



ROLE OF WOMEN IN ECONOMIC GROWTH OF A COUNTRY

By

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INTRODUCTION

With rapid growth in modern civilization, the potential of women as contributors to economic growth has been realized all over the world. The status of women across the world has been subject to many great changes over the past few decades. From equal status of men and women in Vedic period to unequal status during later Vedic era continuing into the medieval times, women have come a long way.

Women comprises around nearly 50 percent of the World's population; but they subject to discriminatory laws and practices at home, at workplaces, and at public places based on their gender and biological structure. They are being denied education, employment, medical care, religious freedom, and even voting rights. The global gender gap index 2024 reports a gap of 31.5% between men and women across the 146 countries that participated, where India ranks fifth in terms of gender disparity.

As a result, the allocation of the resources remains at the sub-optimal level when almost half of the population is deprived of their basic rights which they are entitled to. With half the population not fully participating in the economy, there remains a huge gap between potential growth level and actual growth in the country resulting in skewed growth structure that is not inclusive nor sustainable in the long run. The contribution of women to the mainstream economic growth in a significant way depends on many factors such as women's labor force participation, female education, fertility rate etc. So, this paper aims to find out the critical role of these factors in the overall development of the nation through a cross-sectional analysis over 101 countries. As it can't be efficient resource allocation when almost a half of the population isn't given the same opportunities. This paper also seeks to find out what if women did enjoy the same rights, how would it affect the country as a whole? Is it going to affect the economic growth of a country as a whole or not. Also are the results are compared across High Income, Upper Middle Income, Lower Middle Income and Low-Income countries.

The Paper is mainly divided into four parts. The first part gives a brief literature review on the past works of various notable economists who focused on women role in the national development of the country. The second part focused on data description which elaborately talks about the different dependent and independent variables undertaken for the purpose of study. In the third part, we have performed an econometric analysis by taking HDI as the dependent variable regressed on three independent variables-fertility rates, Female labor force participation, and Female secondary education. The fourth part deals with confirmatory approach that economically justifies our results with real-world phenomena. The paper concludes with a brief policy prescription that suggesting how the women can be great asset in forwarding national propaganda through proper education, training, and empowerment.



LITERATURE REVIEW

Women's Role in Economic Development by Ester Boserup was one of the first investigations ever undertaken into what happens to women in the process of economic and social development throughout the developing world, thereby serving as a world benchmark. Her research on gender division of labor has proven to be highly accurate and accepted across the world. Her main idea was distribution of economic wealth will increase if only it trickles down all the way down to the poor. The liberalization of markets has resulted in inequalities in income, both within the country and amongst the countries. The feminization of labor has evolved in two ways—first, through the rise of women in paid work and therefore the increased demand for more flexible manpower in the informal sector and second, within the industry, if women were hired within the modern sector, it would be for the unskilled, low wage jobs.

Besides that, women's increase in paid work hasn't reduced their share of unpaid work, for instance domestic chores, caring for other household members. The unpaid work affects women's paid work negatively and even causes girls within the household to be taken out of their schools so that they could be extend hands in the household chores and taking care of younger siblings.

When girls are taken out of their schools the likelihood of skill development decreases and the likelihood of being poor and unemployed increases. Boserup points out the importance of education's in preparing the women workforce for bringing change in the demand for women labor force.

Another important point is that the big educational differences between urban and rural labor - something which needs to wipe out in order to decrease the gap between male and female enrolment in schools for higher Education. Education is additionally important from a democratic point of view. Boys and girls need knowledge about the democratic system for them to move participants within the society. This will thus lead to the Economic Growth of a Nation as a whole.

Woman's role in economic growth has inspired many others to write and research on the subject of gender equality: some of them are the UN Decade for Women (1976-1986), Sundaram, A. & Vanneman, R. (2007), "Gender Differentials in Literacy in India: The intriguing relationship with Women's Labor Force Participation and World Development" and "Returning a Favor: Reciprocity between Female Education and Fertility in India. Bhat P. N. M., (2002). These articles show how the determinants such as fertility rate, female labor force participation rate, female literacy rate affect the economic growth of the country.

For this analysis, we have chosen data on Human Development Index (HDI), Female Labor Force Participation, Fertility Rate, Secondary Education Enrolment for Women of around 101 countries. Also, the countries are divided accordingly in different income groups. The result of the analysis clearly shows that the explanatory variables - Female Labor Force Participation, Fertility Rate, Secondary Education Enrolment for Women clearly affects the HDI which is taken as the dependent variable here. The results for each variable will be clearly described in the later part of this term paper.



