobility with lower inequality. While Morocco shows relatively higher mobility, it shows higher inequality. Two major trends could be identified above. The first one starts with Kuwait and ends with Mauritania. The second starts with Bahrain and with Yemen (Figure 3).

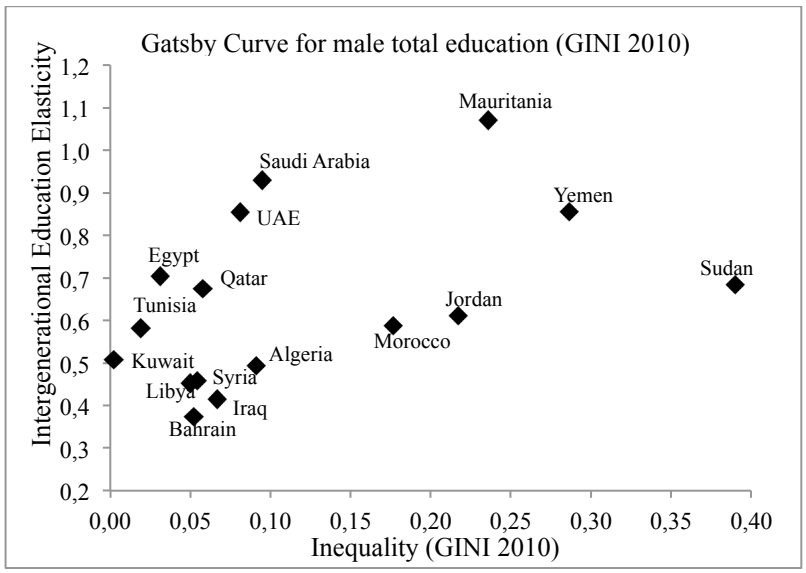

Figure 3: Gatsby Curve for males in Arab countries total education (GINI 2010)

Gatsby curves of the intergenerational mobility for female primary education: When selecting primary education for females, lower elasticity and lower inequality is shown Kuwait, Bahrain, Libya and Tunisia implying higher mobility and lower inequality. Mauritania, Yemen, Morocco and Sudan do have higher elasticity and inequality. Algeria, Syria and Jordan besides Qatar, UAE and Jordan have higher elasticity but medium inequality (Figure 4).

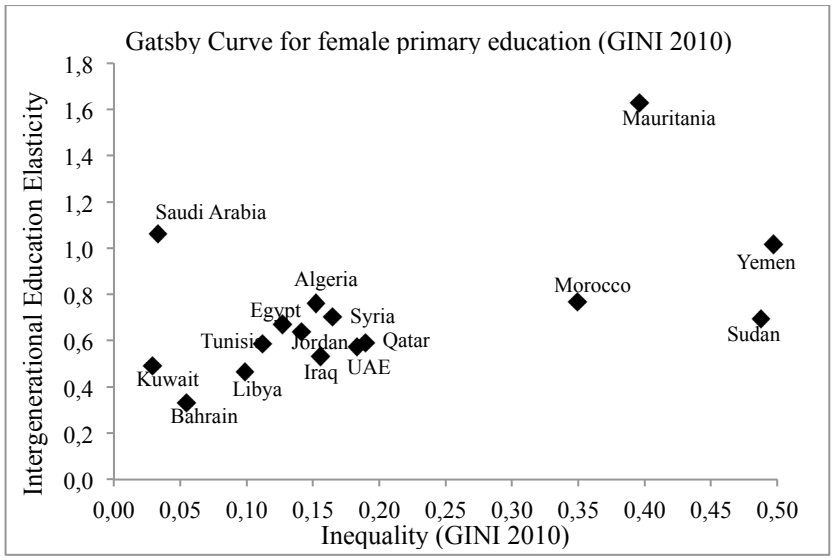

Figure 4: Gatsby Curve for females in Arab countries primary education (GINI 2010)

Gatsby curves of the intergenerational mobility for male primary education: While the situation is similar to the above for males in Mauritania, Yemen and Sudan besides Kuwait, Bahrain and Libya, it is different for UAE, Saudi Arabia, Qatar, Tunisia and Egypt. Algeria, Morocco and Jordan appears to have intermediate mobility and inequality (Figure 5).

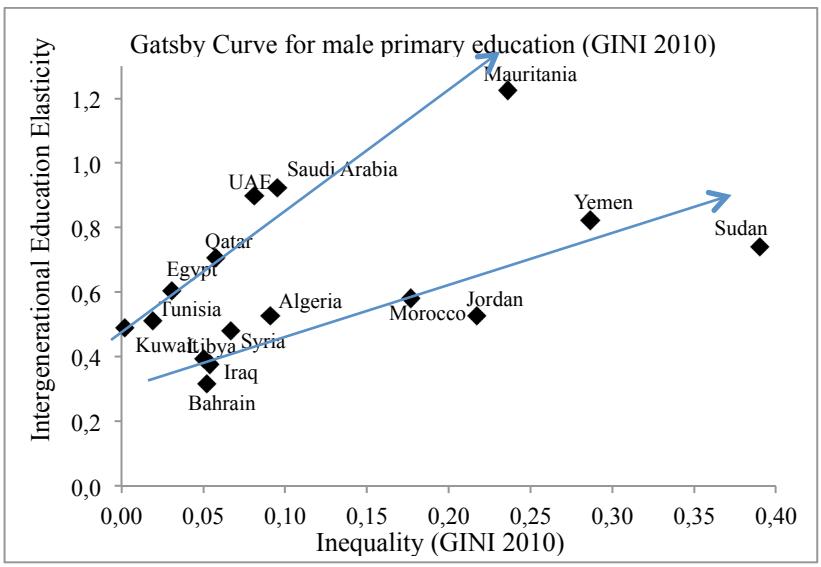

Figure 5: Gatsby Curve for males in Arab countries primary education (GINI 2010)

Gatsby Curves for Central and East European countries could be illustrated as in the following graph that focuses on total education only.

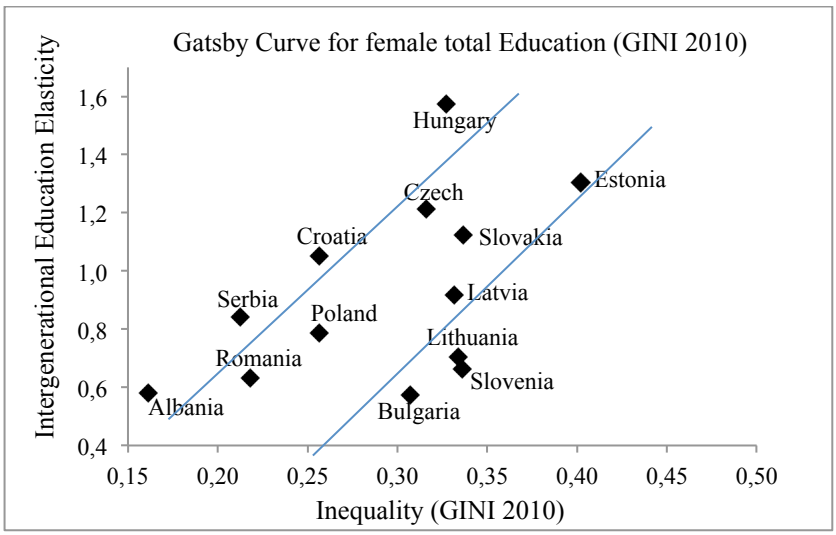

Figure 6: Gatsby Curve for females in ECE countries total education (GINI 2010)

While Albania, Romania, Poland and Serbia seem to have higher mobility and lower inequality, other countries such as Hungary, Estonia, Croatia and Latvia appear to have lower mobility with higher inequalities. This might be related to the trends in educational attainment in these different countries.

Gatsby Curves for Arab and East European Countries as a Cluster

Gatsby curves of the intergenerational mobility for female total education

Figure 6 ranks countries along two dimensions for female population. The horizontal axis shows education inequality in a country as measured by the GINI coefficient for the year 2010. The vertical axis shows intergenerational education elasticity for total education calculated by considering three generations twenty years away from each other. The Gatsby Curve follows a significant linear trend, with all coefficients being statistically significant:

$$\hat{y} = 0.5 + 1.34 \cdot x \qquad R^2=0.2968$$

Saudi Arabia, Hungary and Mauritania show low levels of intergenerational mobility.

While Saudi Arabia has low inequality among females, Hungary and Mauritania show high inequalities among them. Morocco, Sudan and Yemen express higher inequalities and relatively higher levels of mobility. Bahrain, Kuwait, Qatar and others have relatively higher mobility and with lower inequalities (Figure 7).

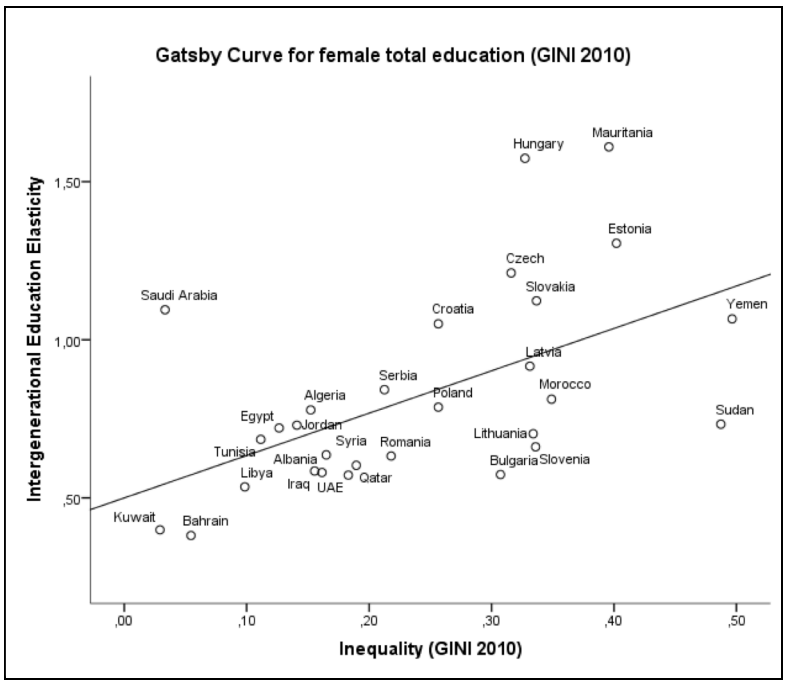

Figure 7: Gatsby Curve for female total education (GINI 2010)

Gatsby curves of the intergenerational mobility for male total education

A linear trend is observed for total education of males. Mauritania, Saudi Arabia and Yemen show less mobility with Saudi Arabia having the lowest level of inequality. Bahrain has the highest mobility with low inequality. While Morocco shows relatively high mobility, it exhibits high inequality (Figure 8).

