

**Do You Work or Do You Study?
Children's Work in a Comparative
Historical Perspective**

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Do you work or do you study? Children's work in a comparative historical perspective.

In this paper we compare two historical scenarios very different one to each other both in institutional and geographical terms. What they have in common is the situation of relative poverty of most of the population. On the one side we are dealing with historical industrializing Catalonia in the North East of Spain, a country exhibiting poor economic yields in the context of European and non European industrializing nations in the 19th century. We compare children's work patterns in 19th century Catalonia with those of current developing countries in Latin America, Africa and South and East Asia. This kind of exercise in which the nexus of the comparison are the levels of wealth of countries that are unsuccessful to achieve high standards of economic growth allows us to combine the micro historical analysis (in the Catalan case) with the macro comparative approach in current developing countries. By means of both, the micro historical analysis and the macro regression analysis we obtain the result that adult women's skills and real wages are a key factor when we want to explain the patterns of children work. While female real wages increased a sharp rate in 19th century Catalonia we obtain very different results in the case of developing countries. This different gender bias helps to explain why in some cases children continue to work and also why some parts of the world continue to be poor according to our regression analysis.

Key words: Children work, Women's work, Human capital, Fertility, Income inequality

Jel codes: J22, J24, J13, J16, O1, N36

DO YOU WORK OR DO YOU STUDY? CHILDREN'S WORK IN A COMPARATIVE HISTORICAL PERSPECTIVE.

1. THE HUMAN CAPITAL TRANSITION.

Laboring families, on the side of labor supply, and firm's labor preferences on the side of labor demand can explain the reasons for children's work in different scenarios. On the side of the family, and during the demographic transition, children's work represented a very flexible asset providing security in unstable worlds (Basu, Hoan Ban, 1998). They allowed their parents to confront adverse economic situations caused by the business cycle (like the rise of unemployment in the formal economy) or the family cycle (this was the case when parents were growing old and had to rely on their children as the main source of income of the family economy).

On the side of the demand for children's work, in backward societies, such as 19th century Spain or current developing countries, firms had a preference for cheap (in absolute terms) economic resources and production factors without making the economic calculation of their opportunity cost and productivity yields. Training children through the apprenticeship system was the alternative that the factory provided to formal education necessary to acquire the skills to deal with factory or farm work. By means of the apprenticeship system children learnt the know how of industrious factory skills, dexterity and discipline and adaptation to the firm hierarchy. On the other hand children, the same as women, were less conflictive than adult men. In the Catalan context riots and strikes caused by trade unions to fight against low wages intensified the use of women and children instead of adult men in rural settings that could make use of the free energy of water and where male trade unions were absent (Camps, 1990; García Balaña, 2005; Llonch 2004).

While during the 19th century geography of industry has been considered very dependant on natural resources and coal, with the beginnings of 20th century, the spread of the second technological revolution brought with it increasing demands of education and human capital both on the side of employers and employees. Endogenous theories of growth began to apply in the sense that labor ceased to be a production factor per se, but also owned capital, human capital, which in turn increased a lot levels of labor productivity.

In backwards societies the beginning of the human capital century put into operation several shocks that affected the family size and composition and also the rationale of laboring families. More expensive education and training of children who postponed the age of entry into the labor market affected the family budget restriction and a “trade of” between “quantity (that is fertility levels) and quality (that is levels of education)” of children was put into operation. Fertility levels diminished while children who in the Catalan scenarios of the 19th century began to work at the age of 7 postponed this vital event to the age of 12 at the beginnings of the 20th century when they had completed mandatory primary schooling. Or to put it in other words, in the new situation there were less children that had attained higher levels of education. This may have had very clear effects on productivity levels. It was an engine stimulating growth of capita GDP as a consequence of human capital accumulation and also as a result of lower demographic pressure on economic resources relative to the situation when fertility levels were very high (Camps, Engerman, 2009). The question we want to answer here is how this process begins.