DATA DESCRIPTION

The data includes the HDI, Female Labor Force Participation, Fertility Rate, Secondary Education Enrolment for women for 101 countries from World Bank website for the Year 2018. The countries are categorized under various income levels such as “High Income”, “Upper Middle Income”, “Lower Middle Income” and “Low Income”. Therefore, a Cross - Sectional Analysis over 101 countries has been carried out using the software Stata 12. Herein, HDI is taken as the dependent variable and Female Labor Force Participation, Fertility Rate, Secondary Education Enrolment of Women have been taken as explanatory or independent variables. Here Income Group is taken up as the Dummy Variable. As there are four categories of countries, we choose $(4-1) = 3$ dummy variables for our regression model to avoid getting into dummy variable trap. We perform a multivariate regression analysis using cross-sectional data of 101 observations and 1 dummy variable.

We have chosen HDI as a proxy to measure the overall development of country as opposed to other measures such as GDP per capita. This is because Human development index (HDI) is the composite measure calculated as the average of three indices- the literacy index, the health index and the standard of living index and thus, captures the overall development of a nation relative to GDP per capita.

Since, education is very one of the most crucial factors of development, both theoretically and empirically; we have chosen to include education as separate variable measured secondary education enrolment rates for females because research and empirical studies have shown that the importance of female education especially in the secondary education level.

The data for Female Labor Force Participation have been retrieved from the International Labor Organization and it accounts only for the formal sector, the informal sector cannot be included due to data insufficiency although the paper recognizes the fact that the informal sector is an important source of employment for women. The data for Female Labor Force Participation is taken as one of the explanatory variables as that it reflects women’s advancement in the formal employment sector.

The other explanatory variable- fertility rate has been taken up because if educated women are more likely to delay marriage and have lesser children resulting in lower fertility rate of the country. Instead of raising kids women will be able to actively participate in the Labor Workforce and contribute to the socio-economic development of the Country.

HUMAN DEVELOPMENT INDEX

The HDI, for the very first time, appeared in Human Development Report in the year 1990 developed by Pakistani economist Mehbub-ul-haq. It is released by Human development office of the United Nations Development Program (UNDP). It is a holistic attempt to measure development in an alternative way, including living standards and an emphasis on socioeconomic factors. It ranges from zero to one, where zero being the lowest value and one being the highest value. Within this range of the scale, countries are ranked and grouped into three different categories: low human



development (0.0 to 0.499) medium human development (0.50 to 0.799) and high human development (0.80 to 1.0)

The data thereby includes life expectancy at birth, weighted average of mean years of schooling for adults aged 25 and more and expected years of schooling for children of school entering age and logarithm of income measured by Gross national income per capita(undp.org). When the educational part in HDI is computed, greater emphasize is put on education index to reflect the fundamental characteristics of a well-educated person.

The major advantage of using HDI is that it allows for cross-country comparisons and thereby shows how countries with lower income levels can do better than expected and that countries with higher levels of Income don't necessarily achieve high development for example- Vietnam and India. HDI presents a broader perspective on development than just income. This difference between HDI and GDP per capita demonstrate that how countries which have similar GDP per capita can have a big difference in HDI owing to the distribution of income across countries. It has also been claimed before that there were some high-income countries which have experienced "growth without development" (Todaro and Smith, 2006).

FERTILITY RATE

It is defined as the average number of children that a woman will give birth to during her lifetime. Historically, developed countries usually have a significantly lower fertility rate and better family planning and awareness, which is positively correlated with greater wealth, education, urbanization, and development. Conversely, in undeveloped countries like India, fertility rates tend to be higher due to unawareness, low levels of education, and lower labor force participation. Fertility rates have been higher in some of the countries due to low awareness about contraceptives, lower levels of female education and lower rates of female workforce participation. In countries like India where the gender discrimination is highly prevalent; there exists preference towards male child over the female child due to traditional beliefs of inheritance, family lineage, social status. Therefore, people generally continue to have children until a boy is born, significantly contributing towards the rise of fertility rates in such nations. Giving frequent child births often affect the mental and physical health of women adversely, thereby limit their access to education and career advancement which contributes to low economic growth.

At the same time, most of these children born suffer from malnutrition, lack of quality education, absence of healthcare facilities, poor sanitation, which further impede their ability to contribute economic growth of the country. They are forced to work as child labor, bonded labor under poor working conditions to continue sustenance.

