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Abstract

In recent years, a growing number of authors have turned their focus to the question of why children work. While much of the research focuses on household level factors, macroeconomic factors have gained increasing attention. This is particularly true in the case of globalization. The purpose of this paper is to contribute to the literature on the role of globalization in child labor by examining a specific aspect of globalization: social globalization. The results of the empirical analysis indicate that social globalization does have a significant impact on the average incidence of child labor in the cross-country sample of developing countries.

Key words: child labor, social globalization, norms

JEL Classification: J20; O11.

1 Introduction

Research into the topic of child labor has experienced a significant upswing in the past two decades. Yet despite this increased attention, child labor remains a significant problem in many parts of the world. According to recent estimates by the International Labour Organization (ILO), there were approximately 176 million children between the ages of five and fourteen in employment in 2008, of which roughly 53 million were participating in hazardous work (Diallo et al, 2010).

In order to reduce the incidence of child labor in the world, it is necessary to understand its root causes. The existing body of theoretical and empirical research into the topic of child labor reveals that child labor is a multifaceted problem, and that a number of factors contribute to the decision to send a child

to work[1]. The majority of the literature has focused on the factors that are relevant at the level of the household when attempting to explain child labor, such as subsistence poverty and credit constraints. In recent years, however, growing attention has been paid to the role of macroeconomic factors, such as economic growth, income inequality, and in particular economic globalization. Indeed, as the globalization debate in general has gained momentum, interest in the influence of international trade and foreign direct investment on the incidence of child labor. This paper contributes to the growing body of literature examining the relationship between globalization and child labor by examining another aspect of globalization, namely social globalization. To the best of my knowledge, this is the only study that explicitly examines the relationship between social globalization and child labor. Like the term globalization itself, the term "social globalization" is somewhat indistinct, with no one universally accepted definition. For the purpose of this paper, I will delineate social globalization along the same lines as the KOF Index of Globalization, i.e. social globalization is meant to capture the international spread of information, ideas and people (Dreher, 2006). There are two potential channels through which social globalization might impact child labor. One is the spread of (international) norms, where the hypothesis is that greater exposure to international norms will lead to a lower acceptance for child labor and/or a greater preference for schooling, and will therefore be negatively related with child labor. This hypothesis is related to an older body of literature on the impact of international norms on a range of political and socioeconomic outcomes. The second hypothesis is that increased social globalization will increase the schooling by expanding the potential labor market for skilled labor, which would have the effect of increasing the demand for schooling and decrease the incidence of child labor. This hypothesis relates to the existing literature on international migration and educational attainment. Finally, social globalization is also related to the research into the impact of information and communications technology (ICT) on various aspects of development (see for example United Nations, 2005).

The relationship between child labor and social globalization is analyzed empirically for children ages 7 to 14 using cross-country data from the Understanding Children's Work program. In keeping with much of the previous cross-country research, the sample is limited to developing countries, which gives a maximum sample size of 86 countries. The results indicate that there is a sig-

[1] See Basu (1999) and Congdon Fors (2012), for example, for surveys of the theoretical and empirical research into the causes of child labor.

nificant negative relationship between social globalization and child labor. This relationship is robust to the inclusion of a number of control variables, including the log of per capita GDP and variables capturing the composition of the economy. The significant and negative relationship persists when using an older and larger data set collected by the International Labour Organization (2000), and when applying instrumental variable estimation to the original data set. It is not possible, however, to distinguish the exact channel through which social globalization affects child labor.

The remainder of the paper is organized as follows. Section two provides some definitions and background as to the extent of child labor in various regions of the world, as well as the distribution by sector. Section 3 reviews the existing literature on the relationship between economic globalization and child labor, and explores the channels through which social globalization can be expected to influence child labor. The first two categories focus on constraints faced by the household that may induce them to send their children to work. The third category deals with market imperfections that can lead to increased incentive to send children to work, while the fourth category deals primarily with the issue of agency. The role of gender and fertility are also briefly highlighted at the end of the section. Section four describes the data to be used in the empirical analysis and presents the general empirical model, while section five presents the results of the empirical analysis, including robustness checks. Section six concludes the paper.