2. A MODEL OF THE TRANSITION TO THE HUMAN CAPITAL CENTURY IN SPAIN.

Recent research on developing countries has stressed the role of literate and skilled working mothers in this trade of between the “quantity and quality” of children. In the Spanish case Baizan, Camps (2007) could identify, by means of a longitudinal analysis of the vital events of women from the cohorts of birth 1900-1950, that the education levels of the mother had a very significant impact on the education levels of their children and also on the education levels of their grandchildren. The data source, the Spanish Sociodemographic Survey of 1991 (SSS) did not allow us to identify the role of the father in this process. We know that the marriage market in historical Spain was

very homogamic and a normal outcome of this fact is that and educated women married an educated men. But in historical Spain the gender roles of men and women were very clearly identified and while the role of men was considered to be breadwinning, the primary role of the women was de social and demographic reproduction of the household. Therefore we are assuming here that the education levels of mothers (more than the education levels of the fathers) affected the education of the children since they were the responsible persons for rearing and bearing children and also for educating them as a complement of school education.

Another of the very significant results by Baizan; Camps (2007) is that the most significant variable explaining fertility levels was the education of the mother. According to the coefficients and levels of statistical significance this variable is more important than commonly used economic variables used by the literature, such as the difference between urban and rural or sector of employment. SSS does not provide information on religious beliefs which have been identifies by Dreze and Sen and Sen as a very important information to explain women's activity both in economic production and demographic reproduction. But during most of the period considered in that essay Spain was under a National Catholic political regime and most of the people were practicing Catholicism.

From results obtained in the Spanish case we can conclude that fertility and the education of the children are endogenous to the education levels of the mother:

$$(1) F_i = f(H_{mi}) \quad \text{and} \quad (2) H_i = f(H_{mi})$$

Where F_i are the Fertility levels at year i ; E_i are the number of years spent at school by children at year i ; and H_{mi} are the education levels of mothers at year i .

We can also express economic growth as a function of production factors, human capital accumulation and the rate of demographic growth. In the aforementioned context of backwardness and in order to simplify the model we also assume that mortality conditions don't improve and therefore demographic growth is a function of fertility levels.

$$(3) Y_i = f(K_i, L_i, T_i, H_i, P_i)$$

Where levels of per capita GDP (Y_i) are a function of levels of industrial capital (K_i), labor (L_i), land (T_i), human capital (H_i) and demographic growth $P(i)$. Since we assume that demographic growth only depends on fertility levels, therefore growth of the labor force depends on growth of fertility levels:

$$(4) P_i = F_i$$

i

$$(5) L_i = L_0 (1 + F_i)$$

From what we have assumed at (1), (2) (4) and (5) we can reformulate (3) as follows:

$$(6) Y_i = f(K_i, H_i, L_0, T_0);$$

Where L_0 (labor in the starting point) and T_0 (land) are constants.

Therefore in the model born by the Spanish experience levels of growth of per capita GDP finally depend on the levels of growth of industrial capital and levels of growth of the education adult women while labor and land are constants.

3. THE HISTORICAL EVIDENCE FROM CATALONIA.

During the first third of the 20th century, and contemporary to the diffusion of the second industrial revolution, physical and human capital shocks sharply transformed Catalan family economies. Between 1860 and 1930 the literacy rates of Catalan population rose from 24 per cent to 82 per cent and the educational gender gap (calculated as the difference between illiteracy of women and men) diminished from 28 to 12 per cent among the same dates. Together with this set of events women's real wages in the textile mills more that doubled in the same period (see Figure 1). According to Montserrat Llonch (2004) women's human capital was acquired in trade schools (Escola Industrial) that offered vocational training specially adapted to the Catalan textile mill, which moved from town to the countryside using the free energy of water and avoiding labor conflictivity caused by anarchist trade unions. Between 1920

and 1930 women's hourly wages increased in an absolute percentage of 70 per cent. The sharp increase of the price of women's time (real wage) increased the opportunity cost of time devoted to unpaid household demands for labor. This had as a consequence the sharp reduction of fertility which attained its minimum of 1,9 (below replacement) as soon as in the years 1930s (legitimate fertility of women of the birth cohort 1910-1914 (Cabr , 1999) –see figure 1-. The improvement of the education of mothers as we have exposed following the model by Baizan, Camps (2007) was an engine to improve the education levels of the children. But this was not the single effect. The important improvement of women's real wages gave the family some of the financial bases to remove children from the labor force. As we stated above it allowed children to postpone the age engaging the labor market from 7 to 12.