FEMALE LABOR FORCE PARTICIPATION

Female Labor Force Participation is a very important indicator for growth it indicates the growth potential of the country. Women participation in the labour force varies considerably across developing countries and developed countries. This variation is because of a wide variety of economic and social factors including economic growth, increasing educational attainment, falling fertility rates etc. Female labor force participation in India is significantly low due to the traditional beliefs that confines women with domestic chores, and rearing children rather than allowing them to



participate in the workforce. As a result, females lack significant education, training, and employment opportunities and thereby, suffers from lack of financial independence, social status, and are likely to be exploited by their male counterparts.

FEMALE SECONDARY EDUCATION

The education received after six years of primary education and is followed by Higher education. In most of the countries, attaining secondary education is compulsory. The promotion of secondary education is emphasized because its private marginal returns to additional years of education is highest. Attaining secondary education leads to better income opportunities with higher income. It is not only the income benefits that result from secondary education, but also it leads to better health, gender equality and poverty reduction. Females having higher education levels bring additional benefits such as decreasing maternal and child mortality rates, promoting their children ‘s education, reducing fertility rates, and slower population growth. All these factors together contribute to the development of the family vis-à-vis nation as a whole.

ECONOMETRIC ANALYSIS

The Analysis has been carried out in two ways: The first one is a graphical representation using histogram, box plot, scatter diagram showing the degree of association between the independent variables and the dependent variable. The second one is through constructing an economic model in determining the relationship between the independent variables and the dependent variable. We perform a multiple variate Regression analysis here as the number of independent variables is more than one.

EXPLORATORY APPROACH

Descriptive Statistics including graphs has been used to analyze the data.

HDI			
	Percentiles	Smallest	
1%	.3705915	.3215052	
5%	.378284	.3705915	
10%	.3969503	.3726363	Obs 101
25%	.492541	.3760405	Sum of Wgt. 101
50%	.6232699		Mean .6225792
		Largest	Std. Dev. .1446687
75%	.7568918	.821718	
90%	.780834	.8345451	Variance .020929
95%	.8136753	.8407092	Skewness -.3439523
99%	.8407092	.8870836	Kurtosis 1.938851

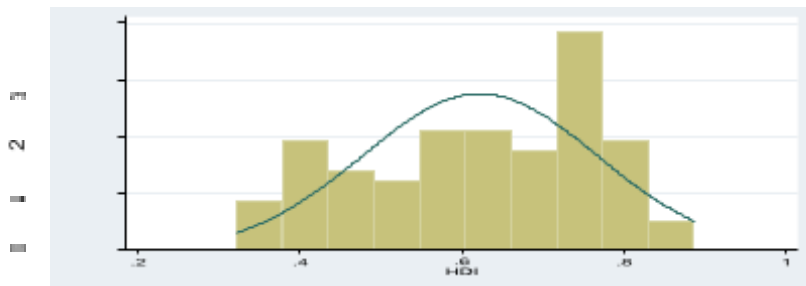
The number of observations is 101 countries. The mean HDI across the countries is 0.1446687 and the Standard Deviation which gives the spread of the distribution is 0.144.

Skewness measures the asymmetry of the probability distribution. The value of skewness can be zero, positive, negative or undefined. If the value of Skewness is zero, it implies it is normally distributed, negative values implies the distribution is skewed to the left and positive values implies distribution is skewed to the right. Here, the value of skewness is negative which implies the distribution is skewed to the left.

Kurtosis is a statistical measure which measures the heaviness of the tails of the distribution relative to a normal distribution. The value of Kurtosis for a normal distribution is 3. If the value of Kurtosis is less than 3 it means the tails are lighter than that of the normal distribution. And a value greater

than 3 implies heavier tails. Here the value for Kurtosis less than 3 which implies lighter tails than normal distribution.

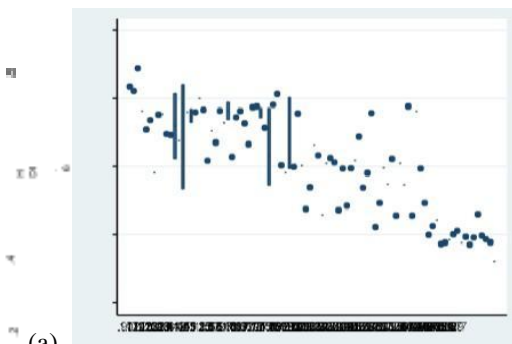
The below histogram shows the frequency distribution of HDI across different countries.



