Determinants of Teen Pregnancy: An Empirical Assessment of OECD Countries

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Abstract:

This research paper investigates the determinants of teen pregnancy to uncover potential correlations among several social and economic factors. The study incorporates empirical data into a multivariate linear regression model to examine the impact of various socioeconomic variables such as education, income, health expenditure, abortion rates, and derive a comparison of the status of teen pregnancies among OECD countries. This study expands earlier research that concentrated on several of the most developed nations by emphasizing the socioeconomic status of women throughout the OECD members and uncovering the significance of governmental initiatives to improve such status. This study also aims to declare the fiscal and political implications that associate with high teen pregnancy rates such as lower college enrollment and high welfare dependency. The conclusions drawn support both positive and negative correlations between the socioeconomic factors included in the model and teen pregnancy rates.

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1.0 INTRODUCTION

Theoretically nations of similar developmental status should have similar socioeconomic and demographic conditions; however with respect to the incidence of adolescent pregnancy, the United States has the highest rates among the developed world. Typical empirical analysis on an individual basis has concentrated on significant socioeconomic factors that have greatly correlated with high rates of teen pregnancy such as race, lack of education, poverty, welfare dependence and generational teen pregnancy (Jones, Darroch, Goldman, Henshaw, & Lincoln, 1985). Although, even controlling for certain criteria such as race, the United States still holds the highest rates of teen pregnancy among its developed counterparts. This research papers aims at diagnosing the foundation establishing such a large differential for the United States in comparison to the rest of the developed world by attempting to discern the socioeconomic status of women residing in the largest and richest nations in the world and interpreting the initiatives of these governments to reduce the incidence of teen pregnancy through social and economic intervention.

This paper develops from the underlying hypothesis that nations with more educational and occupational opportunities for women, governments dedicated to gender related improvement policies, better health care systems and greater economic equality will also be the nations with the lowest teen pregnancy rates (Singh & Darroch, 2000). Previous examinations of the condition of teen pregnancy specifically in the United States identified that many of the adolescent girls becoming pregnant were suffering from disadvantaged social conditions and may have suffered from lack of motivation, lack of opportunity, depression, hopelessness and difficult living situations (Furstenberg, 1998). This particular research expands on those earlier analyses by introducing observations

regarding the concern of teen pregnancy among all OECD countries to uncover any social or economic differentiations unique to certain nations that may account for the differences in their teen pregnancy rates. The significance of this topic choice surrounds the discovery that although teen pregnancy rates in the United States have dropped consistently since its peak in the 1960s-1970s, the incidence of adolescent births to unmarried women have dramatically increased over the last decade, suggesting that recent accounts of teen pregnancy are resulting in more unstable, single part homes in which the child birthed is more likely to suffer from disadvantaged lifestyles (Furstenberg, 1998). Many nations in western Europe have significantly low teen birth rates, therefore it is crucial to decipher the socioeconomic condition in those countries to uncover the particular deficiencies in the United States that have resulted in such dismals records.

Early studies have focused primarily on the United States or a few of the largest and richest nations however this paper observes all OECD countries since many of the them have gone unnoticed and yet have some of the lowest teen birth rates. Characteristics unique to this research not only involves examining all OECD countries but also incorporating additional variables that concentrate on gender related concepts that convey a sense of a nation's effort or commitment to improving the lives of their women. Such indicators are conceptualized with values such as the GEM or Gender Empowerment Measure, or Female Labor Participation Rate.

The initial segments of this study will allow for familiarization by highlighting on relevant trends as well as a summary literature review. After formulating a foundation in

the topic area, an explanation of the multivariate regression model conducted will be incorporated with a description of the results.