Therefore in the Catalan case we can clearly identify the effect of the mother's education levels on children's work, education, and fertility and therefore on human capital formation. What is not so clear is the role of this education on improvements on economic growth. According to all estimations Spanish economy only began to grow with vibrancy after 1960. The main reason that explains why Spain did not significantly grow before, are the social conflicts of this period. The opposite and conflicting interests between land owners and owners in general, the clergy and religious institutions, old policy makers and the army among others social groups and the new enlighten and educated working class, liberal professions, new educative institutions brought by the republican government and new republican politicians caused an armed confrontation during the years of the civil war (1936-1939) that was responsible for negative rates of growth of per capita GDP and was followed by two decades of economic autarchy and virtual economic isolation. Therefore social tensions and political confrontation in the years 1936-1960 caused a draught back in economic growth measured by per capita GDP (Pados de la Escosura,). In spite of the achievements attained in the fields of human capital and fertility evolution other historical facts did not allow Spain to grow according to the human capital transformation that the country was experiencing.

4. HUMAN CAPITAL AND CHILDREN'S WORK IN CURRENT DEVELOPING COUNTRIES.

One of the most positive consequences of the second globalization era in the years from 1970s to the present has been the improvement of the human capital stock of poor countries, particularly in countries of Latin America and South and East Asia (see Camps, Engerman, 2008). Many authors committed with world's economic development have been dealing with these transformations that are more visible if we search the results in variables that affect the quality of life than the economic evolution. When we want to grasp on the origins of this current transformation, as opposed to the model we built when we were trying to analyze the lessons from the past, it is important to stress the fact that in the 19th century, and as a result of industrial revolution and the first global era levels of per capita GDP between countries (between countries inequality) began to diverge –see Williamson (2008)- but this trend to diverge at the country aggregate level has increased during the 20th century. It is important to stress this fact because the outcomes of this exchange between poor and rich countries are now affecting more clearly other human capital spheres of ordinary life including health and life expectancies, infant mortality, scientific knowledge, educational infrastructure and services than levels of wealth and income of ordinary people.

One of the better explored aspects of these achievements has been the improvement of life expectancies (Becker, 2005) and infant mortality (Bloom, Williamson, 1998). In the years 1960-2000 in many poor countries this transformation has been very outstanding and is the reason why world population has been growing during the last part of the 20th century. But what we want to stress here are the remaining problems that don't allow for a positive feedback of human capital accumulation on economic growth (the same as in the micro historical analysis we made in the first part of the paper).

In current poor countries the same as in the Spanish historical scenarios presented in the first part of the paper we observe that the activity rates of women are high, sometimes very high. But it is important to stress that the nature of this labor is very different from what we were trying to describe when we analyzed the Spanish (Catalan) case. It is possible to report using the time budgets of current poor countries that the number of hours women can allocate to paid production per day is lower or equal to 4 while domestic work implies a dedication of 6 and 7 hours per day. Housework technologies are very difficult to globalize since they affect family formation patterns

which in turn can be explained by social capital variables such as religion and culture. In many countries of Africa, Latin America and South Asia competing demands of their time for paid and unpaid work do not allow them to fully develop their human capital capabilities and those of their children. The very different nature of women's work in poor countries has further implications, because in this case their paid activity is positively correlated with infant mortality and illness. In turn, these poor countries where still women and children are working in the informal sector of the economy are the countries showing higher levels of within the country inequality of income distribution. In figure we plot the Gini coefficients of income distribution by Deininger and Squire (1996) for years 1990-1995 and its relation with the gender gap and we obtain a positive correlation. The greater the inequality levels of an economy the wider the gender gap and the higher the rates of participation of children in paid work. In Camps (2010) we observe that economic inequality achieves lower values in open economies and in countries where women are more visible in public and professional decision making (women empowerment). All these events occur more easily in egalitarian societies than in extremely unequal ones where most women have low access to human capital services for them and also for their children.

The results from the regression analysis are consistent with the model we made explicit in part 2 of the paper. In table 1 we see that children's work continues to exist in extremely gendered societies where the human capital of women is very low in absolute and in relative (to men) terms, and fertility levels are high. According to table 2 this has further implications on economic growth resulting in economic stagnation of autarchic and isolated countries showing high political instability and low levels of women empowerment. In principle religious beliefs seem to have a much lower impact on economic growth than the gender bias.