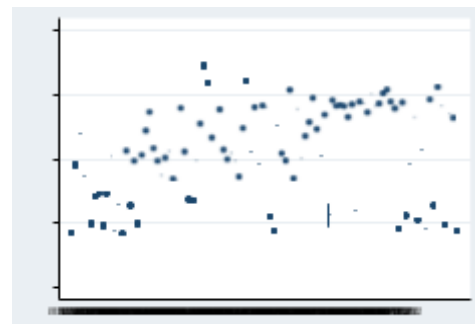
The value of HDI varies between 0 to 1, for (30%-40%) of the countries the value of HDI is around 0.7. The below diagrams show the two-way scatter plots.

Panel (a) shows with the increase in fertility rates, HDI declines.

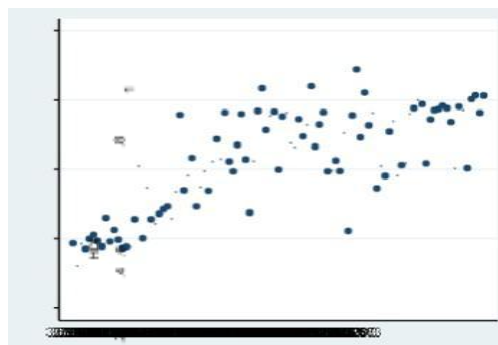
Panel (b) shows that with increase in female secondary education, HDI increases Panel (c) shows that increase in female labor force participation, HDI increases



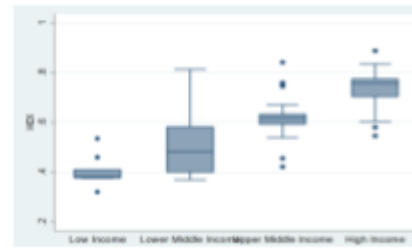
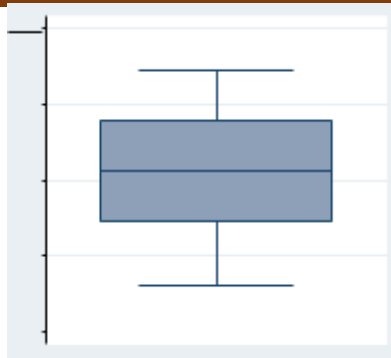
(a)



(b)



(c)



The Box plot represents the distribution of HDI. Since the line in the middle (Median) is in the middle of the box so there is no skewness due to outliers.

This shows box plot shows the distribution of Income Groups. Presence of Outliers and skewness.

CONFIRMATORY APPROACH

Furthermore, A multiple regression analysis is carried out using HDI as the dependent variable on the independent variables - Fertility Rate, Female Labor Force Participation, Female Secondary Education Enrolment. Also, income group is taken as dummy variable to represent three Income Group namely- “High Income”, “Upper Middle Income”, “Lower Middle Income” and “Low Income.”. It is taken to see how the analysis differs across countries categorized in different Income Groups. Cross- Sectional analysis across 101 countries was carried out. Since, the variables were not normally distributed, so they were transformed.

The coefficient of Determination (R squared) is the proportion of variation in HDI (dependent variable) e which is explained by the explanatory variables. Here the value is 0.7695 which means 76.95 % of the variation in HDI has been explained by the independent variables. The adjusted R squared is 0.7599 which is adjusted for the predictors present in the model.

The beta coefficient implies the amount of change in HDI given a one-unit change in the value of the independent variable, keeping other independent variables in the model constant. For example- the beta coefficient for secondary education is 0.0312, it implies there is an expected increase of 0.0312 in the HDI for every one unit increase in secondary education., while keeping other independent variables in the model constant.

Source	SS	df	MS			
Model	2.3298113	4	.582452824	Number of obs = 101		
Residual	.697725604	96	.007267975	F(4, 96) = 80.14		
Total	3.0275369	100	.030275369	Prob > F = 0.0000		
				R-squared = 0.7695		
				Adj R-squared = 0.7599		
				Root MSE = .08525		

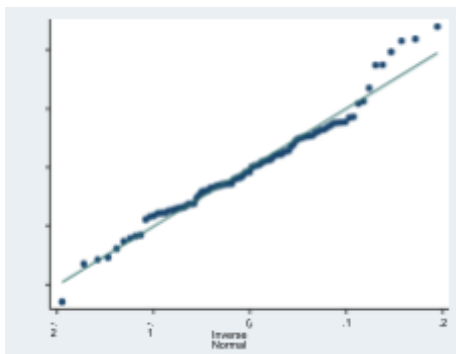
HDI_sq	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
secedu_sqrt	.0312255	.0081817	3.82	0.000	.014985	.0474661
fertilityrate_inv	.3036277	.0700868	4.33	0.000	.1645064	.4427489
Labforce_cubic	6.62e-07	2.58e-07	2.57	0.012	1.50e-07	1.17e-06
incomelevel	.0528337	.0128953	4.10	0.000	.0272368	.0784306
_cons	-.2562038	.0539177	-4.75	0.000	-.3632296	-.1491781



Statistical Significance- The F –Test shows whether the overall regression is a good fit for the data. It shows that the independent variables statistically significantly predict the value of HDI as $F(4,96)= 80.14$, $P < 0.0005$ (the regression model is a good fit for the data). Here 4 is taken because we have 4 independent variables and 96 is (101-5) here 5 includes the slopes coefficients and the intercept coefficient.