2 Child Labor: Definitions and Background

The terms "child work", "child labor" and "economically active children" are often used interchangeably in the literature. The ILO, however, categorizes three types of working children: children in employment, child laborers, and children in hazardous work. The category "children in employment" is the broadest of the three categories and includes all types of paid productive activity as well as certain types of non-paid productive activity. Examples of the latter are productions of goods for own (household) use or domestic work outside the child's own household. Domestic work performed within the child's own household does not, however, count as economic activity. Further, the definition of economic activity is not confined to legal activities, but also encompasses illegal activities. The category "child laborer" is more restrictive than the previous

category, excluding certain types of children in employment. Children who are older than age 11 and only work a few hours in light work are not considered to be child laborers, where light work by definition does not interfere with the child's ability to attend school or vocational training. Further, children over the age of 14 who are not engaged in hazardous work are excluded from this category. Finally, "hazardous work" is defined as work that has or leads to risks for the children engaged in these activities. Risks include the child's safety, moral development, physical and mental health. More detailed definitions of the different categories of working children, including the relevant ILO conventions, can be found for example in Diallo et al (2010).

According to the most recent ILO statistics on child labor, 14.5 percent of children aged five to fourteen participated in some form of work in 2008. This amounts to 176 million children worldwide. The majority of these children, roughly 96 million, are located in Asia and the Pacific, while sub-Saharan Africa, with 58 million working children, has the second largest incidence. Indeed, these two regions alone account for almost 90 percent of all child labor. It is perhaps unsurprising that Asia and the Pacific has the greatest population of working children given that this is the most populous region of the world in general. However, the Asia-Pacific region also exhibits a slightly higher participation rate than the worldwide average, with 14.8 percent of children participating in work. This activity rate is second only to that of sub-Saharan Africa, where a staggering 28.4 percent of children calculated as being employed (Diallo et al, 2010).

A common perception is that most child laborers work for wages in the formal sector, conjuring images of children working long hours in sweatshops or toiling away in mines. As a result, consumer boycotts and trade sanctions against products using child labor as an input are often discussed as means of reducing the incidence of child labor. In reality, however, such methods may have little impact for several reasons. Firstly, the majority of working children are active in the agricultural or services sectors, with only an estimated 7 percent of working children active in the industry sector (ILO, 2006; Diallo et al, 2010). Secondly, very few children work for wages outside the home; according to statistics from 2000, less than 3 percent of children worked for wages outside of the home, while just over 5 percent performed unpaid work outside of the home (Edmonds and Pavcnik, 2005a). As a result, the majority of child laborers will not be affected by boycotts and trading sanctions. Further, children working in the affected sectors may simply relocate to an unaffected sector. Similarly, an outright ban

on child labor would in most cases be difficult, if not impossible, to enforce and as such would likely to have little effect on the overall incidence of child labor. In the worst case, a ban could end up making some children significantly worse off if these children are compelled to work in order to keep themselves and their families out of extreme poverty. For these reasons, there is a general scepticism in the literature over the efficacy of policies such as consumer boycotts and import bans (Maskus, 1997; Basu and Zarghamee, 2009; Doepke and Zilibotti, 2009, 2010)[2].

For the remainder of this paper, I will use the terms "child labor", "working children" and "economically active children" interchangeably.

3 Globalization and Child Labor

3.1 Economic globalization and child labor

The existing literature on the relationship between globalization and child labor has focused on economic aspects of globalization, namely international trade and foreign direct investment (FDI). From a theoretical point of view, the effect of international trade and FDI on child labor is ambiguous; international trade may either increase or decrease child labor. If an increase in international trade increases per capita income then it is expected to reduce child labor. However, international trade may also increase the demand for unskilled labor, which would tend to increase the incidence of child labor (Davies and Voy, 2009). Further, the effect of an increase in the price of export goods produced with child labor as an input is also ambiguous, and depends on the magnitude of income and substitution effects (Edmonds and Pavcnik, 2005b). Therefore, determining the net effect of international trade on child labor has been primarily an empirical question.