5. CONCLUSION

Most of the economic literature has stressed the role of social capital on economic growth. In this paper we make explicit that the gender gap and the cultures that promote gender differences in economic power and public responsibilities are

placed in very unequal economic countries. This fact is tightly correlated with children's work and a poor participation of women into paid work. This may happen in economies with poor investments in women's human capital, high fertility levels and low investments in health and therefore high levels of infant mortality. Since gender bias has very important outcomes on economic achievement, we prove that gendered biased societies are less able to promote economic growth and economic improvement. Indeed when measuring the influence of different variables related to social capital we obtain the result that the gender bias has higher economic impact than other variables such as religion or differences between urban and rural environments.

This result is truth not only in current developing countries but also in the historical scenarios of Spain during the first globalization period. In this last case political instability seems to be the main factor damaging economic growth the same as in current developing countries. In all cases market openness is good for women as well as for men.

FIGURE 1. Women's real wages and fertility evolution: the Catalan case, 1900-1935.

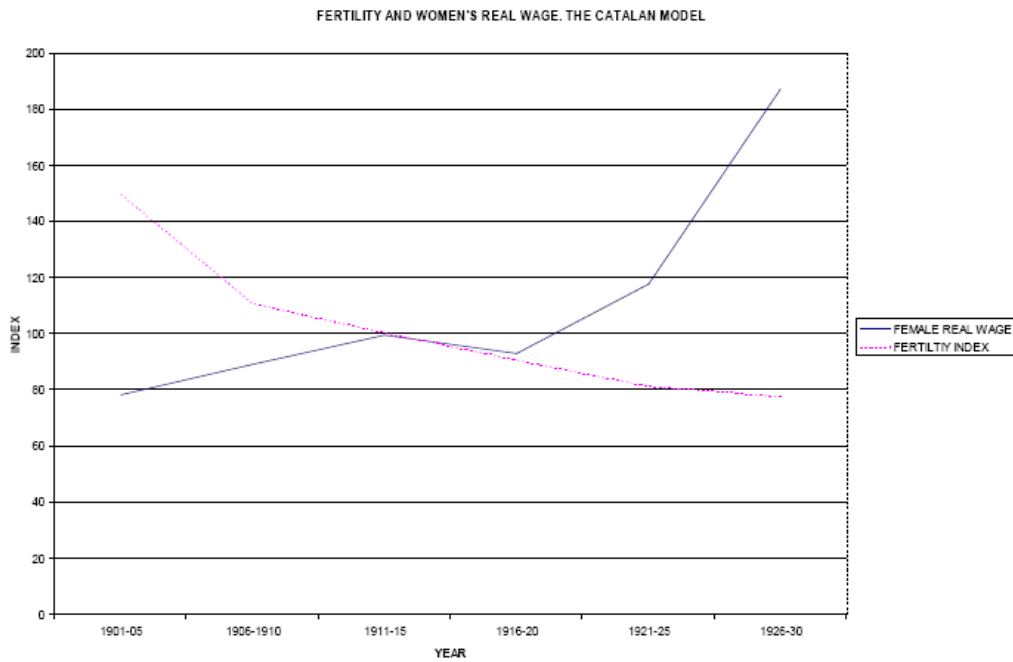


FIGURE 2. THE HUMAN CAPITAL TRANSITION AND LABOR MARKET DYNAMICS

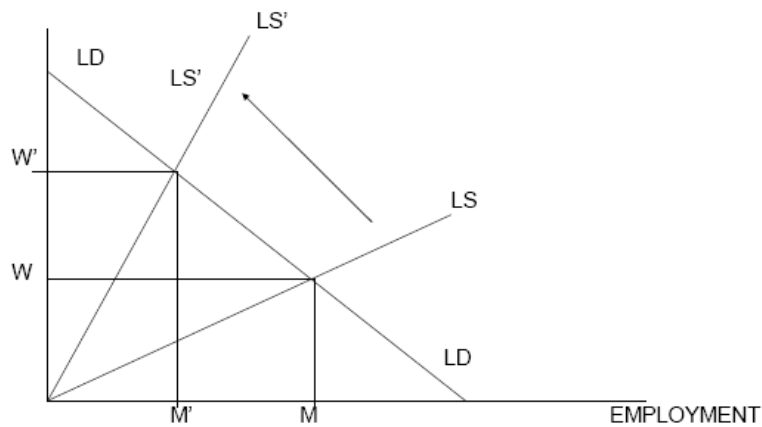
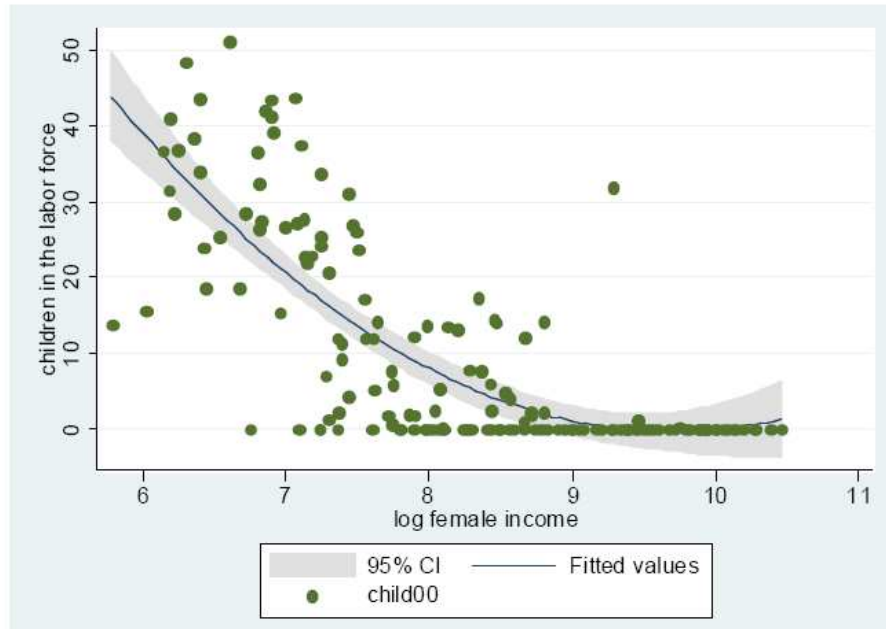


FIGURE 4. CHILDREN'S WORK AS A FUNCTION OF WOMEN'S EARNINGS. WORD WIDE SAMPLE, 2000-2003.