The Gatsby Curve follows a significant linear trend, with all coefficients significant:

$$\hat{y} = 0.53 + 0.93 \cdot x \qquad R^2=0.23$$

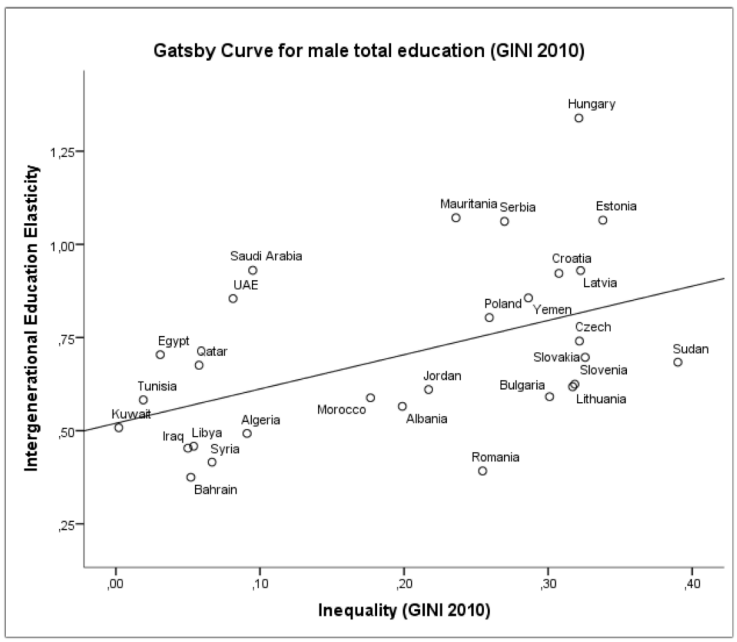

Figure 8: Gatsby Curve for male total education (GINI 2010)

Gatsby curves of the intergenerational mobility for females by education level

By analyzing the Gatsby curves for females by education levels it could be observed that there is no significant linear trend. For primary education, by separating on one side the countries Saudi Arabia and Mauritania and on the other side Slovenia and Slovakia from the other countries we obtain a significant linear trend for Gatsby curve. For the secondary education level it is sufficient not to take into consideration Yemen and for tertiary education Libya (Figure 9).

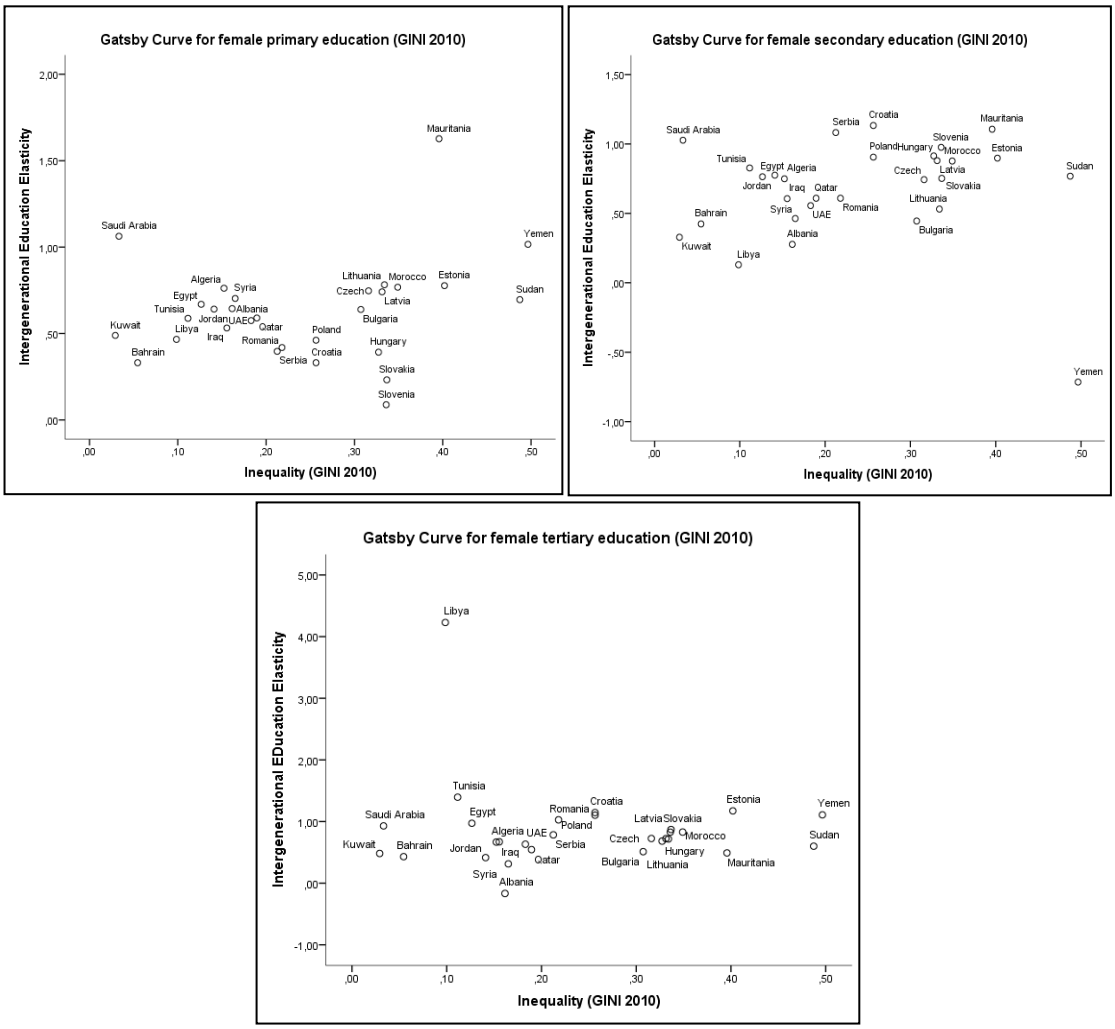

Figure 9: Gatsby Curve for females on education levels (GINI 2010)

By analyzing the Gatsby curves for males by education levels it could be observed that there is no significant linear trend (Figure 10).

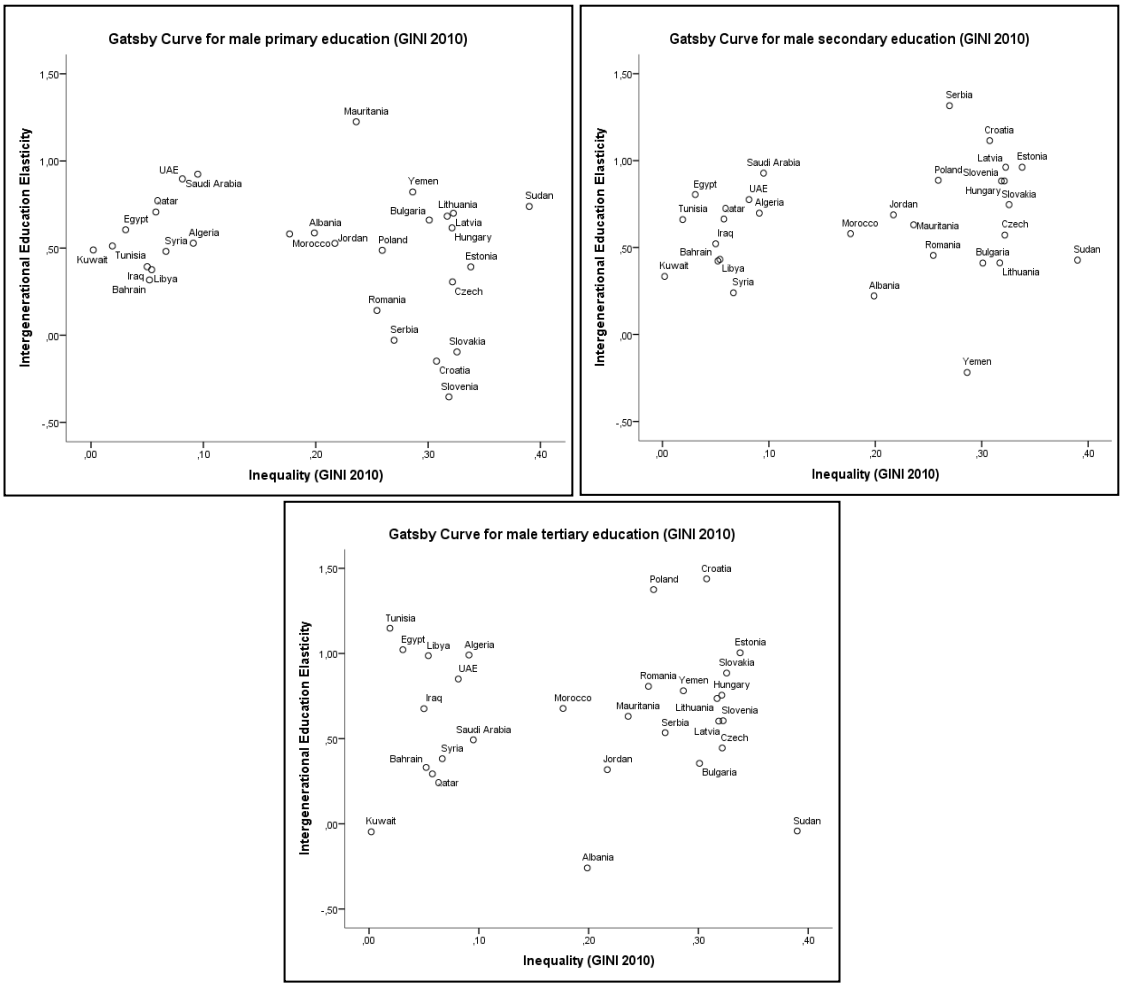

Figure 10: Gatsby Curve for males on education levels (GINI 2010)

7. Comparisons of all the estimated coefficients

This section analyzes how females compare to males respectively in school and non-school attainment, in inequalities related to school attainment in addition to intergenerational mobility as related to the number of years spent in education globally and for each level of education.

a. Arab Countries

When using the total average years of schooling, with the critical t-stat at respectively 5% and 1% are 1.771 and 2.650, males dominate in total education attainment in all Arab countries except Jordan and Qatar. Similar results are obtained for primary education with exceptions including Bahrain, Kuwait, Qatar and the UAE. For secondary education, only Iraq, Mauritania, Saudi Arabia and Sudan show highly statistically significant difference in favor of males. For tertiary education, Egypt, Iraq, Jordan, Kuwait, Mauritania, Morocco,

Syria and Saudi Arabia show the dominance of males. With the negative values, the average years of schooling of females is generally equal or lower than those of males (Table A.13).

The inequality differences between females and males are highly statistically significant at 1% for all Arab countries at both the GINI and the trend measure. Thus more inequalities exist for females. The trend line coefficient says that females have higher trends than males except in Bahrain Jordan, Kuwait, Qatar and UAE (Table A.14).

With regard to the elasticity for the intergenerational educational mobility for global school attainment, females have higher or equal elasticity than men except in Qatar and the UAE where the estimated coefficients are negative implying that males have higher elasticity. As higher elasticity shows lower mobility, it is inferred that females are more immobile than males except in the countries mentioned above (Table A.15).

When comparing mobility of females by educational level, females with average years of schooling in primary school appear to be less mobile or as mobile as men except for Qatar and the UAE. In relation to secondary education, the same result applies. Similarly for tertiary education and with the addition of Algeria with men less mobile, females appear to be as mobile as men or more immobile in other countries (Table A.16).

b. ECE Countries

For comparison of the school attainment between females and males in ECE countries, males do dominate or are equal to females in total education. The same result applies to all levels of education. Poland is the only exception. In this country in primary and secondary education females dominate males on educational attainment (Table A.17). Regarding the GINI coefficient, it is higher or equal for females compared to males in all countries. Therefore the inequalities are higher for females than for males (Table A.18).

In addition, the trend lines are higher for men compared to women except for Estonia, proving that educational attainment measured by average years of schooling was improved more for males than for females during the analyzed period in all ECE countries.

For the global school attainment, females show lower or equal mobility compared to males except in Poland and Serbia where males have higher immobility than females.

With reference to the elasticity for the intergenerational educational mobility for global school attainment, the resulted coefficient appears to be high for all countries as shown in Table A.19. This means that there is no intergenerational mobility for these ECE economies.

When comparing mobility of females by educational level, the elasticity of intergenerational mobility in relation to primary education is higher or equal to that of men in all ECE countries. At the exception of Estonia and Serbia where men show higher elasticity, females have either higher or equal elasticity compared to men in secondary schooling. For tertiary education, the same result applies at the exception of Croatia, Poland and Hungary where men have higher elasticity implying that men are less mobile across generations compared to females in these countries (Table A.20).

