



## ***The Freedom Index and the Secondary Educational Status of Females in Latin America***

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### **Abstract**

*This study utilizes a Panel-Data analysis ranging from the years 2000 to 2007 to investigate the effects of globalization and unregulated free market economy measured by the various components of the Freedom Index on the secondary educational status of females in Latin American countries.*

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### **Introduction**

In the past few decades, many Western economists have advocated the operation of a free unregulated “open market economy” as a remedy for almost any economic and social ill in the world. The belief that an unfettered free market will benefit all has become a standard policy to be championed by the international agencies around the globe. According to its proponents, known as Neo-Liberals, “economic freedom is the fundamental right of every human.... In an economically free society, individuals are free to work, produce, consume, and invest in any way they please, with that freedom both protected by the state and unconstrained by the state. In economically free societies, governments allow labor, capital and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself.”<sup>1</sup> In fact, according to some proponents, the

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1. 1. <http://www.heritage.org/index/>



benefits of economic freedom surpass those of political freedom, “the level of economic freedoms in society will generate a greater beneficial impact than increasing political rights,” (Stroup, p.15)

Consequently, a reduction in the size of government, curbed trade unions, free international trade and investment, unconstrained corporate activities, and in particular those of multinational corporations, have become the major components of the World Bank and the IMF structural adjustment. (Stewart 1992) Such policies were used by these agencies as the remedy to the Latin America debt crisis of 1980s (Arnové, Robert F, et al, 1996 and Saadatmand, et al, 2004); they were also imposed on African countries to cure their debt problems (Hodd 1987, and Stein, 1992). And in the 1990s they were vigorously implemented in Southeast Asia in response to the region’s economic crisis. (John Miller, 1998) In this paper we will investigate the effects of implementation of such policies on the secondary educational status of females in Latin America.

### **The Significance of Female Education**

“Education is the foundation on which both economic prosperity and health are built. A formal education contributes to the formulation of human capital, which is a key determinant of economic growth.” (Saadatmand, et al, 2004) In fact, some researchers consider the education of females as one of the most important contributors to a country’s economic growth. Self, et al, (2008) for instance, argue that Japan’s post-war economic growth was driven by the secondary and tertiary education of females along with capital accumulation and the tertiary education of males. While both female and male education can improve productivity because more educated people participate in the paid workforce, there is ample evidence that female education, especially in developing countries, produces



“social gains by reducing fertility and infant mortality, improving family and child health, increasing life expectancy, and increasing the quantity and quality of children’s educational attainment.”(Knowles, et al, 2002, p.119) The literature points to a negative relationship between female education and fertility, which leads the researchers advocating education of girls and young women as a means to reduce population growth and foster sustained economic development and social welfare in developing countries. Osili, et al, (2008) for example shows that increasing female education by one year reduces early fertility by 0.26 births. Simultaneously, the study shows an inverse relationship between female education and infant mortality, Mellinton, et al, (1999) for instance in their study of Indonesia demonstrate a significant correlation between increases in female education and a reduction in infant mortality. Even the international agencies acknowledge the importance of female education. James Wolfensohn, president of the World Bank in 1995 cited “If we educate a boy, we educate one person. If we educate a girl, we educate a family and a whole nation.”(quoted in Knowles, et al, 2002, p.118) It is therefore of the utmost importance to evaluate the effects of neo-liberal economic policy on female education in developing countries.

### **Neo-Liberal Economic Policy and Index of Economic Freedom**

Since 1995, the Wall Street Journal and the Heritage Foundation, a prominent Washington think tank, have been tracking the various countries implementation of neoliberal policy through their measurement of the Index of Economic Freedom. The Index breaks economic freedom into ten components: business, trade, fiscal, government, monetary, investment, financial, property, labor freedoms and finally freedom from corruption. (John Miller, 2005) Business freedom (Bus Fr) is “a quantitative measure of the ability to