2.0 TRENDS

This study is guided by several earlier research papers that concentrate primarily on teen pregnancy in the United States while generalizing the concern as a westernized crisis by comparing a couple of similar developed nations such as Canada, Mexico and the United Kingdom. As mentioned earlier, this social situation is particularly problematic for the United States, as indicating in Figure 1, because of the increasing trend towards teen births to unmarried women, despite the consistent decline in teen birth rates over the past few decades. The socioeconomic implications of this trend suggest that with higher rates of births to unmarried teen mothers, will evolve the manifestation of the highly correlated disadvantaged circumstances associated with teen pregnancy such as poverty, lack of education for the teen mother and most likely the child as well, poor health care and perhaps personality deficiencies that are a product of a difficult life (Singh & Darroch, 2000).

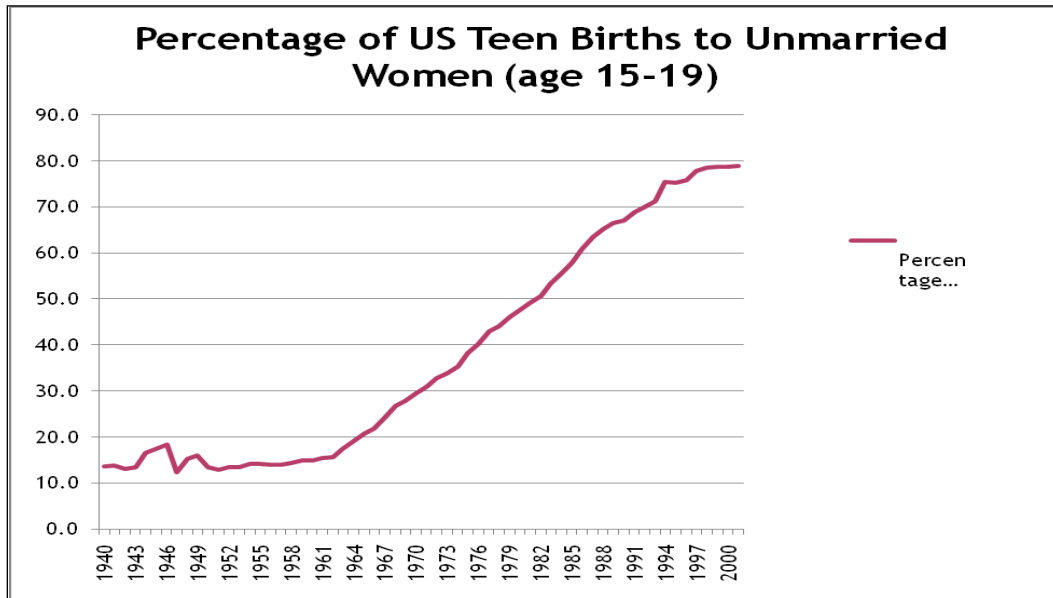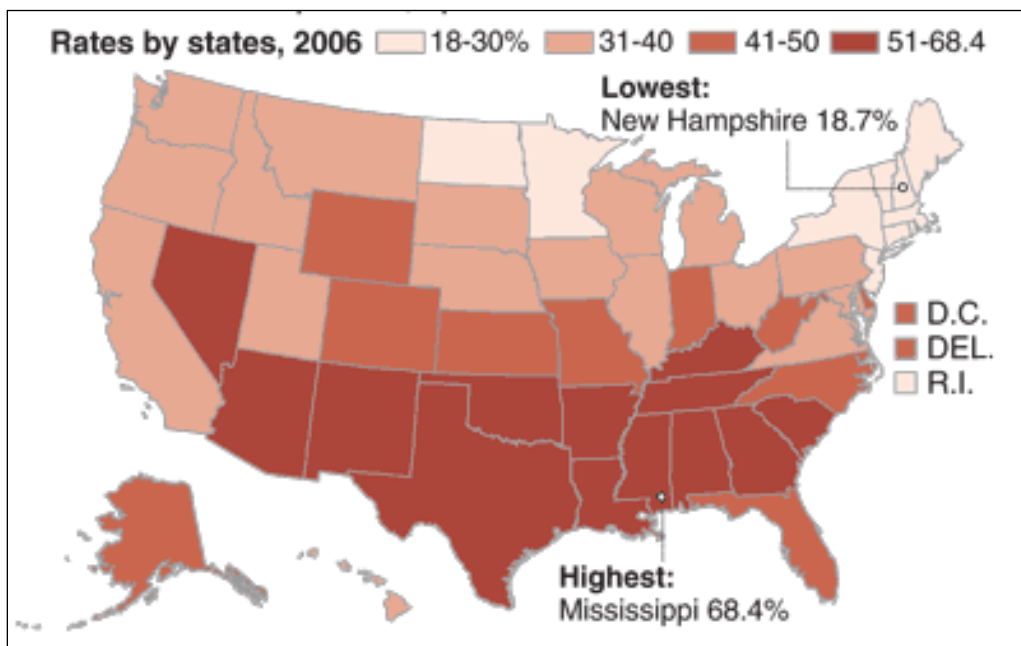**Figure 1: Teen Births to Unmarried Women in the United States**