**FIGURE 5. LIFE EXPECTANCY AND GDP. DEVELOPING WORLD
(BLUE:AFRICA; RED: SOUTH AND EAST ASIA; GREEN: LATIN AMERICA)**

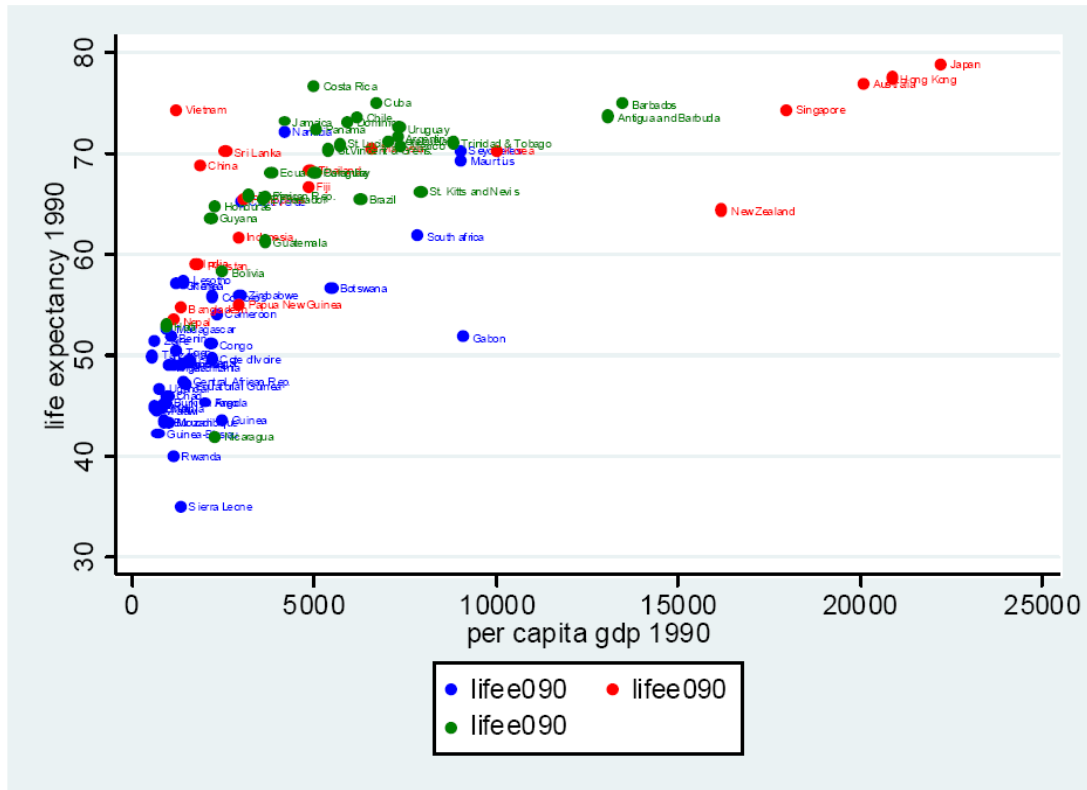


FIGURE 6. THE U SHAPED FEMALE LABOR PARTICIPATION FUNCTION IN DEVELOPMENT. WORLD WIDE SAMPLE, 2000.

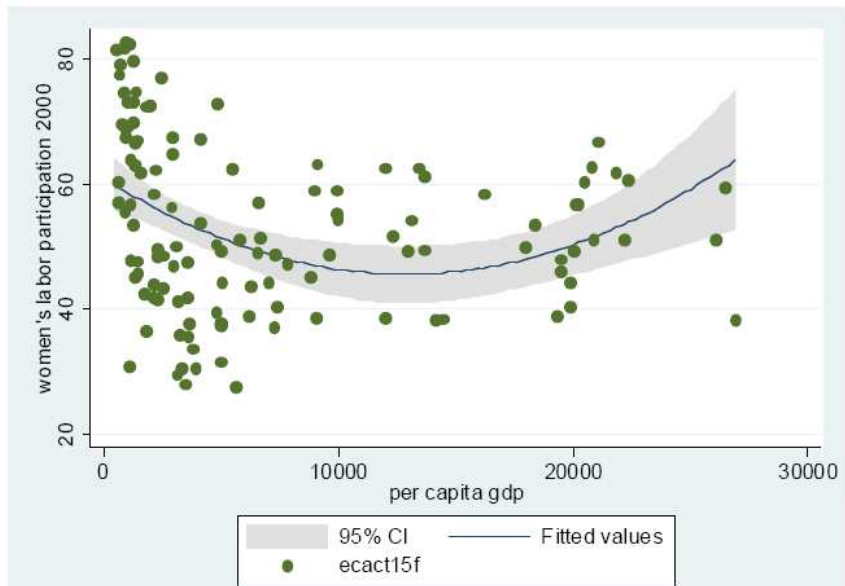


FIGURE 7. THE INFLUENCE OF CHILDREN'S WORK ON INFANT MORTALITY. WORLD WIDE SAMPLE, 2000.