8. Cross-country Comparisons of estimated coefficients for females and males within Arab countries and with ECE economies

This set of results relates to the comparison of GINI and intergenerational mobility between Arab countries and with ECE economies. The table in the appendix shows the t-statistic obtained from these comparisons. For this part, the countries in the tables are represented by letter indexed as: A: Algeria, B: Bahrain, C: Egypt, D: Iraq, E: Jordan, F: Kuwait, G: Libya, H: Mauritania, I: Morocco, J: Qatar, K: Saudi Arabia, L: Sudan, M: Syria, N: Tunisia, O: UAE, P: Yemen, Q: Albania, R: Bulgaria, S: Croatia, T: Czech, U: Estonia, V: Hungary, W: Latvia, X: Lithuania, Y: Poland, Z: Romania, AA: Serbia, AB: Slovakia, AC: Slovenia.

The critical values for the t-statistics are 1.771 at 5 % and 2.650 at 1% significance for GINI indexes and 1.833 at 5 % and 2.821 at 1% for intergenerational mobility. The values in the tables are written in bold for 5% level of significance.

a. Arab Countries

Comparisons Education Inequalities for females within the Arab countries for total schooling

For inequalities among females in relation to total education attainment, Algeria appears to have GINI values higher than those of Kuwait and Qatar but they are lower than those in Sudan and Yemen with equalities with the other countries. The GINI for Bahrain does not show any statistical difference with other countries except for Egypt, Iraq, Mauritania, Morocco, Sudan and Yemen that have higher GINI estimates. Egypt shows a higher GINI than for Kuwait and Qatar but is lower than Sudan and Yemen with GINI non-statistically different from other Arab countries. While Iraq shows no differences with other

countries, it has a GINI that is higher than Jordan, Qatar and Kuwait but lower than Sudan and Yemen. Jordan has a GINI that is lower than that of Mauritania, Sudan and Yemen while is not different. Kuwait is not different from the others but lower than Mauritania, Morocco, Sudan, Syria, Tunisia and Yemen. Libya shows no significant statistical differences with other Arab countries except that its GINI is lower than those for Sudan and Yemen. Mauritania has a coefficient that is higher than those of Qatar, Saudi Arabia and the UAE. It has a lower GINI than in Sudan and Yemen but not statistically different from the other countries. Morocco shows a GINI higher than that of Qatar, Saudi Arabia, Syria and the UAE but is lower than in Yemen and its GNI is not statistically different from other Arab countries. Qatar has lower GINI compared to Sudan, Syria, Tunisia and Yemen. Saudi Arabia is lower than Sudan and Yemen (Table A.21).

Comparisons Education Inequalities for males within the Arab countries for total schooling

For males, all Arab countries show lower GINI in comparison with Yemen at the exception of Sudan that shows similar coefficient as in Yemen. It is the same observation for Sudan except for Mauritania and Morocco that have statistically similar GINI (Table A.22).

Comparisons of Intergenerational Mobility in education for females within the Arab countries for total schooling

Regarding intergenerational mobility coefficients for females in Arab countries, Yemen seems to have higher estimates than Algeria, Bahrain, Egypt, Iraq, Jordan, Libya, Qatar, Sudan, Syria, Tunisia and the UAE. But it has lower values when compared to Mauritania. Statistically similar coefficients are obtained for the other countries. This means that Yemen has less mobile females relative to other countries except Mauritania. This latter has higher estimates than Algeria, Bahrain, Egypt, Iraq, Jordan Kuwait and Libya. The coefficients for Mauritania are higher than those of Morocco, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, the UAE and Yemen. The coefficients for Kuwait are lower than those of Libya, Mauritania, Morocco and Qatar (Table A.23).

Comparisons for Intergenerational Mobility in education for males within the Arab countries for total schooling

Regarding intergenerational mobility coefficients for males in Arab countries, Yemen seems to have higher estimates than Algeria, Bahrain, Egypt, Iraq, Jordan, Libya, Qatar, Sudan, Syria, Tunisia and the UAE. But it has lower values when compared to Mauritania.

The UAE has lower values all Arab countries. The same applies to Bahrain, Kuwait and Qatar (Table A.24).

b. ECE countries:

Comparisons Education Inequalities for females within the ECE countries for total schooling

All ECE countries appear to have statistically similar GINI estimates for females. There are though few exceptions where Croatia has higher GINI than Poland and Slovakia and Poland has lower GINI than Serbia and Slovakia, with 0.05 significance level (Table A.25).

Comparisons Education Inequalities for males within the ECE countries for total schooling

For males, all ECE countries have similar level of inequality measured by GINI index except Albania that has higher inequality compared to Bulgaria and Poland at 5% level of significance (Table A.26).

Comparisons for Intergenerational Mobility in education for females within the ECE countries for total schooling

Regarding intergenerational mobility in education for females, there are high variations between Central and East European countries. Albania, Bulgaria and Romania have significant lower coefficients or equal compared to all other countries, meaning that they have higher intergenerational mobility in education compared to all other ECE countries. Hungary has significant higher coefficients compared to all other countries, meaning that they have lower intergenerational mobility in education compared to all other ECE countries (Table A.27).

Comparisons for Intergenerational Mobility in education for males within the ECE countries for total schooling

For males, there are also large variations between Central and East European countries for intergenerational mobility in educational attainment. As for females Albania, Bulgaria and Romania have significant lower coefficients or equal compared to all other countries, meaning that they have higher intergenerational mobility in education compared to all other ECE countries. Among these three countries, Romania has the lowest coefficient. Hungary, Estonia and Serbia have significant higher coefficients compared to all other countries, meaning that they have lower intergenerational mobility in education compared to all other ECE countries.

Among these three countries, Hungary has the highest coefficient, so the highest intergenerational immobility in education (Table A.28).

9. Comparisons of Education Attainment Inequalities (GINI) and Intergenerational Mobility in Education by gender between Arab and ECE Countries

Comparisons of the Education Attainment Inequalities (GINI) for females in the Arab countries relative to females in the ECE countries for total schooling

All coefficient of inequality among females in Arab countries are highly statistically significant and higher than those prevailing in each country from Central and Eastern Europe (Table A.29).

Comparisons for Intergenerational Mobility in education for females in the Arab countries relative to females in the ECE countries for total schooling

Comparing samples of females from Arab countries and ECE countries we observe that all Arab countries have significant lower or equal intergenerational mobility in education compared to Hungary and Croatia. Estonia, Slovakia and Czech Republic have higher or equal intergenerational mobility in education than all Arab countries except Mauritania.

Countries like Bahrain, Iraq, Kuwait, Qatar, Syria and UAE have significant lower or equal intergenerational mobility in education compared to all ECE countries except in some cases for Romania. Mauritania has significant higher intergenerational mobility in education compared to all ECE countries except for Hungary (where it is equality) (Table A.30).

Comparisons of the Education Attainment Inequalities (GINI) for males in the Arab countries relative to males in the ECE countries for total schooling

All inequality coefficients in Arab countries are significantly higher or equal to those from ECE countries. Bahrain and Saudi Arabia have all GINI coefficients not statistically different from those of all ECE countries. It applies also to Kuwait except for Bulgaria, Poland and Slovakia that have lower coefficients. Egypt has estimates higher than those of all ECE countries. The same applies to Iraq, Jordan (except Albania), Libya, Mauritania, Qatar (except for Albania), Morocco, Sudan, Tunisia, the UAE and Yemen (Table A.31).

Comparisons for Intergenerational Mobility in education for males in the Arab countries relative to males in the ECE countries for total schooling

Comparing samples of males from Arab countries and ECE countries we observe that all Arab countries have significant lower or equal intergenerational mobility in education than Estonia, Hungary and Croatia. Latvia and Czech Republic have higher or equal intergenerational mobility in education than all Arab countries except Mauritania.

Countries like Bahrain, Algeria, Iraq, Jordan, Kuwait, Libya, Morocco, Syria and Tunisia have significant lower or equal intergenerational mobility in education compared to all ECE countries except for Romania (Table A.32).

V. Results, Discussion & Implied Policies

These results do have limitations related to data availability and to the use of aggregate information. These limits have certainly affected the computation of the GINI coefficient and the intergenerational mobility. The length of the time series has certainly been critical. But, the major aggregate directions related to both inequality and intergenerational mobility in school attainment for both males and females are already assessed.

These results show that Gatsby curves for educational attainment in Arab countries are similar to the ones discussed in the literature and that are based on intergenerational income mobility and inequality in income. The obtained curves for educational attainment for Arab countries show how low inequalities and high mobility are likely to represent countries where children learn more than their parents. Furthermore, higher inequalities lead to lower intergenerational mobility in educational attainment. But, there are variations among Arab countries as there are heterogeneities in these results.

But, the economic context of Arab countries is such that the increasing feminization of education does not lead to changes in labor markets because of the constraints facing employment and enterprise creation, mainly for women. The feminization of labor markets through the role of education is among the means that enhance the participation of women to development and ensures further involvement of human resources in the growth and development. This is a process that is highly pursued in Arab countries as shown from the results of the present study. The Arab economies are among those countries where lower participation of women is observed but where education appears as an important driver for further feminization of labor markets. But, more reports and publications have been devoted during the last years to the unemployment problem in the Arab economies. They all show the

high rate of unemployment compared to other countries, with unemployment affecting the youngest segments of the population and where educated people are more concerned, with females more affected than males. With the higher and the increasing figures of graduates from tertiary education, reporters and analysts observe the increasing rates of unemployment also among skilled workers. This has led to considering the discrepancies between the education and employment while others focus on the paradox related to the gap between employment and education. Besides these discrepancies, there is the duration of unemployment that warns from excessive unemployment periods for individuals and groups. This persistence in unemployment while generates high economic and social costs, it also induces losses of skills and abilities. But, these trends appear mainly in North African economies, Jordan, Libya, Egypt, Yemen, Syria and Sudan.

Researchers, policymakers, and people are genuinely concerned with the progress of human capital in the Arab region in relation to the unemployment trends discussed. Studies by the World Bank (2010) and the ILO (2012, 2013a and 2013b) stress the need for Arab countries to have more jobs by 2025, only to maintain the current unemployment levels and prevent them from increasing. Dhillon and Yousef (2009) show that the duration of unemployment for new graduates is long in Arab countries: 3 years in Morocco and 2.5 years in Egypt. Chamlou, Moghadam, and Karshenas (2016) emphasize that Middle East and North Africa (MENA) countries have made good progress in educating women, with schooling attainments getting closer to those of men with a reduction of fertility rates. But most of MENA women remain out of the labor force. Having so few women working is costly for the countries in the region, limiting their economic size and growth prospects.

The attained results indicate that further education policies devoted to reduce inequalities in education need to be pursued in order to enhance equality in school attainment at the levels of primary, secondary and tertiary education. While the results are valid for both males and females, the situation of women appears to be more critical and specific gender policies are needed.

These policies need to be complemented by policies in other sectors such as health and other socio-economic areas as important interdependencies exist between education and the rest of the economy. In addition, macroeconomic policies are also invited to account for the reduction of education inequalities. These overall policies need to target all elements that are likely to be sources of inequalities (gender, territories and types of schooling systems besides children of different ages and with and without disabilities).

The attained results show first, that there has been a decreasing pattern for inequalities in education over the period 1950-2010. This pattern has concerned all Arab countries without exception. Second, only few Arab countries exhibit high levels of mobility in education attainment as most countries have shown high levels of elasticity when regressing the education attainment of the young generation on that of their parents. Third, education attainment can also be represented within the framework of a Gatsby curve with increases of inequalities linked with lower intergenerational mobility in education.