The majority of the existing empirical literature uses cross-country data measuring the percent of children aged 10–14 in a country that are economically active as the dependent variable. This data is collected by the International Labour Organization (ILO). One of the earliest studies, Cigno et al (2002), uses panel data to find the impact of trade and openness on child labor. Trade is measured in terms of flows (imports + exports as a percentage of GDP) and

[2] This is not to say that bans are never motivated; clearly a ban on illegal and hazardous activities is desirable. However, additional policy instruments are necessary in order to effectively combat child labor.

openness is measured by the binary measure of openness to trade put forth by Sachs and Warner (1995). Their results show that openness and international trade either slightly reduce child labor or have no effect, depending on the specification of the model. Similarly, Neumayer and De Soysa (2005) find that trade openness (as measured by imports + exports as a percentage of GDP) and FDI (measured by the stock of FDI as a percentage of GDP) reduce child labor in their cross-country data set, even when controlling for per capita GDP. Edmonds and Pavcnik (2006) use instrumental variables to control for the potential endogeneity of trade openness (again measured in terms of flows), and find that there is a negative relationship between trade and child labor in their cross-country data. However, this relationship is driven by the fact that trade and national income are positively correlated; when per capita GDP is included in the regression the positive effect of trade disappears. Davies and Voy (2009) also employ instrumental variables to explore the link between FDI (measured as net investment inflow), international trade (measured as trade flows) and child labor. They find a negative relationship between both FDI and child labor and trade and child labor in the cross-country data; however, these results become insignificant when national income is controlled for. In all of these cases, international trade and FDI per se do not seem to play a significant role in child labor; the effect runs rather through the positive relationship between national income and trade/FDI. However, international trade and FDI are not shown to increase child labor, either. Finally, the work of Edmonds and Pavcnik (2005b) are an exception to the literature reviewed above, as the data set is not cross-country but rather a five year panel of household data from Vietnam. They find that trade liberalization leads to an increase in the export price of rice, and that this price effect leads to a significant decline in child labor, particularly in households that are large net exporters of rice.

3.2 Social globalization and child labor

The results of the research reviewed in the previous sub-section indicate that economic globalization does not have a significant impact in any direction on child labor measured in cross-country data. The question this paper aims to address is whether another measure of globalization, namely social globalization, may have an impact on the incidence of child labor. Social globalization, like the term globalization in general, is difficult to define precisely. However, for the purpose of this paper, the concept of social globalization will be primarily

focused on the social integration aspect of globalization, such as the transfer of information and personal contacts across national borders. Research on social globalization per se is quite recent; however, there are studies showing that social globalization (KOF measure) has an effect on diverse socioeconomic phenomena such as corruption (Charron, 2009), life expectancy (Bergh and Nilsson, 2010a), income inequality (Bergh and Nilsson, 2010b), and human rights (Dreher et al, 2011), to name a few. Further, the current research on social globalization is related to an older and larger literature on the role of (international) norm transmission in areas such as corruption (Rose-Ackerman, 1978; Sandholtz and Gray, 2003), income inequality (Atkinson, 1997), decolonization and human rights (Finnemore and Sikkink, 1998), the use of land mines (Price, 1998), diet and obesity (Mendez and Popkin, 2004), and primary education (Lloyd et al, 2000; Huisman and Smits, 2009). Further, social norms have been shown to affect adoption of new technology (Bandiera and Rasul, 2006) and levels of fertility (Krishnan, 2001). Turning to child labor specifically, López-Calva (2001) develops a model where social norms affect how acceptable child labour is considered, while Patrinos and Shafiq (2010) explore the case where parents might even have a positive attitude towards child labor. In a related vein, Andvig (2001) argues that the economy could become more efficient if gender norms were changed. Therefore, social globalization could play a role in reducing child labor if norms against child labor or in favor of schooling are transmitted via greater international integration and transactions.