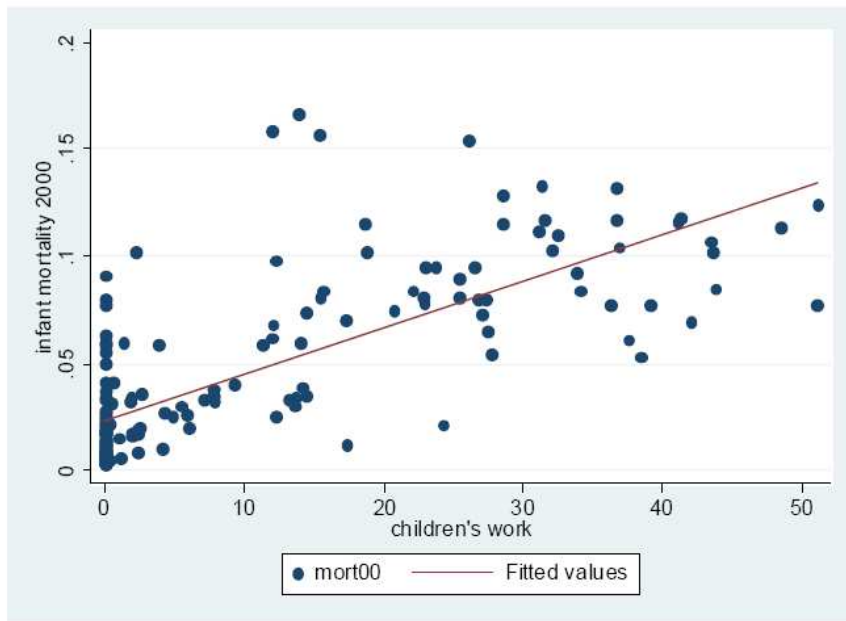


FIGURE 8. THE INFLUENCE OF FEMALE LABOR PARTICIPATION IN INFANT MORTALITY. WORLD WIDE SAMPLE, 2000.

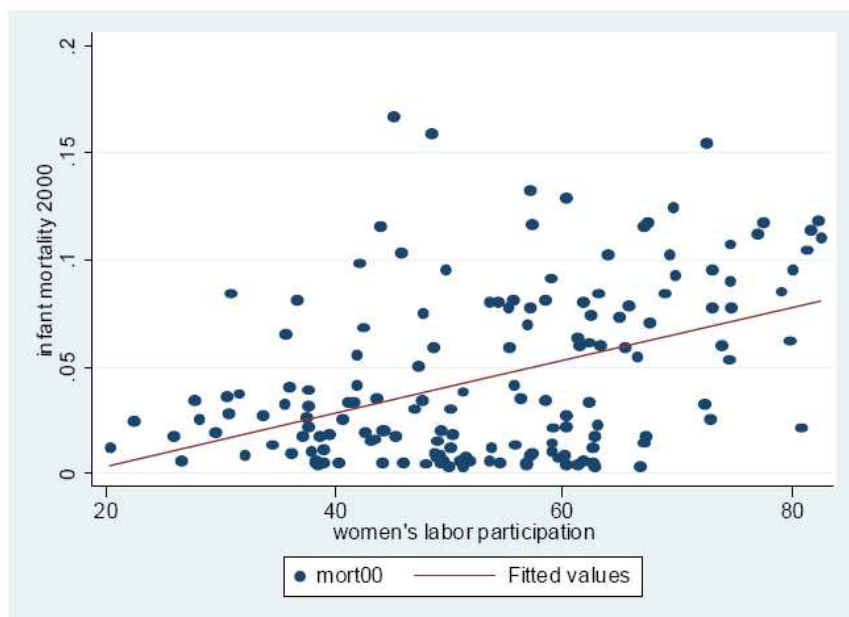


FIGURE 9. THE RELATIONSHIP BETWEEN THE GENDER GAP (income female/income male) AND ECONOMIC INEQUALITY.