Statistical Significance of Independent Variables: This tests whether the slope coefficients are equal to zero if $p < 0.05$ it can be concluded that the coefficients are statistically significantly different from 0

If the residuals fall along a straight line at a 45-degree angle, then the residuals are roughly normally distributed. We can see in this Q-Q Plot the residuals tend to fall along the line but the tails are heavier than normal.



POLICY PRESCRIPTION

The study shows that fertility rates are inversely proportional to the HDI of the country. Therefore, it can be suggested that encouraging female education and women workforce participation can act as the best contraceptive that can limit the fertility and population through a chain of events.

Women Education -It is generally seen that literate women tend to marry later than illiterate women do. Literate women are more likely to join the labor, delay marriage and birth fewer children. Educated women are also more likely to use contraceptives and are aware of family planning resulting in lesser child births and attainable family size. Besides that, literate women are more likely to enroll their children in schools, and provide better facilities such as higher education, healthcare, sanitation resulting in better human capital development. At the same time, as the cost of child rearing rises, they are likely to have fewer children. Therefore, the Government should focus on creating adequate opportunities for women to encourage female education at all levels to leverage the utmost potential of the women workforce in the country.

Women employment- It can be concluded that increase in women labor force participation is positively correlated with improvement in HDI of the country. Therefore, more opportunities must be created for women in the public and private sector to boost women participation in the labor force. This will result in higher growth rate of the economy along with improvement in other development metrics such as fertility rate, infant mortality rate, child death rates, etc.

At the same time, gender wage gap should be mitigated so that women should be paid at par with men for the same job. Practices such as glass-ceiling effect, occupational sex segregation needs to



be addressed that limits women ability to fully contribute to the well-being of the nation. Appropriate laws, government guidelines should be framed to protect women's right in the public and private sector.

Not only that, but women must also be encouraged to start their own ventures, and businesses to promote women entrepreneurship in the country. This will allow women to be financially independent, and socially uplifted which is likely to eradicate the gender gap prevailing the third world countries.

Gender-neutral working conditions- The government should be critical about the root cause of low labor force participation in the economy. Factors such as women safety, childcare, domestic responsibilities deter large segment of women from working outside. Adequate measures such as childcare creche facilities for childcare, hostels for working women needs to be implemented to boost women participation in the formal sector. Providing women with safe, conducive and inclusive working environment is the need of the hour that will eliminate gender bias and will ensure more female labor force participation especially in countries like India.

Societal Prejudices - Societal prejudices such as preference towards male child, perceiving girl child as a burden, lesser use etc. remain the biggest culprit in the under-developing economies. As a result, girl child is given lesser opportunities in terms of education, health, and other skill development programmes. Such prejudices need to be eliminated from the society through awareness and sensitivity campaign, education programmes to induce people to have fewer child and smaller family size and equality between male and female children.

Women Empowerment- Appropriate actions should be taken to avoid cases like female feticide, sex-selective abortions to combat the societal challenges of favoritism towards male over females. Besides, awareness about women's right, women laws should be promoted to empower more women because an empowered women is more likely to have rational choices, informed decision making which in turn will generate positive developmental outcomes for the economy.

CONCLUSION

To sum up, we have conducted a multivariate regression analysis by keeping Human Development Index (HDI) as dependent variable and regressing it on three independent variables namely- fertility rate, female labor force participation, and Gross secondary education. Through this model, we find that that fertility rate is negatively correlated with HDI and therefore, women education and employment can act as best contraceptive towards declining fertility rates. This is further justified as female labor force participation and female secondary education enrolment tend to be positively related with HDI.

So, all these three independent variables that is Fertility Rate, Female Labor Force Participation and Female secondary education Enrolment are interlinked together, all these factors affect the economic growth of the country. It is equally important to realize the role of women as a major stakeholder in the national agenda. As all these factors will not only contribute to the GDP per capita of a country but also contributes to the HDI which is a broader measure of the quality of life.



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APPENDIX