Another possibility is that social globalization may reduce child labor by increasing the returns to schooling and hence increasing the opportunity cost of child labor. For example, there is an emerging literature that investigates the role of international migration on educational attainment. The idea is that if globalization facilitates international migration, then this in turn leads to the potential for higher returns to education. In this case, it is possible that the average level of education even among non-migrants in the home country will rise in response to greater globalization (Stark, 2004; Mayr and Peri, 2009; Iranzo and Peri, 2009). Further, social globalization may also correlate with the costs of skills acquisition; i.e. increased international contacts may facilitate the acquisition of skills that are valued on a global market (Shastry, 2008). In these cases, social globalization will work to increase the returns to education, which in turn increase the opportunity cost of child labor.

A simple model illustrating potential channels through which social globalization may affect the incidence of child labor is presented in Appendix A.

4 Data specification and general empirical model

4.1 Dependent variable

As mentioned above, the main source of cross-country data on child labor used in previous research has been taken from the ILO (2000). The main advantage of this data is that it provides a measure of child labor across a large number of countries over several years. The data is based on household survey data that is adjusted to make it comparable between countries and over time. This last aspect reflects the fact that the surveys were conducted in different years for different countries. There are, however, some limitations with the data. Perhaps the most prominent of these is the fact that the data in many countries relies to a large extent on estimations, projections and imputations due to a lack of available survey data (Edmonds and Pavcnik, 2006; Neumayer and De Soysa, 2005). Further, the measure is restricted to children 10 - 14 years old, which excludes a potentially large and important number of economically active children. The child labor statistics include all working children and does not distinguish between those who only work and those who both work and attend school. Finally, the data does not include the number of children preforming domestic work in their own household, thereby excluding a potentially large number of child workers. This last limitation is common to many measures of child labor and depends to a large extent on the fact that most definitions of child labor do not include such activities. A practical limitation of the data is that it is no longer being updated in its previous form; the most recent year of data used in the previous literature is 1995.

More recent data on child labor come from the Understanding Children's Work (UCW) program, which is a research cooperation program involving the ILO, UNICEF and the World Bank. The UCW was formed in response to increased international focus on the problem of child labor and the need for more statistics and empirical research on the subject (UCW, 2012). The UCW database contains data on child labor from nearly 100 countries and exhibits certain advantages over the previous ILO data. To start with, the UCW data covers child labor statistics for children from 7 - 14 years of age, rather than from10 - 14 years of age. Further, the data can in most cases be disaggregated into children who work only and children who both work and attend school. Finally, the data covers more recent years than the previous ILO data. The main disadvantage with the data is that not all surveys are from the same year

but rather range from 1994 to 2007, and have not been adjusted to account for this. However, given the advantages of the UCW data over the older ILO data, I choose to use the UCW data as the dependent variable for the baseline regressions, while the ILO data will be used as a robustness check. The UCW data on child labor is taken from the World Bank Development Indicators (2011) database while the ILO data from 1995 is taken from Neumayer and De Soysa (2005).

4.2 Independent variables

The measure of social globalization used in this paper is the social globalization component of the KOF Index of Globalization, developed by Dreher (2006).[3] The index runs from 1 to 100 and is a measure of social contacts and information flows, and includes such factors as outgoing telephone traffic, number of internet users and international tourism (see Appendix B for a more detailed description). The social globalization is meant to reflect how socially integrated a country is with the rest of the world, and to a certain extent measures the potential exposure of a given country to international norms. As argued above, social globalization is expected to be negatively related to child labor via either norms transmission or increased returns to education. The relationship between social globalization and child labor in the raw UCW data is displayed in figure 1 and exhibits a negative slope. Further, the figure 1 illustrates that there is a great deal of variation in both social globalization and child labor in the raw data.

<Figure 1 about here>

Social globalization is, however, likely highly correlated with other economic variables, which need to be accounted for. One factor that is often highlighted in both the theoretical and empirical research on child labor is poverty. Indeed, there is empirical evidence of a link between rising national income and a decrease in the incidence of child labor, but once a certain level of national affluence is attained, the relationship between national income and child labor weakens substantially (Basu, 1999; Fallon and Tzannatos, 1998). This may be due to distributional considerations, i.e. income inequality may offset many of the gains from a higher overall GDP. However, in the absence of standardized cross-country measures of poverty, national income is often used as a proxy measure for poverty. Therefore, I include the natural log of per capital PPP

[3] The KOF index was subsequently updated by Dreher et al (2008).