**Figure 2: Domestic view of teen birth rates in US, 2006**

Source: Centers for Disease Control and Prevention

The above chart, Figure 2, marks a domestic trend in the United States which affirms the theoretical concepts that have been previously investigated which propose teen birth rates are highly correlated to a particular lifestyle and demographic conditions that involve poverty, crime, lack of education, poor housing and health status which have been predominantly more present in the southern parts of the United States. The southern states are associated with some of the lowest standards of living, lowest income levels, and highest crime levels and also have some of the highest African American population. Perhaps it is this demographic trend in the United States that has contributed to such high teen birth rates with respect to other developed nations.

For the purposes of this paper which has been analogous with the earlier research, the reference of a teen is referring to adolescent women between the ages of 15 and 19 during the pregnancy as well as at the time of birth.

**Figure 3: Teen Birth Rates in the United States**
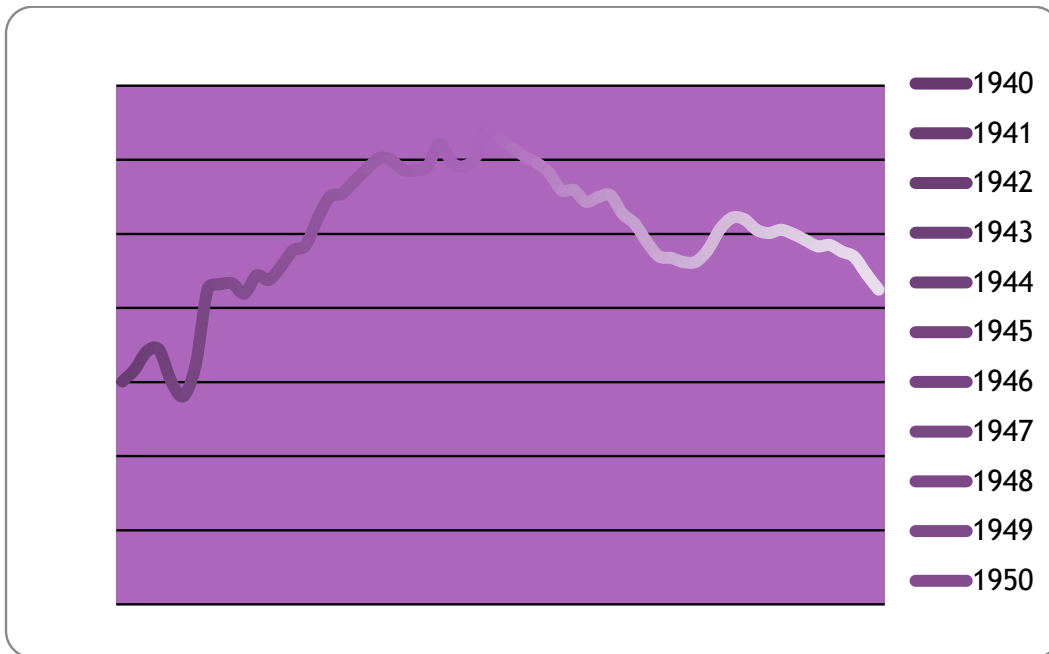
Source: Author's Compilation