The attained results are also confirmed by the analysis of cross-sectional data as the School-to-work transition survey micro data files. The International Labor Organization has been conducting the school to work transition surveys in more than 30 countries between 2012 and 2015. The Arab countries included up to now are Egypt (2012, 2014) with respectively 5198 and 5758 observations, Jordan (2013) with 5405 surveys, the Occupied Palestinian Territories (2013) with 4320 observations besides an older survey for Syria (2007). There are also surveys for ECE countries where the more recent is of 2015. The key results of these surveys as they appear respectively in different publications of ILO are shown as ONEQ (2014) for Tunisia, Sadeq and Elder (2014) for Palestine, Mryyan and Barcuccu (2014) for Jordan, Alissa (2014) for Syria, El Zanaty and Associates (2007) and Barsoum, Ramadan and Mostafa (2014) for Egypt. Elder, S, Barcucci, V., Gurbuzer, Y., Perardel, Y. and Principi, M. (2015) analyze the estimates for Central and Eastern Europe (Albania, Bosnia and Herzegovina, Bulgaria, Georgia, Hungary, Kosovo, Macedonia, Montenegro, Romania and Serbia); Kyrgyzstan, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan); and high-income countries (Croatia, Czech Republic, Estonia, Latvia, Lithuania, Poland, Russian Federation, Slovenia and Slovak Republic), among others. They find that universal education is well established.

The results attained in this research are also similar to those of Salehi-Isfahan, Belhaj-Hassine and Ragui (2014) that analyze equality of opportunity in educational achievement in some Arab countries. The authors note that the effect of parental education on the distribution of scores changes with the education level. In Egypt, parents with tertiary education are equally represented at low and high scores (about 10% for fathers and 5% for mothers), but not for those with high school education, which seems to significantly affect the likelihood of ending up at the top deciles.

This discussion emphasizes how the monitoring of both inequality and intergenerational mobility in education attainment is critical for development and inclusion of the newest generations. It shows also that specific global and gender targeted policies in addition to

sector policies need to be implemented. Thus, employment, social and income policies appear to be critical with the observed levels of intergenerational mobility in education. Further monitoring is also needed to enhance the knowledge about the opportunities and barriers faced at both levels of employment, enterprise creation and business conduct, mainly for women.

Conclusion and Policy Recommendations

The limitations in secondary data directly related to the topic have allowed the use of other sets of secondary information such as the Barro and Lee (2010, 2013 and 2014) database about education attainment. The length of the series used has also allowed to assess inequalities with GINI coefficients for the Arab countries, given the lack of data on this matter. The data on school attainment has also allowed the assessment of intergenerational mobility in school attainment. The methods used include direct assessment of inequality through GINI measures. It also includes the estimation of mobility through generations by mobilizing time series regressions applied to both Arab and ECE countries. The links between inequality and intergenerational mobility in education attainment are estimated using regression analysis. Then the comparisons between variables and countries are conducted using t-statistics. The attained results show the decreasing levels of inequalities among females with still high levels in comparison to males in the same country but also over all Arab countries. They also show how intergenerational mobility of females does exist in most Arab countries with few exceptions. The situation is better in ECE countries where both inequality and intergenerational mobility are more favorable, except for few countries. This is confirmed with the Gatsby curves. The results say that Arab countries are invited to promote further economic policies to reduce the levels of inequality and enhance intergenerational mobility mainly among females, through ensuring more incentives for families to educate and for the promotion of employment. Similar recommendations could be set for ECE countries but the undergoing policies in these countries seem to account for the consequences of inequality and intergenerational mobility. But, further future cross-sectional and panel data are needed for improving the results through the development of more economic research oriented investigations on Arab countries.

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The main implications and recommendations derived include further social and economic research devoted to enrich the policy process. The most important implications of the investigations and evidence introduced in this research show that:

- Ensuring instruments that promote access to the highest levels of education with means to reduce drop-outs with the development of incentives for the support of females and males from poor neighborhoods,
- Ensuring that this access is facilitated to all household categories including the poorest segments with the inclusion of the roles of vocational education as a component of the overall educational system,
- Ensuring higher intergenerational mobility with new generations accessing higher levels of education compared to their parents,
- Monitoring and evaluating the inequality and intergenerational concerns.

The following components show the policy recommendations that are likely to be emphasized:

- Further policy coordination mainly in relation to access, pursuit and graduation with increasing of incentives to include children and students from the poorest backgrounds with vocational education appearing as a major constituent of the educational system,
- Development of further linkages between education and employment with intensive coordination at the global and local levels,
- Development of assessment tools with international tests and surveys et all levels of education and employment,
- Measurement of inequalities and intergenerational mobility to reduce the gap with the lack of social mobility,
- Active involvement of civil society and the private sector,
- Special attention needs to be given to gender issues with focus on the inclusion of females mainly from the poorest social backgrounds,
- Support more Non-governmental agencies that focus on intergenerational mobility with comparisons of outcomes of different generations.

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Appendix

Table A.3: The Coefficients and t-statistics for the trend line regressions for the different levels of schooling for the total population in Arab Countries

Countries	Average Years of Schooling								N
	Total		Primary		Secondary		Tertiary		
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	
Algeria	0.543	14.463	0.333	14.699	0.185	12.850	0.025	6.289	13
Bahrain	0.639	12.950	0.348	11.501	0.258	15.338	0.034	6.414	13
Egypt	0.611	15.005	0.337	16.683	0.250	11.697	0.024	6.215	13
Iraq	0.625	20.472	0.385	21.791	0.203	15.768	0.037	10.282	13
Jordan	0.723	29.241	0.381	51.546	0.311	17.255	0.031	16.920	13
Kuwait	0.452	13.249	0.173	17.349	0.259	7.610	0.020	3.991	13
Libya	0.705	18.326	0.402	19.696	0.254	12.540	0.048	4.869	13
Mauritania	0.270	12.128	0.192	11.546	0.073	12.572	0.006	9.833	13
Morocco	0.406	17.219	0.229	17.685	0.151	17.202	0.026	11.541	13
Qatar	0.529	34.840	0.297	16.785	0.195	40.370	0.037	20.910	13
Saudi Arabia	0.534	17.361	0.288	20.327	0.220	13.237	0.027	13.952	13
Sudan	0.274	15.675	0.214	14.633	0.054	13.377	0.006	4.202	13
Syria	0.486	19.007	0.342	23.177	0.131	9.540	0.013	8.437	13
Tunisia	0.597	19.881	0.359	27.208	0.210	13.595	0.028	6.221	13
UAE	0.777	18.130	0.428	18.036	0.306	19.094	0.042	9.769	13
Yemen	0.295	6.749	0.195	7.142	0.094	6.100	0.007	5.806	13

Table A.2: The Coefficients and t-statistics for the trend line regressions for the different levels of schooling for the female population in Arab Countries

Countries	Average Years of Schooling								N
	Total		Primary		Secondary		Tertiary		
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	
Algeria	0.499	10.195	0.299	9.811	0.176	11.203	0.024	4.863	13
Bahrain	0.703	14.984	0.380	13.661	0.284	16.281	0.039	7.097	13
Egypt	0.552	11.930	0.309	14.301	0.224	9.656	0.020	5.688	13
Iraq	0.529	13.145	0.341	13.917	0.159	10.536	0.029	9.740	13
Jordan	0.768	18.294	0.428	24.985	0.316	12.686	0.024	14.624	13
Kuwait	0.585	14.950	0.233	28.811	0.320	9.614	0.031	8.278	13
Libya	0.808	10.963	0.432	13.400	0.315	8.718	0.060	4.779	13
Mauritania	0.195	8.351	0.148	8.268	0.045	7.944	0.002	8.253	13
Morocco	0.328	11.965	0.182	12.739	0.128	11.215	0.018	9.016	13
Qatar	0.699	28.306	0.353	21.659	0.279	31.555	0.067	22.588	13
Saudi Arabia	0.612	10.672	0.335	12.472	0.242	8.673	0.034	9.823	13
Sudan	0.246	11.463	0.189	11.899	0.050	9.754	0.007	4.386	13
Syria	0.495	15.423	0.355	15.634	0.130	10.573	0.010	7.798	13
Tunisia	0.556	12.704	0.337	18.116	0.194	8.993	0.025	4.838	13
UAE	0.928	17.074	0.486	17.855	0.383	17.350	0.059	10.880	13
Yemen	0.177	4.785	0.109	5.147	0.063	4.244	0.006	4.585	13

Table A.3: The Coefficients and t-statistics for the trend line regressions for the different levels of schooling for the male population in Arab Countries

Countries	Average Years of Schooling								N
	Total		Primary		Secondary		Tertiary		
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	
Algeria	0.602	14.970	0.380	15.943	0.195	10.944	0.027	9.595	13
Bahrain	0.580	11.305	0.314	10.015	0.235	13.362	0.030	5.564	13
Egypt	0.662	17.057	0.361	15.154	0.274	13.558	0.027	7.022	13
Iraq	0.720	24.633	0.428	22.027	0.246	19.716	0.046	11.089	13
Jordan	0.685	44.929	0.333	31.220	0.313	19.828	0.039	13.177	13
Kuwait	0.371	11.768	0.138	11.117	0.219	6.541	0.015	2.285	13
Libya	0.610	23.637	0.371	14.733	0.202	16.888	0.036	4.611	13
Mauritania	0.349	14.772	0.239	13.771	0.100	15 .051	0.010	9.050	13
Morocco	0.487	22.974	0.280	22.967	0.171	26.381	0.035	12.514	13
Qatar	0.438	21.343	0.264	12.285	0.151	25.794	0.022	9.241	13
Saudi Arabia	0.432	32.158	0.224	31.621	0.189	20.544	0.019	9.226	13
Sudan	0.311	18.446	0.253	16.230	0.055	12.748	0.004	4.607	13
Syria	0.492	14.322	0.341	19.201	0.135	7.634	0.018	9.165	13
Tunisia	0.630	31.453	0.382	27.418	0.217	22.065	0.032	7.500	13
UAE	0.686	15.736	0.388	15.191	0.265	17.103	0.034	7.708	13
Yemen	0.405	7.714	0.281	8.154	0.118	6.860	0.008	7.434	13

Table A.4: The Coefficients and t-statistics for the trend line regressions for the different levels of schooling for the total population in Eastern and Central European Countries (ECE)

Countries	Average Years of Schooling								N
	Total		Primary		Secondary		Tertiary		
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	
Albania	0.718	17.717	0.465	13.266	0.244	15.982	0.009	2.774	13
Bulgaria	0.606	17.526	0.318	23.316	0.238	10.180	0.050	21.236	13
Croatia	0.446	22.200	0.120	5.173	0.292	8.789	0.035	6.368	13
Czech	0.440	19.306	0.111	9.257	0.296	14.848	0.034	10.556	13
Estonia	0.530	18.408	0.075	13.976	0.385	15.372	0.070	9.252	13
Hungary	0.415	11.705	0.089	5.956	0.283	10.205	0.044	11.695	13
Latvia	0.605	29.165	0.240	14.506	0.329	16.266	0.036	12.093	13
Lithuania	0.617	47.025	0.269	19.223	0.294	27.583	0.054	8.812	13
Poland	0.506	42.501	0.239	13.856	0.229	12.663	0.039	6.288	13
Romania	0.571	20.507	0.250	7.787	0.297	26.338	0.024	11.187	13
Serbia	0.531	24.627	0.195	7.366	0.297	7.221	0.039	15.533	13
Slovakia	0.377	21.053	0.065	3.581	0.274	10.015	0.037	9.188	13
Slovenia	0.557	22.415	0.134	2.906	0.374	13.172	0.050	10.693	13

Table A.5: The Coefficients and t-statistics for the trend line regressions for the different levels of schooling for the female population in Eastern and Central European Countries