start, operate, and close a business that represents the overall burden of regulation as well as the efficiency of government in the regulatory process.” Trade freedom is “a composite measure of the absence of tariff and non-tariff barriers.” Fiscal freedom (Fiscal Fr) is “a measure of the tax burden imposed by government.” Government freedom (Gov Fr) considers the level of government expenditures as a percentage of GDP, “the scale for scoring government spending is non-linear, which means that government spending that is close to zero is lightly penalized, while levels of government spending that exceed 30 percent of GDP receive much worse scores in a quadratic fashion.” Monetary freedom “combines a measure of price stability with an assessment of price controls. Both inflation and price controls distort market activity.” The investment freedom indicator measures the restrictions imposed on individuals and firms “to move their resources into and out of specific activities both internally and across the country’s borders.” Financial freedom is “a measure of banking security as well as a measure of independence from government control.” Property freedom (Prop Fr) assesses “the ability of individuals to accumulate private property.” Labor freedom (Labor Fr) component is a “quantitative measure that looks into various aspects of the legal and regulatory framework of a country’s labor market.” It frowns upon high minimum wage; the hindrance to hiring additional workers; rigidity of hours; difficulty of firing redundant employees; legally mandated notice period, and mandatory severance pay.<sup>2</sup>

There is a great deal of controversy surrounding this index. The critics for instance, pinpoint that the Economic Freedom Index is synonymous with corporate freedom, since “minimum-wage laws, environmental regulations, or requirements for transparency in corporate accounting make a country less free, whereas low

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<sup>2</sup> 1. <http://www.heritage.org/index/>



business taxes, harsh debtor laws, and little or no regulation of occupational health and safety make a country more free,” John Miller (2005) p.10. However, the general consensus among both its critics and its proponents is that for any country, “the less government intervenes in the economy, the higher its freedom ranking,” which makes the freedom index an ideal proxy for measuring the implementation of neo-liberal policy in a given country.

### The Model

We are well aware that many decisions that affect schooling decisions of girls are influenced by microeconomic variables, such as size and composition of the family, household income, and religious affiliation of the household. (Anil Duman, 2010) However, our intention is to demonstrate the influence of the application of Neo-Liberal economic policy on female education.

We have employed a panel data analysis of twenty Latin American countries from 2000-2007. Following Saadatmand, et.al, (2004) we have used a ratio of the female and male *gross enrollment ratios* for secondary schooling to test whether the globalization and the implementation of neo-liberal policy affect the relative education of females and males. The secondary gross enrollment ratio “measures the total enrollment in a specific level of education, regardless of age, expressed as a percentage of the official school-age population corresponding to the same level of education in a given school year.” (Saadatmand, et.al, 2004, p.177).

The dependent variable utilized in the model is denoted as FMS and it is measured as following:  
 $FMS = \text{Female gross enrollment ratio} / \text{Male gross enrollment ratio}$ . The null hypothesis tested is  
 $H_0$ : Neo-Liberal policy has no statistically significant impact on FMS



In measuring the significance of the impact of Neo-Liberal policy on the dependent variable, we measure the following equation with eight explanatory variables:

$$FMS = \alpha_0 + \alpha_1 \text{RGDP/Pop} + \alpha_2 \text{FLP} + \alpha_3 \text{IMU} + \alpha_4 \text{FR} + \alpha_5 \text{FDI/Pop} + \alpha_6 \text{INT} + \alpha_7 \text{EHH} + \beta_1 \text{FX}$$

RGDP/Pop measures per capita real GDP (inflation adjusted using the base year 2000), we expect that this variable will have a positive impact on the dependent variable. (FLP) is the female labor force participation; we expect this variable to have a positive impact on the dependent variable. We believe as the opportunity for gainful employment for females increases the opportunity cost of not attending school will increase also. The third control variable is Immunization (IMU) which accounts the percentage of children between the ages of 18-72 months who have been vaccinated for the measles. As the health status of children improves, one expects higher enrollment ratios for both girls and boys. Fertility rates (FR), which measure the number of live births per women is added to the equation to measure the health status of females in general. We expect a negative influence on the dependent variable, as healthier mother will have fewer children and as fertility rates fall, it will be less likely for the girls to be kept at home and out of school to care for their siblings. The fifth variable in our model is Per-capita real direct investment (FDI/Pop), if globalization is going to benefit females, one would expect to see a positive relationship between FDI and the dependent variable. INT is the measure of Internet usage and it is expressed by the number of internet users per 100 people in the population. The increase in number of internet users can be used as a measure of opening up of the society to the outside world and the availability of readily available information, which allows the market to operate more efficiently. Since such efficiency is ideal as far as Neo-Liberal economists are concerned, then we



expect it to positively affect the dependent variable. The seventh control variable is EHH, the education of the head of household, which we believe should positively affect the education of female. As such information is not available, as a proxy, we have lagged the secondary school enrollment rates of males by five years. Our final variables are various measures of the freedom index; if the Neo-Liberal economists are correct then one can expect them to positively affect the dependent variable.