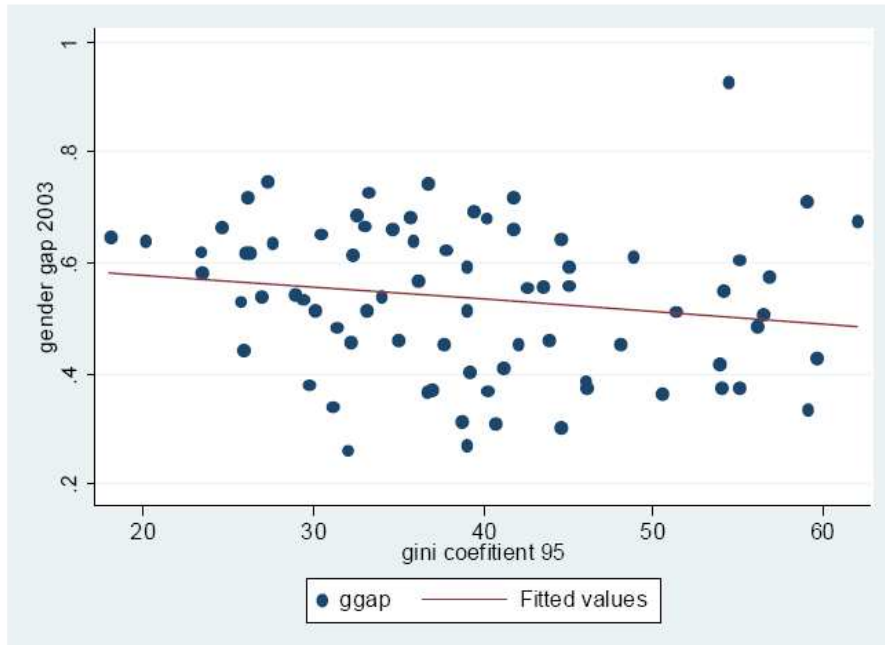
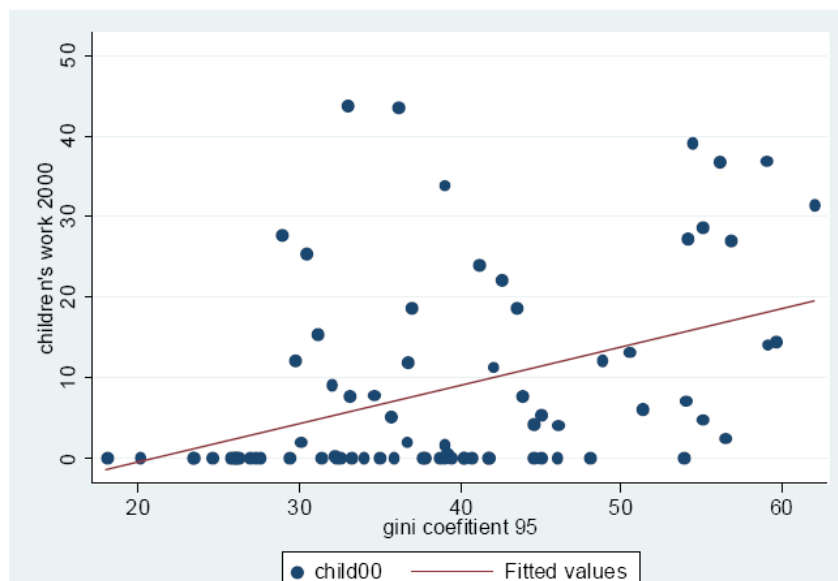


FIGURE 10. THE RELATIONSHIP BETWEEN CHILDREN'S WORK AND ECONOMIC INEQUALITY.



**TABLE 1. EXPLAINING CHILDREN'S WORK IN NOWADAYS
DEVELOPING COUNTRIES. AN ACROSS COUNTRY PANNEL LINEAR
REGRESION, 1960-2000**

DEPENDENT VARAIBLE:	% CHILDREN AGED 10-14 IN THE LABOR FORCE
Log per capita GDP	-0.27269 (0.230874)
Years in school women/men	-7.396143 (1.996417)***
Years in school women	-0.8854226 (0.1523771)***
Mother's mortality at birth	0.0006 (0.0001765)***
Fertility	1.257317 (0.1659347)***
Constant	18.63832 (2.973)***
N	833
R-sq: within	0.4985
between	0.7365
overall	0.7194
Wald chi2 (5)	849.25

Dependent Var.	Whole sample log(gdp per capita)	Developing	S/E Asia/LA
percentage of children labor	-0,049 [0.005]***	-0,035 [0.005]***	-0,03 [0.024]
measure for openness	3,437 [0.917]***	0,281 [1.445]	2,378 [3.161]
Catholic	0,002 [0.003]	0,012 [0.004]***	0,003 [0.006]
Other Christian	0,007 [0.004]*	0,016 [0.008]**	0,031 [0.019]
Muslim	-0,003 [0.003]	0,007 [0.004]*	0 [0.007]
Jewish	0,758 [0.199]***	-0,131 [0.580]	0,208 [0.883]
Hindu	0,005 [0.009]	0,025 [0.009]***	0 [0.036]
Buddhist	0,013 [0.005]**	0,016 [0.005]***	0,015 [0.008]*
measure for political instability	-0,819 [0.283]***	-0,395 [0.271]	-1,167 [0.663]*
women in gov(%)	0,01 [0.006]*	-0,008 [0.009]	0,001 [0.015]
Constant	7.482	7.227	7.43

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