GDP as an independent variable in the analysis, with the data taken from the World Development Indicators database (WDI, 2011). The baseline regression for the empirical analysis will therefore be:

$$EAC_i = \beta_0 + \beta_1 SocialGlobalization_i + \beta_2 \ln(pcGDP_i) + \varepsilon_i \quad (1)$$

where $SocialGlobalization_i$ is social globalization in country i, $\ln(pcGDP_i)$ is the log of per capita GDP in country i and ε_i is the normally distributed error term.

It is not straightforward that an increase in national income in and of itself is responsible for the decline in child labor force participation; other factors correlated with economic development may play a determining role. A shift in production from predominately agricultural to manufacturing, developments in political and legal institutions, increased access and higher returns to education and changes in social norms may all contribute to a reduction in child labor. The structure of production in an economy is a factor that has been found to have a significant impact on the incidence of child labor. Fallon and Tzannatos (1998) point out that the share of agriculture in GDP has a stronger positive relationship to the incidence of child labor than GDP taken by itself and as such may serve as a more accurate predictor of child labor. Similarly, Andvig (2001) finds a weak relationship between GDP and child labor participation rates in Africa, while the relationship between child labor participation and the percentage of the population in rural areas is significantly positive. Therefore, the percentage of the population living in rural areas is included as an independent variable, along with variables measuring value added as a percentage of GDP in the agricultural and service sectors. The data for all three of these variables is taken from the WDI database.

A measure of a country's political institutions is also included as a control variable, in this case the Freedom House measure of Political Rights which ranges from 1 (most democratic) to 7 (least democratic) (Freedom House, 2010). The data is taken from the QoG database (Teorell et al, 2011). Ideally, one would like to include a measure of the quality and efficiency of the school system in the analysis, but such data is generally unavailable. Therefore, education expenditures as a percentage of GNI is included as an independent variable as a proxy for access to education. This data is taken from the WDI database (WDI, 2011).

Controls for the geographic region that a country is located in are included

in the regressions. This is done to help control for unobserved characteristics of countries that may be correlated with geography. Additionally, a dummy variable indicating whether or not the country is a signatory of the ILO child labor convention 138, which stipulates the minimum age of employment, is included as an additional control in some regressions. Finally, dummy variables indicating the year in which the data was observed are included to account for the fact that the child labor surveys were undertaken in different years. The resulting regression is thus:

$$EAC_i = \beta_0 + \beta_1 SocialGlobalization_i + \beta_2 \ln(pcGDP_i) + \beta_3 X_i + \varepsilon_i \qquad (2)$$

where X_i is a vector of the control variables listed above. The UCW data contains only one OECD country (Portugal). Therefore, in keeping with much of the previous literature, I restrict the sample to non-OECD countries[4].

5 Results

Table 1 shows the correlation coefficients between economically active children, social globalization, log per capita GDP, and selected control variables of interest. All of the correlation coefficients between the dependent variable and independent variables have the expected sign. Further, all coefficients are significant at the one percent level, with the exception of political rights, which is significant at the five percent level, and C138, which is insignificant. The variables most highly correlated with child labor are social globalization, value added in agriculture, and log per capita GDP. Table 1 also reveals that many of the independent variables are highly correlated with each other.