Although Figure 3 identifies an improving condition for the United States, a comparison among their developed counterparts will reveal the real issue which is how the Unites States compares to the rest of the world and the perplexing reality, that despite similar economic size and status, the United States has very differing results.

The following two charts collectively demonstrate how inefficient the United States is in reducing the instance of teen pregnancy compared to the rest of the developed world. The first figure indicates both the birth rate and abortion rate among teen women aged 15-19 for 1996, while the second chart (which doesn't include all OECD countries) indicates the birth rates among teen women aged 15-19 for 2006. The significance of this ten year span is the noted spread between the United States and the rest of the countries which has increased despite the fact that overall teen birth rates in all the countries have had a declining trend.

Figure 4: Birth Rates and Abortion Rates per 1000 women age 15-19, OECD 1996
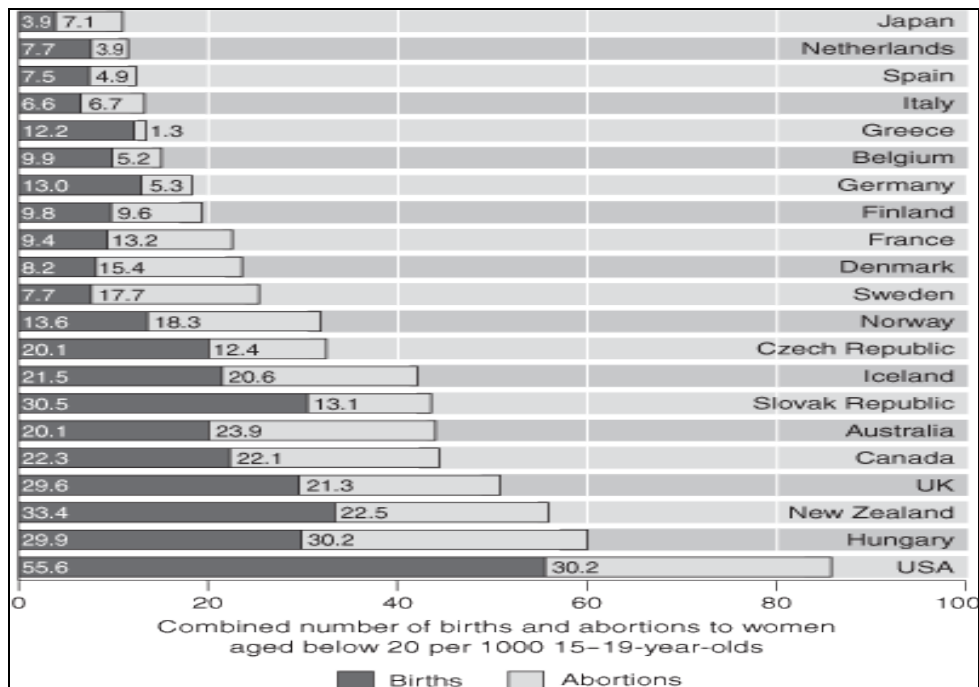
Source: The Medical Journal of Australia