### The Results

We have estimated ten separate equations; each containing all explanatory variables but includes only one component of the freedom index. For demonstration purposes, we have presented our results in two separate tables. Table (1) focuses on the estimations that include those components of the freedom index that primarily, however not exclusively, affect domestic operation of an economy. Table (2) demonstrates the results of those estimations that include the components of the freedom index that have a major influence on the international interaction of countries. To avoid autocorrelation in the model, we also have included the dependent variable lagged by one and two years, which showed to be statistically significant at the 1% level in almost every equation reported, indicating that autocorrelation was present in the model as a result of enrollment rates from previous time periods having a significant effect on enrollment rates in the current time period. As a result of such inclusion the Durbin-Watson statistic was also increased to within the desired range for the statistic, indicating that the model is generally free of any autocorrelation.

The information in Table (1) demonstrates that the per capita real GDP has a significant and positive impact on the dependent variable. The female labor force participation also has a significant and positive effect



on secondary education of female in four out of six equations estimated. As predicted, fertility rates also negatively influenced the educational status of females, but it is only significant in two out of six estimated equations. Unlike our expectations, the education of the head of household shows a negative sign in four out of six estimated equations, albeit being statistically insignificant.

Our interest however lies in testing the effects of the neo-liberal policy of unrestricted market and globalization on the educational status of females. The variables of interest are foreign direct investment and internet use along with various components of the Freedom Index. Foreign direct investment shows a negative influence on female secondary education in four out of six estimated equations, albeit all statistically insignificant. Internet use is highly statistically significant and plays a negative influence on our dependent variable in all estimated equations. Out of the six components of the freedom index, four exhibit negative but statistically insignificant influences on our dependent variable. Of the remaining two, only Labor Freedom exhibits a positive and statistically significant effect on female secondary education.

Table (2) contains four equations which include those components of the Freedom Index that affect the international economics relations of a country. In all of these estimations, as predicated, both per capita real GDP and female labor force participation rates demonstrate a positive and significant influence on the dependent variable. Female fertility rates, also as predicted, affect the dependent variable negatively, however are not statistically significant. Similar to the equations presented in Table (1), the education of the head of household shows negative signs throughout the estimated equations, albeit statistically insignificant. Per Capita Foreign direct investment is positive but insignificant in three equations. Internet use affects





the secondary educational status of female negatively and is statistically significant. The Monetary and Financial Freedoms play a negative and statistically significant influence on our dependent variable. Similarly, Trade Freedom exhibit a negative sign, but statistically insignificant. Only the Investment Freedom shows a positive sign, albeit statistically insignificant.

Table (1)  
Dependent variable: Female Sec Enroll/Male Sec Enroll (Ratio)

Variable	Coefficient 1 (t-stat)	Coefficient 2 (t-stat)	Coefficient 3 (t-stat)	Coefficient 4 (t-stat)	Coefficient 5 (t-stat)	Coefficient 6 (t-stat)
CONSTANT	0.38	0.32	0.36	0.31	0.18	-0.041
RGDP/Pop	(3.73)*** 7.14E-06 (4.84)***	(5.65)*** 7.63E-06 (4.86)***	(9.38)*** 8.28E-06 (5.27)***	(4.76)*** 7.54E-06 (5.79)***	(1.59) 5.59E-06 (2.55)**	(-0.33) 7.70E-06 (3.57)***
FLP	0.000809 (2.25)**	0.00094 (2.61)**	0.000826 (2.34)**	0.0006 (2.40)**	0.0006 (1.08)	0.0002 (0.30)
IMU	8.50E-05 (0.33)	0.000198 (0.86)	0.000132 (0.54)	0.00012 (0.51)	0.0004 (0.84)	0.0002 (0.55)
FR	-0.008 (-0.612)	-0.016 (-1.72)*	-0.0078 (-0.6)	-0.014 (-1.34)	-0.014 (-0.71)	0.046 (2.05)**
FDI/POP	-4.42E-07 (-1.46)	3.00E-07 (0.61)	-3.44E-07 (-1.013)	3.88E-08 (0.08)	3.40E-08 (0.042)	-1.26E-06 (-1.35)
INT	-0.001271 (-3.74)***	-0.0012 (-6.76)***	-0.001 (-4.84)**	-0.0013 (-5.60)***	-0.002 (-2.35)**	-0.001 (-1.53)
EHH	-0.00027 (-1.15)	-0.000346 (-1.91)	-0.0004 (-2.91)	-0.0003 (-1.67)*	0.0001 (0.3)	0.005 (1.09)
DV (-1)	0.9 (13.19)	0.91 (12.46)***	0.9 (13.34)***	0.91 (11.83)***	0.92 (7.54)***	0.87 (7.43)***
DV(-2)	-0.24 (-3.17)	-0.23 (-5.91)***	-0.25 (-5.82)***	-0.22 (-5.01)***	-0.14 (-1.26)	-0.07 (-0.66)
Fiscal Fr	-0.001 (-1.14)	N/A	N/A	N/A	N/A	N/A
Bus. Fr	N/A	-0.0001 (-0.85)	N/A	N/A	N/A	N/A
Gov. Size	N/A	N/A	-0.0004 (-1.5)	N/A	N/A	N/A
Prop. Fr	N/A	N/A	N/A	-5.26E-05 (-0.35)	N/A	N/A
Corp. Fr	N/A	N/A	N/A	N/A	5.70E-05 (0.18)	N/A
Labor Fr	N/A	N/A	N/A	N/A	N/A	0.001 (2.99)***
N	70	70	70	70	70	51
R-square	0.93	0.92	0.93	0.92	0.83	0.91
R2 adjusted	0.92	0.91	0.91	0.91	0.81	0.89
F-Statistic	82.21	72.51	74.59	71.38	29.64	40.86
DW Statistic	1.67	1.66	1.69	1.65	1.72	2.09