Countries	Average Years of Schooling								N
	Total		Primary		Secondary		Tertiary		
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	
Albania	0.744	17.496	0.485	13.844	0.249	18.364	0.011	4.721	13
Bulgaria	0.652	21.321	0.332	26.091	0.259	12.484	0.060	21.472	13
Croatia	0.478	18.875	0.164	8.318	0.274	7.752	0.039	6.359	13
Czech	0.475	17.305	0.128	11.916	0.317	13.369	0.030	9.361	13

Estonia	0.550	16.465	0.066	22.013	0.398	15.917	0.086	8.014	13
Hungary	0.424	10.186	0.095	5.474	0.279	9.331	0.051	9.921	13
Latvia	0.623	27.546	0.236	15.925	0.343	16.756	0.044	15.191	13
Lithuania	0.650	53.184	0.277	22.662	0.310	39.743	0.063	8.396	13
Poland	0.533	46.158	0.253	13.782	0.234	13.428	0.046	6.334	13
Romania	0.589	28.899	0.279	10.565	0.285	20.444	0.025	9.604	13
Serbia	0.593	27.804	0.276	10.253	0.280	6.780	0.037	11.148	13
Slovakia	0.402	16.934	0.077	5.355	0.284	9.187	0.041	7.190	13
Slovenia	0.636	23.488	0.211	4.364	0.368	11.664	0.057	8.332	13

Table A.6: The Coefficients and t-statistics for the trend line regressions for the different levels of schooling for the male population in Eastern and Central European Countries

Countries	**Average Years of Schooling**								**N**
	Total		**Primary**		**Secondary**		**Tertiary**		
	Coefficient	**t-statistic**	**Coefficient**	**t-statistic**	**Coefficient**	**t-statistic**	**Coefficient**	**t-statistic**	
Albania	0.686	17.773	0.447	12.466	0.230	16.864	0.010	1.988	13
Bulgaria	0.537	16.002	0.315	22.189	0.182	7.286	0.040	13.674	13
Croatia	0.412	22.842	0.065	2.440	0.316	9.773	0.032	6.463	13
Czech	0.396	14.620	0.093	6.071	0.266	13.471	0.037	5.777	13
Estonia	0.506	23.573	0.088	9.201	0.367	15.743	0.052	12.068	13
Hungary	0.411	13.546	0.082	6.670	0.293	11.765	0.036	15.667	13
Latvia	0.585	26.302	0.245	12.478	0.314	14.104	0.027	12.040	13
Lithuania	0.580	30.612	0.268	13.555	0.268	16.841	0.045	9.792	13
Poland	0.486	31.695	0.225	14.541	0.230	11.798	0.030	7.081	13
Romania	0.553	13.505	0.218	5.683	0.313	30.917	0.023	14.841	13
Serbia	0.437	16.193	0.088	3.431	0.312	7.198	0.037	25.692	13
Slovakia	0.343	22.050	0.054	2.474	0.256	12.597	0.033	16.603	13
Slovenia	0.471	21.101	0.054	1.270	0.374	15.250	0.043	17.450	13

Table A.7: GINI trend lines coefficients with the t-statistics for females and males, Arab countries

Countries	**Females**		**Males**		**N**
	Coefficient	**t-statistic**	**Coefficient**	**t-statistic**	
Algeria	-0.0449**	-9.8276	-0.0502**	-11.3631	13
Bahrain	-0.0681**	-12.6138	-0.0589**	-9.9246	13
Egypt	-0.0534**	-12.3576	-0.0624**	-15.9627	13
Iraq	-0.0518**	-14.3986	-0.0669**	-18.4979	13
Jordan	-0.0602**	-12.8108	-0.0338**	-4.7698	13
Kuwait	-0.0594**	-19.5871	-0.0379**	-19.2750	13
Libya	-0.0693**	-11.4430	-0.0528**	-24.0912	13
Mauritania	-0.0152**	-7.3956	-0.0299**	-12.5525	13
Morocco	-0.0320**	-13.0370	-0.0483**	-28.0439	13
Qatar	-0.0534**	-9.6708	-0.0405**	-34.2342	13
Saudi Arabia	-0.0055**	-11.6092	-0.0325**	-10.2559	13
Sudan	-0.0234**	-15.6180	-0.0249**	-21.3930	13
Syria	0.0507**	-18.5029	-0.0415**	-10.0447	13
Tunisia	-0.0518**	-14.0027	-0.0584**	-29.1456	13
UAE	-0.0597**	-8.2746	-0.0540**	-12.5864	13
Yemen	-0.0169**	-4.8710	-0.0407**	-7.6489	13

Table A.8: GINI trend lines coefficients with the t-statistics for females and males, ECE countries

Countries	Females		Males		N
	Coefficient	t-statistics	Coefficient	t-statistics	
Albania	-0.0328**	-4.4895	-0.0173*	-2.6141	13
Bulgaria	-0.0052	-0.6797	0.0052	0.8810	13
Croatia	-0.0235**	-3.9104	-0.0014	-0.1867	13
Czech	0.0095	1.3072	0.0214**	4.3652	13
Estonia	0.0170*	2.0272	0.0144*	2.0091	13
Hungary	0.0021	0.3084	0.0097	1.2878	13
Latvia	0.0131*	1.9726	0.0177**	3.1081	13
Lithuania	-0.0029	-0.3339	0.0103	1.6064	13
Poland	-0.0026	-0.4246	0.0074	1.4093	13
Romania	-0.0087	-1.3401	0.0082*	1.7783	13
Serbia	-0.0314**	-5.8889	-0.0100	-1.4332	13
Slovakia	0.0039	0.5192	0.0185**	4.4464	13
Slovenia	0.0051	0.6800	0.0152*	2.3001	13

Table A.9: Elasticities for intergenerational mobility for the total education 1950-2010 Arab countries

Countries	Females		Males		N
	Elasticies	t-statistic	Elasticies	t-statistic	
Algeria	0.7780**	2.9652	0.4926**	5.7261	9
Bahrain	0.3810**	6.7742	0.3750**	5.5311	9
Egypt	0.7210**	10.3437	0.7040**	6.1122	9
Iraq	0.5850**	14.7520	0.4530**	12.4642	9
Jordan	0.7300**	23.5956	0.6105**	12.3082	9
Kuwait	0.3990**	8.2180	0.5080**	4.8096	9
Libya	0.5350**	6.5837	0.4585**	9.9012	9
Mauritania	1.6100**	25.3657	1.0714**	9.3417	9
Morocco	0.8120**	11.5910	0.5882**	23.0544	9
Qatar	0.6030**	12.8908	0.6757**	7.3023	9
Saudi Arabia	1.0950**	7.3929	0.9303**	17.5510	9
Sudan	0.7330**	9.2872	0.6836**	6.5675	9
Syria	0.6360**	7.9456	0.4155**	5.1599	9
Tunisia	0.6850**	11.7355	0.5826**	11.4846	9
UAE	0.5720**	15.6078	0.8545**	8.6951	9
Yemen	1.0660**	2.3200	0.8562**	4.2351	9

Table A.10: Elasticities for Intergenerational Mobility for Education by schooling levels Arab countries

Countries	Females			Males			N
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	
Algeria	0.762* (2.428)	0.749* (2.722)	0.667 (1.679)	0.528** (5.950)	0.698** (3.462)	0.991** (3.029)	9
Bahrain	0.331** (6.754)	0.424** (7.035)	0.430* (2.778)	0.317** (4.981)	0.423** (7.330)	0.331 (1.592)	9
Egypt	0.669** (9.935)	0.764** (7.595)	0.972** (6.428)	0.605** (5.095)	0.805** (6.064)	1.022** (4.749)	9
Iraq	0.532** (17.037)	0.606** (11.281)	0.671** (5.191)	0.393** (13.717)	0.522** (8.878)	0.676** (13.101)	9

Jordan	0.641** (26.595)	0.775** (9.808)	0.415** (3.756)	0.527** (8.248)	0.688** (10.335)	0.318** (5.353)	9
Kuwait	0.489** (16.273)	0.328** (5.137)	0.482** (3.435)	0.489** (16.273)	0.334* (2.550)	-0.047 (-0.165)	9
Libya	0.466** (6.218)	0.130 (0.487)	4.229** (5.842)	0.376** (8.376)	0.432** (8.224)	0.987* (2.092)	9
Mauritania	1.627** (23.619)	1.106** (9.261)	0.491 (1.519)	1.225** (11.694)	0.631** (6.730)	0.631** (3.941)	9
Morocco	0.768** (11.999)	0.877** (11.089)	0.829** (2.903)	0.581** (19.297)	0.580** (35.069)	0.677** (3.091)	9
Qatar	0.590** (9.750)	0.609** (14.957)	0.544** (26.411)	0.707** (6.008)	0.664** (8.908)	0.293* (2.210)	9
Saudi Arabia	1.063** (7.402)	1.027** (6.500)	0.929** (5.606)	0.924** (12.685)	0.928** (28.477)	0.493** (3.755)	9
Sudan	0.696** (12.370)	0.768** (4.437)	0.600* (1.979)	0.739** (5.843)	0.428** (5.454)	-0.042 (-0.082)	9
Syria	0.703** (8.383)	0.463** (7.045)	0.313* (2.469)	0.481** (6.702)	0.240* (2.597)	0.382** (2.922)	9
Tunisia	0.588** (9.910)	0.827** (13.729)	1.395** (2.973)	0.512** (8.686)	0.661** (18.369)	1.148** (6.950)	9
UAE	0.575* (16.094)	0.556** (15.715)	0.632** (9.433)	0.897** (9.643)	0.776** (9.049)	0.850* (2.516)	9
Yemen	1.016* (2.313)	-0.715 (-1.157)	1.108 (1.379)	0.822** (5.193)	-0.218 (-0.341)	0.781* (2.164)	9

Table A.11: Elasticities for intergenerational mobility for total Education for ECE

Countries	**Females**		**Males**		**N**
	Elasticities	**t-statistics**	**Elasticities**	**t-statistics**	
Albania	0.5804**	5.0464	0.5653**	5.3539	9
Bulgaria	0.5738**	6.9412	0.5914**	5.0997	9
Croatia	1.0505**	13.6637	0.9222**	9.2529	9
Czech	1.2114**	11.8986	0.7404**	4.6267	9
Estonia	1.3051**	27.4778	1.0647**	22.7345	9
Hungary	1.5737**	5.5043	1.3389**	10.8025	9
Latvia	0.9165**	18.8031	0.9298**	13.9257	9
Lithuania	0.7029**	18.7713	0.6180**	12.5424	9
Poland	0.7870**	20.6261	0.8036**	13.2125	9
Romania	0.6324**	9.7442	0.3919**	8.4456	9
Serbia	0.8422**	18.9272	1.0616**	9.3184	9
Slovakia	1.1232**	10.4462	0.6967**	8.5591	9
Slovenia	0.6614**	9.3172	0.6247**	8.6474	9

Table A.12: Elasticities for intergenerational mobility in Education by schooling level ECE

Countries	Females			Males			N
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	
Albania	0.644** (3.822)	0.277 (1.139)	-0.167 (-0.425)	0.587** (3.173)	0.222 (0.7668)	-0.259 (-0.543)	9
Bulgaria	0.639** (8.634)	0.445** (4.319)	0.511** (10.198)	0.661** (7.175)	0.411* (2.083)	0.355** (4.238)	9
Croatia	0.331** (3.861)	1.133** (43.388)	1.145** (9.894)	-0.149 (-0.912)	1.115** (14.348)	1.438** (5.139)	9
Czech	0.747**	0.743**	0.725**	0.306	0.572**	0.445*	9