Figure 5: Birth Rates per 1000 women aged 15-19 Country Comparison for 2006
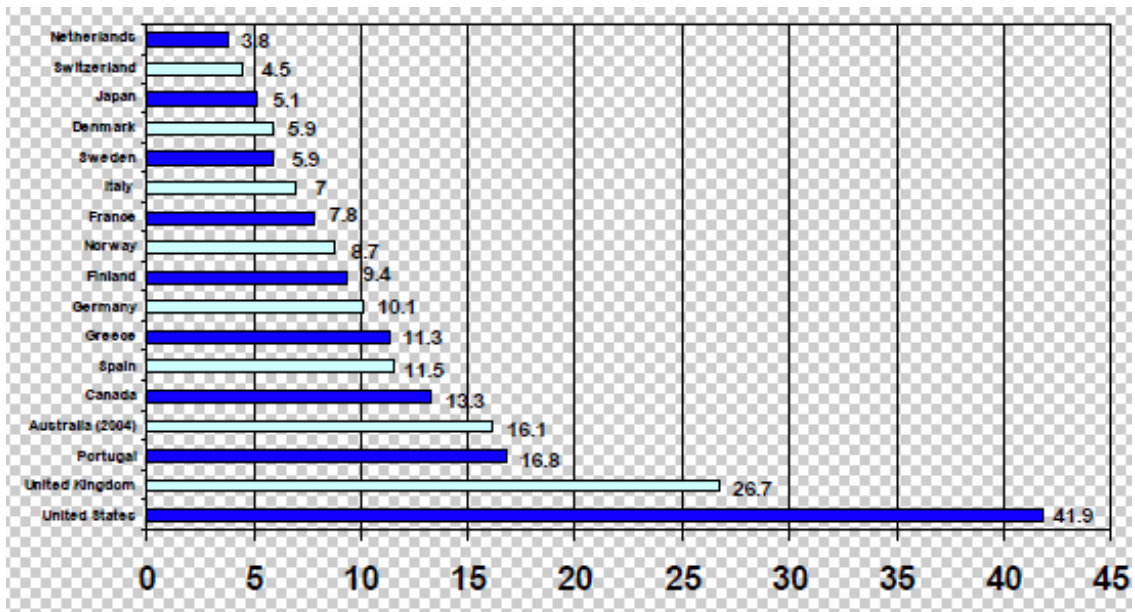
Source: United Nations Statistics Division (2006) Demographic Yearbook 2006

Figure 5 further puts into perspective how far the United States has to come to alleviate the teen pregnancy epidemic with respect to the rest of the developed world. Although the data from both charts shows a reduction in teen birth rates by 13.7 deaths per 1000 women for the United States, the country is still far behind its counterparts who have been much more successful in curbing the issue. It is specifically the western part of Europe that has shown the greatest improvement and notable reduction thus making it even more crucial to distinguish both the socioeconomic and sovereign differences.

3.0 Literature Review

Recent developments in the studies on teenage pregnancies in developed countries especially the United States suggest that although the instances of teen pregnancies are decreasing, certain trends are having much more devastating socioeconomic implications. In particular the differentials among various races and ethnicities are still a concern and more importantly as regard to the United States, it holds the records of the highest rates of teen pregnancy among the developed nations (Singh 2000). Evidence suggest that in most developed countries the occurrence of teen pregnancies presently has more than halved rates from thirty years ago yet the rates of teen pregnancy among unmarried women have increased dramatically. Jones et al. (1985), Singh (2000) and Berthoud and Robson (2003) declare that the socioeconomic status of teen pregnancy is so problematic because of high correlations to disadvantages outcomes and lifestyles. For many of the women experiencing adolescent childbearing, the statistics suggest are more likely to drop out of school, to have no or low qualifications, be unemployed or acquire a low-paid job, to live in poor housing conditions, to suffer from depression, and be highly dependent on social programs like welfare (UNICEF 2001 and Furstenberg 1998). In an environment in which there are increased educational and occupational opportunities for women, growing trend in later childbearing, smaller families and two-income households, these teen mothers are placed in a more difficult position. An empirical examination of developed countries will show similar correlations and trends; however the United States has consistently remained to have the highest teen birth and abortion rates. Although initial thought process would be inclined to infer that the reason the United States has greatly outnumbered the rest of their developed counterparts is the