<Table 1 about here>

5.1 Economically active children

Table 2 presents the regression results for the baseline model and control variables, using the data from the UCW program. The dependent variable is economically active children ages 7 to 14 as percentage of all children ages 7 to 14. This measure includes all children who work, regardless if they combine work with school or only work. All regressions include dummy variables to control

[4] Including Portugal in the regressions does not change the results substantially.

for the year the data was collected and a constant, but these results are not reported. Column (1) shows the results from estimating equation (1), where only social globalization and log per capita GDP are included as independent variables. As expected, both social globalization and log per capital GDP are significantly and negatively related to child labor. Further, social globalization is more significantly related to child labor than national income, both in terms of statistical and economic significance. A one standard deviation increase in social globalization decreases child labor by 8,24 percentage points (slightly less than a half standard deviation) while a one standard deviation increase in log per capital GDP decreases child labor by 4,94 percentage points (just over a quarter of a standard deviation). In column (2), regional dummy variables are included in the regression to potentially capture unobservable country characteristics correlated with geography (Edmonds and Pavcnik, 2006). The results for social globalization remain qualitatively unchanged, while the coefficient on log per capita GDP is reduced by more than half and rendered insignificant. Therefore, social globalization once again appears to play a significant role in national levels of child labor.

<Table 2 about here>

In column (3), variables measuring the composition of the economy are included in the regression. The first of these variables is the rural population as a percentage of the total population, while the other two are value added as a percentage of GDP in the agricultural and service sectors, respectively. While the correlation between rural population and value added in agriculture is fairly high (0.5445), it is clear that these two variables are not measuring exactly the same phenomena. Here I choose to include rural population and value added in agriculture in the same regression, as the rural population variable may reflect access to public goods as well more traditional norms and values (López-Calva, 2001), while value added in agriculture more directly captures the structure of the economy and potential demand for child labor.[5] The results show that of these three additional variables, only value added in agriculture is statistically significant, exhibiting a positive relationship with child labor. Social globalization becomes slightly less statistically significant but retains the same economic significance as in column (1), while per capita GDP remains insignificant.

Column (4) reports the results when political variables are added to the regression. More specifically, a measure of a country's political rights is included

[5] Including these variables separately in the regression does not lead to a qualitative change the in results.

as a proxy for domestic political institutions, along with a variable indicating whether the country is a signatory of the ILO child labor convention 138. Neither of these variables are significant in the regression, while the result for social globalization and the other control variables are qualitatively unaffected. Finally, column (5) includes a variable measuring education expenditures as a percentage of GNI. This variable is intended as a proxy for access to education in a given country, but is insignificant in the regression. Social globalization remains significant, albeit at a slightly lower level of significance. Indeed, the only variable to remain significant in all five regressions is social globalization. Value added in agriculture is the only other significant variable, although the variable becomes insignificant in the last regression. Therefore, the results in table 2 indicate that social globalization is significantly related to child labor in the cross-country sample.

5.2 Economically active children by gender

The child labor data from the UCW project is also available by gender. Table 3 reports the results when the regressions from table 2 are run for economically active boys and economically active girls separately. A comparison of the results across all regressions reveals that in general there is little difference in the influence of the independent variables on child labor in the boys' sample versus the girls' sample. One exception to this is value added in agriculture, which has a consistently significant effect on boys' labor but is only significant in one regression of the girls' sample. Further, the economic effects of social globalization are somewhat larger in the case of boys' labor versus girls' labor. In column (1), the economic effects are almost identical: a one standard deviation increase in social globalization decreases child labor by approximately 8.2 percentage points, which is just under one half standard deviation. However, as more control variables are added to the regressions, the economic effects of social globalization increase in the case of boys and decrease in the case of girls. There are fewer economically active girls on average, which is in line with previous studies. As mentioned above, the definition of economically active children does not include own household domestic activities, which is where many girls are active. In this respect, the numbers are somewhat misleading if one is interested in the number of children participating in non-school activities.

<Table 3 about here>

5.3 Economically active children, work only

The dependent variable in table 2 includes children who both work and attend school and children who work exclusively. In this subsection the dependent variable is economically active children who only work. There is some evidence that child labor and schooling can be compliments rather than substitutes (children use the extra income from their labor in order to attend school, for example), in which case it is not straightforward that child labor is unambiguously harmful for the child. Therefore, children who only work is arguably a more relevant group to investigate, as these children presumably do not receive any schooling at all[6].