	(5.431)	(17.635)	(7.773)	(1.412)	(3.837)	(2.125)	
Estonia	0.777** (15.755)	0.898** (22.330)	1.173** (9.025)	0.392** (4.237)	0.962** (20.787)	1.004** (7.085)	9
Hungary	0.392 (1.037)	0.914** (15.733)	0.683** (10.690)	0.616* (2.256)	0.883** (8.879)	0.755** (7.434)	9
Latvia	0.741** (4.662)	0.880** (15.967)	0.722** (10.345)	0.700** (3.477)	0.962** (9.121)	0.605** (4.194)	9
Lithuania	0.782** (6.790)	0.531** (15.925)	0.717** (7.398)	0.683** (3.947)	0.412** (6.460)	0.736** (5.499)	9
Poland	0.461** (11.033)	0.905** (9.191)	1.103** (5.198)	0.487** (12.078)	0.887** (5.180)	1.375** (4.465)	9
Romania	0.419** (4.984)	0.609** (15.236)	1.028** (15.238)	0.142* (1.852)	0.455** (22.067)	0.807** (7.567)	9
Serbia	0.397** (4.995)	1.082** (33.759)	0.784** (11.356)	-0.029 (-0.158)	1.316** (20.212)	0.535** (12.208)	9
Slovakia	0.232 (1.777)	0.752** (9.328)	0.871** (15.721)	-0.096 (-0.494)	0.747** (6.297)	0.885** (13.650)	9
Slovenia	0.088 (0.676)	0.976** (9.401)	0.828** (6.394)	-0.354 (-1.524)	0.883** (14.365)	0.603** (7.147)	9

Table A.13: t-stat for Educational Attainment for Females compared to Males for Arab Countries

Countries	Values for Females relative to Males per country 1950-2010			
	AYS ToS	AYS PS	AYS SS	AYS TeS
Algeria	**-5.9461**	**-2.012**	-1.265	-0.882
Bahrain	**-1.9833**	-0.909	-0.118	-0.477
Egypt	**-5.9914**	**-1.857**	-1.403	**-2.917**
Iraq	**-6.2774**	**-1.718**	**-1.947**	**-1.739**
Jordan	-0.3172	**-1.936**	-1.374	**-2.680**
Kuwait	**-1.8023**	-1.083	-0.058	**-1.142**
Libya	**-3.0184**	**-1.912**	0.372	0.741
Mauritania	**-8.0743**	**-2.227**	**-2.429**	**-3.772**
Morocco	**-6.1679**	**-1.852**	-1.659	**-1.798**
Qatar	-0.0093	-0.219	0.272	0.104
Saudi Arabia	**-10.4568**	**-3.584**	**-2.187**	**-3.674**
Sudan	**-8.3285**	**-2.398**	**-2.375**	-1.274
Syria	**-7.7843**	**-2.463**	-1.533	**-2.804**
Tunisia	**-6.1569**	**-1.907**	-1.586	-1.263
UAE	-0.1811	-0.235	0.200	-0.103
Yemen	**-6.0327**	**-1.950**	-1.304	-0.986

Table A.14: t-stat for Educational Attainment for females compared to males for Arab Countries

Countries	GINI	Trend line
Algeria	**6.5629**	**10.8239**
Bahrain	**2.1851**	**-14.9535**
Egypt	**6.1793**	**20.1544**
Iraq	**6.3252**	**38.5570**
Jordan	**5.8318**	**-40.3068**
Kuwait	**3.6692**	**-78.7090**
Libya	**4.9015**	**-33.0784**
Mauritania	**9.3205**	**61.1696**
Morocco	**6.6891**	**70.0903**
Qatar	**1.1846**	**-29.7901**
Saudi Arabia	**10.6840**	**61.7311**
Sudan	**11.8387**	**10.1513**
Syria	**9.5302**	**244.1551**
Tunisia	**6.3790**	**20.3997**
UAE	**2.2335**	**-8.8358**
Yemen	**6.1673**	**48.7138**

Table A.15: Comparing Gender Mobility in Global Educational Attainment for Arab Countries

Countries	Elasticities
Algeria	**3.2824**
Bahrain	0.6132
Egypt	1.1363
Iraq	**21.4588**
Jordan	**17.1289**
Kuwait	**-8.4389**
Libya	**7.3590**
Mauritania	**36.9736**
Morocco	**27.0362**
Qatar	**-6.3117**
Saudi Arabia	**9.4235**
Sudan	**3.5301**
Syria	**17.4751**
Tunisia	**11.9166**
UAE	**-24.2391**
Yemen	**3.7598**

Table 416: Comparisons between female and male mobility measured by the estimated elasticities related to each category of schooling levels for Arab Countries.

Countries	Primary	Secondary	Tertiary
Algeria	**2.151**	0.446	**-1.889**
Bahrain	0.518	0.028	1.145
Egypt	1.416	-0.751	-0.573
Iraq	**9.787**	**3.167**	-0.108
Jordan	**4.980**	**2.522**	**2.313**
Kuwait	0.000	-0.127	**4.978**
Libya	**3.098**	**-3.319**	**11.260**
Mauritania	**9.616**	**9.386**	-1.164
Morocco	**7.921**	**11.015**	1.270
Qatar	**-2.645**	**-1.934**	**5.595**
Saudi Arabia	**2.589**	**1.847**	**6.182**
Sudan	-0.944	**5.363**	**3.226**
Syria	**6.032**	**5.900**	-1.133
Tunisia	**2.758**	**7.101**	1.491
UAE	**-9.699**	**-7.102**	**-1.900**
Yemen	1.248	-1.676	1.115

Table A.17: t-stat for Educational Attainment for Females compared to Males for ECE countries

Countries	Values for Females relative to Males per country 1950-2010			
	AYS ToS	AYS PS	AYS SS	AYS TeS
Albania	**-2.8202**	-0.643	-0.965	**-3.107**
Bulgaria	-1.4762	-0.765	0.062	-0.423
Croatia	**-7.7683**	**-3.289**	-1.492	-1.389
Czech	**-4.3712**	-0.724	-1.241	**-2.762**
Estonia	0.001	0.129	-0.063	0.207
Hungary	**-2.7119**	-0.744	-0.658	-1.423
Latvia	-1.4515	-0.590	-0.273	-0.542
Lithuania	**-2.5864**	-1.009	-0.610	-0.036
Poland	**-2.0574**	**11.794**	**1.887**	1.055
Romania	**-4.7507**	**-1.510**	-1.123	**-1.806**
Serbia	**-6.7316**	**-2.848**	-1.127	-0.538
Slovakia	**-5.8472**	-1.609	-1.548	-1.360
Slovenia	**-4.1403**	-1.780	-0.705	-0.423

Table A.18: t-stat for GINI and trend line for females compared to males for ECE countries 1950-2010

Countries	**GINI**	**Trend line**
Albania	**1.8287**	**-20.3762**
Bulgaria	**3.2254**	**-14.0003**
Croatia	**6.0960**	**-30.0181**
Czech	0.9963	**-17.5413**
Estonia	1.1193	**2.9667**
Hungary	**1.9813**	**-9.5483**
Latvia	0.5922	**-6.8090**
Lithuania	1.4382	**-15.8996**
Poland	**2.8516**	**-16.1985**
Romania	-0.0971	**-27.5900**
Serbia	**6.7580**	**-31.8102**
Slovakia	-0.3919	**-22.3366**
Slovenia	**2.8523**	**-13.1749**

Table A.19: Comparing Gender Mobility in Global Educational Attainment for ECE Countries

Countries	**Elasticity**
Albania	0.8695
Bulgaria	-1.1156
Croatia	**9.1713**
Czech	**22.3513**
Estonia	**32.4368**
Hungary	**6.7821**
Latvia	-1.4464
Lithuania	**12.3504**
Poland	**-2.0782**
Romania	**27.1267**
Serbia	**-16.1448**
Slovakia	**28.4616**
Slovenia	**3.2648**

Table A.20: t-statistic comparison of elasticity between females and males for the ECE countries

Countries	Primary	Secondary	Tertiary
Albania	0.685	0.437	0.445
Bulgaria	-0.573	0.464	**4.778**
Croatia	**7.795**	0.632	**-2.900**
Czech	**5.152**	**3.306**	**3.672**
Estonia	**11.025**	**-3.096**	**2.638**
Hungary	-1.444	0.797	**-1.787**
Latvia	0.480	**-2.070**	**2.191**
Lithuania	1.420	**4.935**	-0.361
Poland	-1.343	0.272	**-2.178**
Romania	**7.284**	**10.266**	**5.233**
Serbia	**6.327**	**-9.709**	**9.152**
Slovakia	**4.209**	0.099	-0.496
Slovenia	**4.980**	**2.316**	**4.359**

Table A.21: Comparisons of the Education Attainment Inequalities (GINI) for females within the Arab Countries for Total Education

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A	0.000	1.924	-0.147	-0.281	1.572	2.365	0.454	-0.944	-1.531	2.397	1.308	-2.488	0.515	0.057	1.376	-3.666
B		0.000	-1.945	-2.078	-0.430	0.193	-1.231	-2.914	-3.238	0.148	-0.729	-3.974	-1.459	-1.803	-0.558	-4.811
C			0.000	-0.121	1.607	2.349	0.549	-0.638	-1.209	2.373	1.357	-2.018	0.619	0.193	1.424	-3.035
D				0.000	1.747	2.505	0.661	-0.493	-1.094	2.537	1.501	-1.923	0.757	0.320	1.558	-2.973
E					0.000	0.673	-0.879	-2.648	-3.004	0.640	-0.305	-3.830	-1.077	-1.452	-0.144	-4.773
F						0.000	-1.511	-3.662	-3.928	-0.055	-1.012	-4.839	-1.832	-2.203	-0.808	-5.829
G							0.000	-1.171	-1.609	1.501	0.630	-2.254	-0.036	-0.392	0.732	-3.048
H								0.000	-1.109	3.811	2.429	-2.907	1.542	0.923	2.369	-5.370
I									0.000	4.056	2.812	-1.069	2.035	1.476	2.744	-2.596
J										0.000	-0.989	-5.041	-1.841	-2.224	-0.779	-6.099
K											0.000	-3.700	-0.795	-1.191	0.149	-4.719
L												0.000	2.961	2.332	3.527	-1.824
M													0.000	-0.431	0.898	-4.067
N														0.000	1.268	-3.389
O															0.000	-4.434
P																0.000

Table A.52: Comparisons of the Education Attainment Inequalities (GINI) for males within the Arab Countries for Total Education

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A	0.000	1.093	0.073	0.045	1.723	1.896	0.434	-1.428	-1.525	1.006	2.704	-2.539	1.293	0.208	0.408	-3.445
B		0.000	-0.930	-0.921	0.348	0.471	-0.688	-2.530	-2.507	-0.297	1.131	-3.524	-0.007	-0.847	-0.688	-4.259
C			0.000	-0.022	1.432	1.573	0.318	-1.309	-1.433	0.802	2.252	-2.237	1.063	0.120	0.298	-3.119
D				0.000	1.393	1.525	0.330	-1.213	-1.349	0.792	2.167	-2.085	1.042	0.139	0.310	-2.957
E					0.000	0.151	-1.221	-3.916	-3.512	-0.829	1.015	-5.435	-0.441	-1.370	-1.202	-5.801
F						0.000	-1.379	-4.250	-3.742	-1.008	0.888	-5.878	-0.600	-1.520	-1.354	-6.116
G							0.000	-1.934	-1.959	0.511	2.155	-3.049	0.809	-0.202	-0.015	-3.873
H								0.000	-0.384	3.003	5.552	-1.520	3.266	1.554	1.847	-2.764
I									0.000	2.770	4.678	-0.703	3.014	1.643	1.892	-1.937
J										0.000	1.924	-4.473	0.360	-0.704	-0.513	-5.031
K											0.000	-7.457	-1.454	-2.244	-2.101	-7.237
L												0.000	4.667	2.561	2.913	-1.743
M													0.000	-0.980	-0.802	-5.207
N														0.000	0.183	-3.431
O															0.000	-3.748
P																0.000