large differential impacted by race. However, when analyzing rates among only white females the United States still has the highest rates (UNICEF 2001). Berthoud and Robson (2003) investigated the European environment with respect to the United States and found that in general sexual activity behaviors among teens did not differ by much. Rather, it was the dutch nations such as Denmark and Netherlands that had such lower teen pregnancy rates and were also the nations that had a more open position on the topic of teen sex, provided more knowledge and access to contraceptives and took a greater intiative to alleviate the disadvantaged socioeconomic factors that greater correlate to teen pregnancy rates in comparision to the United States (Robson & Berthoud, 2003).

Relevant findings suggest the differences are due to more aggressive political and social policies in certain nations related to health care services for women, labor rate participation and a unified national policy regarding maternity leave and more impactful, a highly westernized culture existent in the United States facilitated by media outlets that has greatly influenced child sex behaviors (Jones et. Al 1985). Singh (2000), Furstenberg (1998) and UNICEF (2001) imply that by increasing the opportunities for women, providing more education and health services, the rates of teen pregnancies will decrease which is why occurences in many western European countries and asian countries like Japan are the lowest.

4.0 Theoretical Implication

   The foundation of this research paper originates from several previous empirical studies therefore the general expectations are that the findings will confirm historically significant correlations and follow similar trends. Holistically, teen pregnancy and the instance of children born to teenage women are not ideal situations and represent disappointing realities associated with difficult and damaged future outlooks for these women. Countries that proactively facilitate the uplifting of their communities to provide the most heightened opportunities and highest standards of living should have instilled a distinct cultural norm that expels the most disadvantaged and deprived life choices which in essence can be reflected by lower teen pregnancies (Rhode, 1994). Some of these sovereign qualifications will concentrate on: standards of livings by way of GDP per capita and income equality; health status measured by life expectancy; individual enhancement indicated by the higher education attainment rates and female labor participation rate; governmental support and commitment to gender improvement measured by GEM value and health care spending. The expectations are that these factors which have been historically impressive in some of the north western European countries will continue to be highly correlated to the teen birth rates. Although the United States is a richer, more powerful nation, it has lagged behind its counterparts on enhancing the position for women, acknowledging the concern of teen pregnancy and incorporating policies to alleviate the situation (Kamerman et al. 2003). The underlying theory of this paper insinuates that young women between the ages 15-19 who are exposed to the best social and economic conditions will be less likely to become pregnant.

5.0 Data and Empirical Methodology

5.1 Data

The data employed in this research came from several international organizations and statistical databases. Annual information for 2002-2007 was collected for the members of the Organization of Economic Cooperation and Development, which represents the most developed nations in the world with the exception of Belgium, due to lack of sufficient data on teen birth rate statistics. Although this research paper often refers to both teen pregnancies and actual number of teen births, for the purpose of the empirical analysis the concentration of the regression was on rate of teen births for a controlled number of women. Due to large population discrepancies, logarithm was utilized when necessary to effectively compare all the OECD countries.

5.2 Definition of Variables

The main dependent variable was the teen birth rate per 1000 women between ages 15-19. The following independent variables attempt to ascertain the individual characteristics of the countries and generate correlations. The independent variable LGABTH represents the log of the number of abortions, while FMLBRT is the female labor participation rate, GEM is the designated value appointed to represent a country's commitment to gender empowerment, HLTHSP to indicate the a country's public expenditure allocated to health spending and resources as a percentage of total expenditure, GINI coefficient which is also a designated value appointed to measure a country's level of income inequality, EDUC which denotes the percentage of adult population that has attained a higher education for the ages 25-64, GDPPCP is the GDP

per capita which indicates the general standard of living and lastly FMLF, female life

expectancy to measure women's health status.