<Table 4 about here>

The regression results reported in table 4 are qualitatively very similar to the results in the previous subsections. Value added in agriculture, however, is somewhat more significant in the case of children who work only compared to the group of all working children. Further, expenditures on education are significantly and negatively related to the percentage of children who work only. Therefore, it may be the case that an increase in education expenditures improves access to schooling but that it first and foremost leads to some children combining school and work, rather than leading children to abandon child labor altogether (given the insignificant result in column (5) in table 2). In all cases, the relationship between social globalization and the percentage of children who work only is significant and negative. The economic effect of social globalization in column (1) is qualitatively similar to the results in column (1) of table 2, i.e. a one standard deviation increase in social globalization decreases the percentage of children participating in work only by approximately 5.5 percentage points, which is just under one half of the standard deviation. Finally, one region stands out in terms of children who work only: the coefficient on sub-Saharan Africa significant and positive in two of the regressions. This results seems to be driven to a large extent by access to education (column (5)).

5.4 Robustness checks

As mentioned above, the UCW data has a number of advantages over the previous ILO data. However, the fact that the UCW data is not adjusted to account for the fact that the surveys are from different years can be problematic. Further,

[6] Reference to papers that show a short term gain but longer term loss.

the ILO data is available for more countries than the UCW data. Therefore, I choose to run the regressions from section 5.1 using the ILO data as the dependent variable. For the sake of comparison, I again restrict the sample to developing countries. As previously explained, the ILO data is limited to children aged 10 to 14, whereas the UCW data is limited to children aged 7 to 14. Therefore, the results are not directly comparable, but should in any case give an indication as to whether they are consistent with the results in section 5.1. Figure 2 shows the relationship between economically active children and social globalization. In contrast to figure 1, there are a number of countries now included which do not report having any economically active children, resulting in a nonlinear relationship between social globalization and child labor. Therefore, the regressions presented below include a squared value of social globalization to account for this nonlinearity[7].

<Figure 2 about here>

<Table 5 about here>

Table 5 reports the results of the regressions when the dependent variable is the percentage of economically active children aged 10 to 14 in the year 1995. In column (1), social globalization is significantly and negatively related to child labor, while the quadratic of social globalization is significant and positive. Therefore, the positive effect of social globalization on reducing child labor decreases as social globalization increases. The log of per capita GDP is also negatively and significantly related to child labor, as expected. The economic significant of social globalization is quite high in column (1). As social globalization now enters the equation in nonlinear form, the economic effect will depend on where in the distribution the effect is evaluated. I choose to evaluate social globalization at its mean minus one half its standard deviation to its mean plus one half of its standard deviation. The result is a decrease in child labor by approximately 10 percentage points (nearly two thirds of a standard deviation), which is a large effect.

Column (2) includes region dummy variables, which reduces the magnitude of the coefficient on social globalization, but does not impact the statistical significance. Unlike the regressions above, some regional dummies are now significant, and the log of per capita GDP remains negative and significant. In column (3), the share of rural population, value added in agriculture and value added in services are included in the regression. This further reduces the coef-

[7] I could also use the log of social globalization, but this does not change the results qualitatively.

ficient on social globalization but does not affect its statistical significance. All three of the additional variables have a positive and significant effect on child labor. The variables for political rights and ILO convention 138 are included in column (4) but are insignificant in both cases. Finally, educational expenditure as a share of GDP is included in column (5) and is insignificant.

In all five regressions, social globalization is negatively and significantly related to child labor while the quadratic term is positive and significant. Further, value added in agriculture is significant and positive in all regressions. These results are qualitatively similar to the results reported in table 2 above. However, there are additional significant variables in the regressions; the log of per capita GDP is negative and significant in all regressions, whereas the coefficients on the region dummy for sub-Saharan Africa, the share of rural population and value added in services are all significant and positive in all regressions. Given that there are more significant variables in the regressions in table 5, it is not surprising that the economic significance of social globalization is much lower in these regression compared to the results in table 2; from column (3) onwards, a one standard deviation increase in social globalization around the mean decreases child labor by approximately 3 percentage points, which is roughly one fifth of a standard deviation. Therefore, the results in table 5 seem to broadly confirm the results in table 2; social globalization is consistently statistically significant. However, it is difficult to ascertain whether the differences in the results, in terms of the economics effect of social globalization and the number of significant variables, are driven by different sample sizes or the manner in which the data is fitted in the ILO data.