Table 6: Comparisons for Intergenerational Mobility in education for females within the Arab countries for total schooling

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A	0.000	**4.440**	0.630	**2.174**	0.545	**4.262**	**2.655**	**-9.249**	-0.376	**1.970**	**-3.157**	0.493	1.553	1.038	2.333	-1.632
B		0.000	-11.397	**-8.416**	**-16.070**	-0.727	**-4.677**	**-43.496**	**-14.403**	**-9.109**	**-13.521**	**-10.898**	**-7.821**	**-11.258**	**-8.542**	**-4.437**
C			0.000	**4.881**	-0.350	**11.370**	**5.213**	**-28.295**	**-2.764**	**4.218**	**-6.854**	**-0.342**	**2.403**	1.188	**5.677**	**-2.226**
D				0.000	**-7.663**	**8.321**	1.605	**-39.171**	**-8.119**	-0.821	**-9.861**	**-4.854**	-1.655	**-4.031**	0.661	**-3.123**
E					0.000	**16.898**	**6.670**	**-36.897**	**-3.178**	**6.653**	**-7.215**	-0.105	**3.256**	**2.013**	**9.607**	**-2.187**
F						0.000	**-4.309**	**-45.435**	**-14.534**	**-9.069**	**-13.393**	**-10.806**	**-7.590**	**-11.294**	**-8.523**	**-4.328**
G							0.000	**-31.276**	**-7.747**	**-2.176**	**-9.944**	**-5.243**	**-2.656**	**-4.498**	-1.245	**-3.412**
H								0.000	**25.329**	**38.305**	**9.587**	**25.970**	**28.596**	**32.178**	**42.476**	**3.517**
I									0.000	**7.445**	**-5.182**	**2.246**	**4.964**	**4.179**	**9.109**	-1.639
J										0.000	**-9.502**	**-4.249**	-1.067	**-3.288**	1.564	**-3.006**
K											0.000	6.470	**8.178**	**7.726**	**10.282**	0.180
L												0.000	**2.588**	1.467	**5.548**	**-2.142**
M													0.000	-1.484	**2.180**	**-2.764**
N														0.000	**4.918**	**-2.466**
O															0.000	**-3.213**
P																0.000

Table A.24: Comparisons for Intergenerational Mobility in education for males within the Arab countries for total schooling

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
A	0.000	**3.221**	**-4.412**	**1.272**	**-3.562**	-0.339	1.047	**-12.111**	**-3.196**	**-4.347**	**-12.994**	**-4.243**	**1.963**	**-2.703**	**-8.312**	**-4.965**
B		0.000	**-7.386**	-3.042	-8.411	**-3.179**	**-3.051**	**-15.682**	**-8.831**	**-7.865**	**-19.360**	**-7.453**	**-1.154**	**-7.356**	**-12.049**	**-6.770**
C			0.000	**6.235**	**2.237**	**3.763**	**5.933**	**-6.781**	**2.945**	0.575	**-5.355**	**0.394**	**6.159**	**2.894**	**-2.982**	**-1.962**
D				0.000	**-7.684**	-1.477	-0.280	**-15.420**	**-9.134**	**-6.721**	**-22.280**	**-6.275**	**1.273**	**-6.230**	**-11.495**	**-5.889**
E					0.000	**2.635**	**6.720**	**-11.065**	**1.199**	**-1.863**	**-13.216**	**-1.902**	**6.185**	1.180	**-6.649**	**-3.541**
F						0.000	1.288	**-10.841**	**-2.214**	**-3.583**	**-10.721**	**-3.553**	**2.089**	**-1.910**	**-7.205**	**-4.580**
G							0.000	**-14.866**	**-7.359**	**-6.297**	**-20.109**	**-5.928**	**1.389**	**-5.420**	**-10.935**	**-5.753**
H								0.000	**12.338**	**8.056**	**3.350**	**7.512**	**14.041**	**11.693**	**4.308**	**2.778**
I									0.000	**-2.735**	**-17.446**	**-2.671**	**6.133**	**0.296**	**-7.868**	**-3.946**
J										0.000	**-7.163**	-0.170	**6.364**	**2.647**	**-3.974**	**-2.435**
K											0.000	**6.336**	**16.019**	**14.217**	**2.036**	1.064
L												0.000	**6.112**	**2.617**	**-3.581**	**-2.277**
M													0.000	**-5.267**	**-10.365**	**-6.075**
N														0.000	**-7.375**	**-3.938**
O															0.000	-0.023
P																0.000

Table A.25: Comparisons of the Education Attainment Inequalities (GINI) for females within the ECE Countries for Total Education

	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
Q	0.000	1.467	0.145	1.338	0.975	1.048	1.564	0.727	1.902	1.368	-0.184	1.933	0.444
R		0.000	-1.578	-0.170	-0.483	-0.626	0.120	-0.892	0.475	-0.192	-1.824	0.597	-1.370
S			0.000	1.423	0.970	1.084	1.697	0.686	**2.152**	1.473	-0.368	**2.146**	0.349
T				0.000	-0.333	-0.446	0.291	-0.731	0.664	-0.014	-1.683	0.770	-1.198
U					0.000	-0.042	0.592	-0.334	0.934	0.335	-1.254	1.015	-0.717
V						0.000	0.757	-0.347	1.217	0.459	-1.382	1.270	-0.813
W							0.000	-1.011	0.344	-0.321	-1.932	0.478	-1.502
X								0.000	1.426	0.753	-1.004	1.470	-0.392
Y									0.000	-0.724	**-2.340**	0.184	**-2.019**
Z										0.000	-1.732	0.826	-1.250
AA											0.000	2.338	0.712
AB												0.000	-2.002
AC													0.000

Table A.26: Comparisons of the Education Attainment Inequalities for males within the ECE Countries for Total Education

	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
Q	0.000	**2.181**	1.358	1.272	0.976	1.118	1.455	0.701	**2.461**	1.132	1.316	1.720	0.658
R		0.000	-0.775	-0.778	-1.071	-0.962	-0.611	-1.601	0.275	-1.426	-0.807	-0.424	-1.497
S			0.000	-0.038	-0.326	-0.206	0.132	-0.734	1.043	-0.444	-0.036	0.347	-0.698
T				0.000	-0.279	-0.161	0.164	-0.663	1.031	-0.376	0.003	0.371	-0.634
U					0.000	0.121	0.444	-0.353	1.325	-0.038	0.291	0.660	-0.342
V						0.000	0.328	-0.494	1.221	-0.186	0.170	0.545	-0.474
W							0.000	-0.851	0.866	-0.582	-0.166	0.203	-0.810
X								0.000	1.903	0.398	0.691	1.115	-0.008
Y									0.000	-1.784	-1.074	-0.693	-1.770
Z										0.000	0.398	0.869	-0.375
AA											0.000	0.382	-0.658
AB												0.000	-1.052
AC													0.000

Table A.27: Comparisons for Intergenerational Mobility in education for females within the ECE countries for total schooling

	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
Q	0.000	0.140	**-10.193**	**-12.324**	**-17.470**	**-9.670**	**-8.071**	**-3.037**	**-5.115**	-1.181	**-6.367**	**-10.342**	-1.798
R		0.000	**-12.668**	**-14.586**	**-23.011**	**-10.079**	**-10.714**	**-4.267**	**-7.026**	-1.674	**-8.576**	**-12.152**	**-2.413**
S			0.000	**-3.784**	**-8.451**	**-5.302**	**4.416**	**12.195**	**9.209**	**12.466**	**7.036**	-1.650	**11.154**
T				0.000	**-2.501**	**-3.581**	**7.838**	**14.064**	**11.710**	**14.386**	**9.970**	1.788	**13.294**
U					0.000	**-2.781**	**17.129**	**29.870**	**25.510**	**25.091**	**21.338**	**4.642**	**22.607**
V						0.000	**6.798**	**9.060**	**8.182**	**9.632**	**7.585**	**4.425**	**9.291**
W							0.000	**10.427**	**6.276**	**10.500**	**3.379**	**-5.252**	**8.886**
X								0.000	**-4.722**	**2.821**	**-7.186**	**-11.075**	1.549
Y									0.000	**6.160**	**-2.823**	**-8.839**	**4.675**
Z										0.000	**-7.996**	**-11.723**	-0.905
AA											0.000	**-7.245**	**6.472**
AB												0.000	**10.752**
AC													0.000

Table A.28: Comparisons for Intergenerational Mobility in education for males within the ECE countries for total schooling

	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
Q	0.000	-0.499	**-7.374**	**-2.739**	**-12.968**	**-14.253**	**-8.752**	-1.355	**-5.866**	**4.510**	**-9.584**	**-2.956**	-1.392
R		0.000	**-6.489**	**-2.261**	**-11.351**	**-13.211**	**-7.585**	-0.631	**-4.860**	**4.791**	**-8.675**	**-2.229**	-0.730
S			0.000	2.894	**-3.881**	**-7.860**	-0.189	**8.210**	**3.048**	**14.470**	**-2.762**	**5.257**	**7.252**
T				0.000	**-5.835**	**-8.871**	**-3.277**	**2.193**	-1.108	**6.274**	**-4.905**	0.730	**1.977**
U					0.000	**-6.209**	**4.962**	**19.715**	**10.204**	**30.612**	0.076	**11.755**	**15.332**
V						0.000	8.718	**16.216**	**11.632**	**21.466**	**4.942**	**12.993**	**14.936**
W							0.000	**11.274**	**4.192**	**19.844**	**-2.994**	**6.642**	**9.305**
X								0.000	**-7.115**	**10.018**	**-10.722**	**-2.483**	-0.231
Y									0.000	**16.143**	**-5.993**	**3.156**	**5.684**
Z										0.000	**-16.331**	**-9.758**	**-8.132**
AA											0.000	**7.818**	**9.716**
AB												0.000	**1.985**
AC													0.000

Table A.29: Comparisons of the Education Attainment Inequalities (GINI) for females in the Arab countries relative to females in the ECE countries for total schooling