Table 1: Variables and Expected Signs

Acronym	Description / Function	Expected Correlation
TNBRT	Number of births per 1000 women aged 15-19, determine occurrence of teen pregnancies	Dependent Variable
LGABRT	Logged, number of abortions	+
FMLBRT	Female labor participation rate, as a percentage of labor force	-
GEM	Gender Empowerment Measure, value representing a country's commitment to empowering women and enhancing women's socioeconomic position	-
HLTHSP	% of total public expenditure allocated to health care spending	-
GINI	Measurement of a country's income inequality	+
EDUC	% of adult population higher education attainment rate for ages 25-64	-
GDPCP	GDP per capita, measures standard of living	-
FMLF	Female Life Expectancy, determine health status	-

Basic Model

TNBRT = Bo+ B1LGABTH + B2FMLBRT +B3GEM+ + B4 HLTHSP +

B5GINI +B6EDUC + B7GDPPCP+ B8FMLF+ ε

What these variables are attempting to uncover are the following:

1. ***Abortion Rate-*** Does higher abortion rates correlate with high teen birth rates? If

   there are a lot of abortions occurring this may indicate increased sexual activity

   and unsafe and irresponsible sexual practices in teens.

2. ***Female Labor Participation Rate-*** Does a high female labor participation rate

   have a negative correlation with teen birth rates? If more women are working and

committed to fostering careers perhaps that results in more conscious and safe

sexual activity in teens, reduced desire to build a family?

3. ***Gender Empowerment Value-*** Does a high GEM value have a negative

correlation to teen births? If a country provides more opportunities and support

for women, perhaps there will be less emphasize on women's roles as only home

caretaker and child bearer, and more young women will focus on successful

careers, thus deterring sexual activity.

4. ***GINI Index-*** Does a higher GINI Index have a positive correlation to teen birth

rates? Perhaps more income inequality may result in fewer opportunities for

women, poverty, and discouragement and ultimately lead to high sexual activity

among teens?

5. ***Education Attainment-*** Does higher education levels have a negative correlation

to teen pregnancy? If women are more education, perhaps they have less incentive

to engage in unsafe or underage sexual activity because they know the

consequences, or are too focused too jeopardize a career path.

6. ***Female Life Expectancy-*** Measure of the status a country's population's health,

healthier women may be less prone to disease, unsafe sex practices, etc.

7. ***GDP per capita-*** Does a high GDP Per Capita lead to negative correlation to teen

births?? Higher standards of living may correspond with other positive social

factors such as higher education rates, better health conditions and occupational

opportunities.

8. ***Healthcare Spending-*** Does more spending on health care result in a negative

correlation with teen birth rates? If governments spend more money on health

care programs perhaps teen women will have more access to contraceptives, be made more aware about consequences of adolescent sexual activities, live healthier and safer lives.

5.3 Empirical Analysis

The hypothesis in the introduction suggested that teen pregnancy rates would be correlated to the socioeconomic condition of the observed country such that positive correlations would factor from income inequality represented by a high GINI coefficient or high abortion rates. In addition, the rest of the variables were expected to have negative correlations since they portrayed positive situational circumstances for the teen women in those countries. The results of the multivariate regression processed reveal that not all of the expected variables were statistically significant or similarly correlated. The findings report that the contributions made by this study to the previous research on teen pregnancies were relevant and applicable. Of the eight variables, the three that had statistically significance were GEM, FMLBRT and GDPPCP, however FMLBRT was very slight positively correlated. Such a perplexing result contradicts previous assumptions made stating that the more women in the labor force, the lower the teen pregnancy rate. Perhaps this discrepancy is realized because the labor participation rate could be indirectly referring to the teen population such that perhaps higher female labor participation rate may indicate less woman at home monitoring the child, more unconventional family structure and less maternal attention to child behaviors. Although, more essential were the negative correlations for variables GEM and GDPPCP which went in line with the expectations and affirmed the claim that countries that had higher

standards of living and a more aggressive commitment to empowering women also had lower teen birth rates.