\*\*\* indicates significance at the 1% level; \*\* indicates significance at 5% and \* indicates significance at 10%



**Table (2)**  
Dependent Variable: Female Sec Enroll/Male Sec Enroll (Ratio)

Variable	1	2	3	4
	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)	Coefficient (t-stat)
CONSTANT	0.34 (6.78)***	0.29 (4.09)**	0.3 (5.15)***	0.32 (6.3)***
RGDP/Pop	7.50E-06 (4.94)***	7.86E-06 (6.94)***	7.60E-06 (5.08)***	4.91E-06 (3.84)***
FLP	0.000914 (2.65)**	0.0008 (2.34)**	1.00E-03 (2.4)**	0.0006 (2.12)**
IMU	0.000157 (0.66)	4.86E-05 (0.21)	0.0001 (.57)	0.0002 (0.878)
FR	-0.017 (-1.49)	-0.012 (-1.00)	-0.01 (-1.19)	-0.011 (-1.117)
FDI/Pop	2.34E-08 (0.056)	9.60E-08 (0.18)	9.14 E-08 (.18)	-1.98E-07 (-.88)
INT	-0.001407 (-6.61)***	-0.0013 (-5.96)***	-0.001 (-5.65)***	-0.0009 (-4.29)***
EHH	-0.000194 (-1.25)	-0.00021 (-1.034)	-0.0002 (-1.42)	-0.00031 (-1.76)
DEPVARS (-1)	0.87 (8.41)***	0.916 (15.73)***	0.91 (13.6)***	0.94 (11.21)***
DEPVARS (-2)	-0.2 (-2.88)***	-0.22 (-5.83)***	-0.22 (-5.33)***	-2.55 (-4.53)***
MONETARY FREEDOM	-0.00024 (-1.89)*	N/A	N/A	N/A
INVESTMENT FREEDOM	N/A	9.48E-05 (0.48)	N/A	N/A
TRADE FREEDOM	N/A	N/A	-3.59E-05 (-.23)	N/A
FINANCIAL FREEDOM	N/A	N/A	N/A	-0.00039 (-9.51)***
N	70	70	70	70
R-square	0.93	0.92	0.92	0.94
Multiple R-square	0.92	0.9	0.91	0.93
F-Statistic	77.24	70.75	70.9	96.67
Durbin-Watson Statistic	1.55	1.67	1.81	1.81

\*\*\* Indicates significance at the 1% level; \*\* indicates significance at 5% and \* indicates significance at 10%



## Conclusion

Our study does not allow us to make any definite judgment about the effects of the Neo-Liberal economics on the educational status of female on the secondary level in Latin America. However, it provides us with some signals that such influences tend to be negative. Seven out of nine components of the Freedom Index present a negative signs albeit only two are statistically significant. If internet use is an indication of market efficiency, it does produce highly significant and negative effects on the secondary education of females in those countries.

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