	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
A	**4.426**	**7.685**	**5.579**	**7.537**	**6.256**	**7.641**	**7.847**	**6.448**	**9.175**	**7.996**	**4.672**	**8.368**	**6.627**
B	**2.587**	**5.484**	**3.415**	**5.323**	**4.212**	**5.315**	**5.647**	**4.266**	**6.903**	**5.713**	**2.669**	**6.192**	**4.297**
C	**7.307**	**10.795**	**8.769**	**10.666**	**9.300**	**10.845**	**10.946**	**9.612**	**12.217**	**11.145**	**7.731**	**11.414**	**9.906**
D	**4.177**	**8.389**	**5.625**	**8.205**	**6.368**	**8.571**	**8.615**	**6.721**	**10.976**	**9.014**	**4.486**	**9.317**	**7.126**
E	**6.929**	**12.197**	**9.075**	**12.021**	**9.642**	**12.685**	**12.448**	**10.307**	**15.310**	**13.090**	**7.545**	**13.184**	**11.073**
F	**4.433**	**7.294**	**5.442**	**7.160**	**6.089**	**7.190**	**7.434**	**6.217**	**8.473**	**7.512**	**4.641**	**7.891**	**6.321**
G	**4.214**	**8.253**	**5.611**	**8.076**	**6.344**	**8.383**	**8.467**	**6.666**	**10.599**	**8.811**	**4.512**	**9.135**	**7.025**
H	**12.942**	**18.027**	**15.433**	**17.897**	**15.768**	**18.425**	**18.220**	**16.496**	**20.179**	**18.711**	**13.828**	**18.766**	**17.224**
I	**6.751**	**12.530**	**9.061**	**12.339**	**9.633**	**13.215**	**12.818**	**10.406**	**16.410**	**13.651**	**7.405**	**13.648**	**11.345**
J	**7.336**	**11.451**	**9.066**	**11.306**	**9.608**	**11.620**	**11.632**	**10.042**	**13.332**	**11.954**	**7.844**	**12.183**	**10.481**
K	**12.613**	**20.432**	**16.307**	**20.256**	**16.539**	**21.646**	**20.763**	**17.909**	**25.130**	**22.012**	**13.887**	**21.646**	**19.503**
L	**7.227**	**10.979**	**8.796**	**10.843**	**9.338**	**11.075**	**11.143**	**9.698**	**12.591**	**11.391**	**7.682**	**11.648**	**10.049**
M	**3.191**	**6.104**	**4.098**	**5.952**	**4.841**	**5.964**	**6.260**	**4.928**	**7.446**	**6.335**	**3.322**	**6.775**	**4.993**
N	**6.413**	**11.404**	**8.401**	**11.228**	**8.999**	**11.809**	**11.645**	**9.590**	**14.316**	**12.216**	**6.965**	**12.360**	**10.265**
O	**10.091**	**14.933**	**12.318**	**14.792**	**12.747**	**15.276**	**15.131**	**13.384**	**17.124**	**15.592**	**10.829**	**15.705**	**14.037**
P	**7.352**	**9.340**	**8.143**	**9.253**	**8.588**	**9.230**	**9.425**	**8.662**	**9.958**	**9.434**	**7.557**	**9.707**	**8.704**

Table A.30: Comparisons for Intergenerational Mobility in education for females in the Arab countries relative to females in the ECE countries for total schooling

	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
A	**2.070**	**2.228**	**-2.991**	**-4.621**	**-5.932**	**-6.153**	**-1.557**	0.851	-0.102	1.616	-0.724	**-3.653**	1.287
B	**-4.674**	**-5.787**	**-21.094**	**-21.424**	**-37.686**	**-12.280**	**-21.601**	**-14.304**	**-17.937**	**-8.787**	**-19.306**	**-18.354**	**-9.293**
C	**3.136**	**4.085**	**-9.527**	**-11.925**	**-20.780**	**-8.693**	**-6.898**	0.687	**-2.493**	**2.791**	**-4.397**	**-9.417**	1.797
D	0.111	0.355	**-15.571**	**-16.809**	**-32.609**	**-10.242**	**-14.811**	**-5.948**	**-10.117**	-1.786	**-12.030**	**-13.797**	-2.707
E	**3.750**	**5.265**	**-11.492**	**-13.494**	**-29.828**	**-8.795**	**-9.505**	1.630	**-3.390**	**4.020**	**-6.074**	**-10.487**	**2.628**
F	**-4.359**	**-5.468**	**-21.486**	**-21.602**	**-39.993**	**-12.152**	**-22.551**	**-14.856**	**-18.835**	**-8.635**	**-20.173**	**-18.411**	**-9.150**
G	-0.968	-1.004	**-13.825**	**-15.578**	**-24.546**	**-10.484**	**-12.079**	**-5.629**	**-8.422**	**-2.810**	**-9.947**	**-13.093**	**-3.515**
H	**23.511**	**29.825**	**16.835**	**9.966**	**11.538**	0.372	**25.995**	**36.924**	**33.334**	**32.304**	**29.714**	**11.697**	**29.882**
I	**5.159**	**6.596**	**-6.880**	**-9.697**	**-17.483**	-7.763	**-3.675**	**4.123**	0.940	**5.643**	-1.091	**-7.276**	**4.530**
J	0.546	0.922	**-14.916**	**-16.289**	**-31.588**	**-10.052**	**-13.919**	**-4.999**	**-9.143**	-1.103	-11.111	**-13.308**	**-2.061**
K	**8.232**	**9.218**	0.800	**-1.943**	**-4.051**	**-4.460**	**3.434**	**7.700**	**6.040**	**8.581**	**4.904**	-0.462	**7.919**
L	**3.281**	**4.178**	**-8.643**	**-11.140**	**-18.626**	**-8.503**	**-5.933**	1.034	**-1.848**	**2.952**	**-3.614**	**-8.775**	**2.022**

M	1.190	1.622	**-11.202**	**-13.327**	**-21.561**	**-9.475**	**-8.977**	**-2.270**	**-5.108**	0.104	**-6.752**	**-10.902**	-0.713
N	**2.432**	**3.297**	**-11.359**	**-13.457**	**-24.719**	**-9.137**	**-9.133**	-0.773	**-4.389**	**1.807**	**-6.424**	**-10.745**	0.770
O	-0.209	-0.059	**-16.852**	**-17.726**	**-36.651**	**-10.426**	**-16.944**	**-7.492**	**-12.189**	**-2.432**	**-14.057**	**-14.556**	**-3.358**
P	**3.074**	**3.161**	0.100	-0.926	-1.552	**-2.814**	0.970	**2.362**	**1.814**	**2.802**	1.454	-0.363	**2.609**

Table A.31: Comparisons of the Education Attainment Inequalities (GINI) for males in the Arab countries relative to males in the ECE countries for total schooling

	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
A	**2.519**	**3.956**	**3.426**	**3.349**	**3.147**	**3.253**	**3.475**	**3.035**	**4.124**	**3.362**	**3.396**	**3.663**	**2.963**
B	0.942	2.093	1.690	1.650	1.487	1.565	1.746	1.338	2.220	1.551	1.668	1.875	1.311
C	**2.063**	**3.231**	**2.814**	**2.762**	**2.597**	**2.680**	**2.863**	**2.477**	**3.362**	**2.717**	**2.791**	**3.004**	**2.433**
D	**1.980**	**3.073**	**2.686**	**2.640**	**2.485**	**2.562**	**2.734**	**2.366**	**3.195**	**2.585**	**2.665**	**2.863**	**2.328**
E	0.790	**2.439**	**1.836**	**1.767**	**1.538**	**1.650**	**1.907**	**1.350**	**2.635**	**1.684**	**1.803**	**2.107**	**1.301**
F	0.653	**2.380**	1.745	1.673	1.434	1.551	1.819	1.235	**2.588**	1.585	1.711	**2.029**	1.186
G	**1.964**	**3.344**	**2.842**	**2.776**	**2.582**	**2.681**	**2.895**	**2.452**	**3.504**	**2.749**	**2.814**	**3.068**	**2.395**
H	**5.580**	**8.245**	**7.113**	**6.844**	**6.482**	**6.718**	**7.097**	**6.623**	**8.625**	**7.573**	**7.041**	**7.585**	**6.306**
I	**4.530**	**6.200**	**5.555**	**5.431**	**5.197**	**5.333**	**5.584**	**5.162**	**6.405**	**5.618**	**5.516**	**5.838**	**5.027**
J	1.728	**3.471**	**2.817**	**2.724**	**2.482**	**2.609**	**2.876**	**2.340**	**3.683**	**2.739**	**2.780**	**3.107**	**2.258**
K	-0.290	1.505	0.854	0.798	0.551	0.665	0.946	0.287	1.722	0.603	0.821	1.147	0.269
L	**7.727**	**11.220**	**9.630**	**9.195**	**8.734**	**9.066**	**9.538**	**9.154**	**11.772**	**10.680**	**9.525**	**10.268**	**8.612**
M	**1.246**	**2.845**	**2.258**	**2.185**	**1.962**	**2.074**	**2.322**	**1.799**	**3.035**	**2.136**	**2.226**	**2.521**	**1.741**
N	**2.054**	**3.317**	**2.862**	**2.804**	**2.626**	**2.716**	**2.913**	**2.502**	**3.461**	**2.767**	**2.837**	**3.068**	**2.451**
O	**1.910**	**3.227**	**2.751**	**2.691**	**2.505**	**2.599**	**2.804**	**2.375**	**3.378**	**2.652**	**2.725**	**2.967**	**2.323**
P	**7.173**	**9.193**	**8.370**	**8.172**	**7.889**	**8.072**	**8.365**	**7.982**	**9.457**	**8.648**	**8.316**	**8.721**	**7.747**

Table A.32: Comparisons for Intergenerational Mobility in education for females in the Arab countries relative to females in the ECE countries for total schooling

	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
A	-1.602	**-2.053**	**-9.789**	**-4.091**	**-17.520**	**-16.828**	**-12.043**	**-3.793**	**-8.855**	**3.089**	**-11.956**	**-5.170**	**-3.527**
B	**-4.551**	**-4.834**	**-13.620**	**-6.307**	**-25.113**	**-20.470**	**-17.493**	**-8.698**	**-14.118**	-0.619	**-15.537**	**-9.111**	**-7.561**
C	**2.662**	**2.066**	**-4.298**	**-0.554**	**-8.703**	**-11.258**	**-5.088**	**2.061**	**-2.294**	**7.540**	**-6.622**	0.155	1.750
D	**-3.018**	**-3.417**	**-13.269**	**-5.254**	**-30.956**	**-20.577**	**-18.816**	**-8.083**	**-14.845**	**3.108**	**-15.268**	**-8.202**	**-6.369**
E	1.161	0.453	**-8.400**	**-2.326**	**-19.974**	**-16.369**	**-11.516**	-0.320	**-7.381**	**9.653**	**-10.891**	**-2.713**	-0.486
F	-1.152	-1.596	**-8.557**	**-3.636**	**-14.455**	**-15.308**	**-10.127**	**-2.830**	**-7.276**	**3.018**	**-10.690**	**-4.246**	**-2.736**
G	**-2.780**	**-3.194**	**-12.658**	**-5.076**	**-27.612**	**-19.962**	**-17.400**	**-7.075**	**-13.543**	**3.046**	**-14.712**	**-7.631**	**-5.810**
H	**9.738**	**8.828**	**2.945**	**5.044**	0.163	**-4.752**	**3.201**	**10.898**	**6.189**	**16.475**	0.183	**7.993**	**9.887**
I	0.631	-0.082	**-9.740**	**-2.817**	**-26.803**	**-17.797**	**-14.337**	**-1.609**	**-9.797**	**11.118**	**-12.164**	**-3.816**	-1.429
J	**2.358**	1.704	**-5.438**	-1.050	**-11.252**	**-12.863**	**-6.680**	1.652	**-3.465**	**8.224**	**-7.887**	-0.511	1.304
K	**9.267**	**7.972**	0.215	**3.380**	**-5.700**	**-9.093**	0.018	**12.948**	**4.712**	**22.925**	**-3.134**	**7.214**	**10.233**
L	**2.393**	1.774	**-4.968**	**-0.892**	**-10.016**	**-12.146**	**-5.973**	1.710	**-2.986**	**7.678**	**-7.348**	-0.298	1.395
M	**-3.385**	**-3.738**	**-11.864**	**-5.441**	**-20.906**	**-18.742**	**-14.749**	-6.434	**-11.537**	0.761	**-13.893**	**-7.368**	**-5.801**
N	0.442	-0.210	**-9.110**	**-2.820**	**-20.948**	**-16.942**	**-12.421**	-1.500	**-8.371**	**8.319**	**-11.522**	**-3.569**	-1.430
O	**6.014**	**5.191**	-1.452	1.823	**-5.792**	**-9.187**	-1.901	**6.455**	1.321	**12.768**	**-4.129**	**3.710**	**5.652**
P	**3.826**	**3.408**	-0.879	1.348	**-3.014**	**-6.107**	-1.037	**3.435**	0.748	**6.715**	**-2.655**	**2.195**	**3.235**