There are several possible explanations for why the other variables were not statistically significant. For the abortion rates, there were two trends occurring which could have disrupted the normal distribution. Firstly, for almost all countries the number of abortions was significantly more than the number of teen births, which would explain the positive correlation. However, there are several countries which are the lesser developed of the bunch which had very high teen birth rates but very low abortion rates. Mexico had only several hundred abortions each year for the entire country despite teen pregnancy rates reaching half a million each year, resulting in abortion rates for the 5 years that average 0.03. Perhaps it is because in these countries these teens have little or no access to abortion because of poorer health care systems or income reasons. Even more so, abortions can be at the forefront of serious religious controversy making it severely legislatively restricted or denoted illegal which would result in many private operations that have gone unreported such as in Mexico. Lastly, some countries do not have accurate or any statistics on abortion such as Korea, Luxembourg and Austria which creates a lot of empty information to input in the regression. In regards to health care spending which was initially expected to be a very vital variable, it was negatively correlated meaning countries that spend more on healthcare would have lower teen birth rates but it wasn't statistically significant perhaps because public expenditures is a product of economic status and it would be unique to what is happening in each country. Even more so, outliers such as the United States spend the most on health care compared to the other OECD countries but also have the highest teen birth rates. As for the

following variables perhaps GINI and EDUC would have had greater significance if they were indicated by gender specifications because even though a country may have excellent education attainment rates or income equality if it doesn't refer to women then it has no value for this research and those factors may have contributed to the outcome of their regression results.

Table 2: Summary of Statistics

Variable	Obs	Mean	Min	Max	Std. Dev.
TNBRT	174	16.35057	2	70	13.33161
LGABRT	136	4.353153	2.240549	5.977134	0.859504
FMLBRT	174	43.66552	25.82698	48.41137	4.433681
GEM	125	0.72324	0.29	0.93	0.136916
HLTHSP	145	14.76483	5.1	19.6	3.040503
GINI	115	32.23043	19.5	54.6	6.446571
EDUC	174	62.84483	22	95	16.76475
GDPPCP	174	28580.33	5960	79793.3	11101.27
FMLF	171	81.26942	73.9	86	2.423955

Table 3: Regression Results

	Coefficient	Std. Error		Prob.
LGABRT	0.454333	1.200373		0.7061
FMLBRT	0.049855	0.019149		0.0106
GEM	-1.73718	0.697563		0.0144
HLTHSP	-0.01964	0.023779		0.4109
GINI	0.076972	0.008806		0
EDUC	0.001234	0.003824		0.7477
GDPPCP	-1.48E-05	9.48E-06		0.1221
FMLF	-0.00666	0.024895		0.7897
C	-0.0215	2.212198		0.9923
R-squared	0.645741	Mean dependent var		3.80829
Adjusted R-squared	0.617114	S.D. dependent var		0.64799
S.E. of regression	0.40096			

6.0 Conclusion

      The concentration of this research paper was to expand on earlier investigations of the determinants of teen pregnancy while introducing additional socioeconomic factors that may establish a relationship to the instance of women becoming mothers in their adolescent years. Even more so, this research incorporated additional demographics by examining all OECD countries to uncover potential explanations for why the United States has significantly higher teen birth rates compared to the rest of the developed world for the purpose of generating assumptions or implications as to policy changes that the United States should employ to tackle this socioeconomic epidemic. An internal assessment reveals that this large population of teen mothers in the United States infers large burdens for the government in the form of high welfare dependency, high school dropout rates and low college enrollment, and other monetary obligations on behalf of the government such as public housing, income tax returns due to overall low wages and high poverty levels for these teens and more importantly, foregone GDP due to an uneducated, unproductive population that isn't proactively contributing to the enhancing the country as a whole. In summary, the results of the regression reveal that countries that enforce more policies to enhance their female population and empowerment their development through social, occupational and economic opportunities will reduce the problem of teen pregnancy.

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