Another potential problem with the results in section 5.1 is that there may be issues of endogeneity between social globalization and child labor, and log per capita GDP and child labor. Table 6 reports the results of the robustness checks for the endogeneity of these variables. The potential endogeneity of log per capita GDP and child labor is addressed in Edmonds and Pavcnik (2006) and Neumayer and de Soysa (2005) by using instrumental variables, namely log per capita GDP and investment, both lagged by 15 years. I have access to lagged values of log per capita GDP for most of the countries in the sample, but the data for investment is missing in several cases, which significantly reduces the sample size.

<Table 6 about here>

In column (1), the OLS regression results are reported when social globalization, log per capita GDP, value added in agriculture and the region dummies

are included as independent variables, and serves as the baseline. In column (2), the results of the IV estimation where log of per capita GDP is instrumented by log of GDP and investment lagged by 15 years each are presented. I follow Neumayer and de Soysa (2005) in employing a Durbin-Wu-Hausman test to determine if IV estimation is necessary, and the results reveal that the null hypothesis that the OLS estimates are consistent cannot be rejected. As the effect of per capita income on child labor is not the primary focus of this paper and the Durbin-Wu-Hausman test does not indicate the need for IV estimation, I choose not to use the instrumental variable approach for log of per capita GDP in the remaining regressions, in order to take advantage of the full sample size[8].

Most previous research has been interested in the effects of economic globalization on child labor and have often used trade volumes as the measure of globalization. A common means of instrumenting for trade is to use the gravity model of bilateral trade flows (Frankel and Romer, 1999; Frankel and Rose, 2002, 2005). This method cannot be applied to social globalization, however, as bilateral data does not exist. Further, it is not as straightforward that social globalization is strongly affected by geography. Therefore, other instrumental variables are necessary. An appropriate instrumental variable needs to be strongly correlated with social globalization (the endogenous variable) and uncorrelated with child labor (the dependent variable) once all other explanatory variables are controlled for (Woodridge, 2002). Therefore, the challenge is to find variables that are strongly correlated with social globalization but that only affect child labor via social globalization. Two potential candidates for instrumental variables are the minimum distance to Brussels, New York or Tokyo and English as an official language. The minimum distance variable is not significant in explaining social globalization when the other explanatory variables are accounted for (supporting the suspicion that geography is not a important determinant of social globalization) and is therefore unsuitable as an instrumental variable. English as an official language is significantly correlated with social globalization and can potentially be useful as an instrumental variable. The results are reported in column (3). The Kleibergen-Paap statistic indicates that the instrumental variable is relatively weak, which risks leading to an inflated coefficient on social globalization. Further, the Durbin-Wu-Hausman test cannot reject the null hypothesis that the OLS estimates are consistent[9]. Therefore,

[8] Further, in the model developed in Appendix X it is contemporaneous income that influences the decision to send children to work or school.

[9] However, these results are weaker than in the case of national income

the results in column (3) are not necessarily an improvement on the results in column (1).

Another potential solution is to use the same type of instrumental variable as in the case of national income, i.e. social globalization lagged 15 years. The results of this IV estimation are reported in column (4). This instrument performs much better according to the Kleibergen-Paap statistic, and results in a slightly lower statistical significance for social globalization as compared to the result in column (1). The the Durbin-Wu-Hausman test, however, can once again not reject the null hypothesis that the OLS estimates are consistent. Finally, social globalization lagged by one year is used instead of social globalization in column (5). The result is that the coefficient on social globalization is somewhat smaller and less significant than in column (1). With the exception of column (3), the results in table 6 do not reveal significant differences in the statistical and economic significance of social globalization and seem to indicate that endogeneity is not a substantial problem in the results reported in sub-sections 5.1 to 5.3.

6 Conclusion

The purpose of this paper has been to contribute to the existing cross-country literature on the effects of globalization on child labor by specifically investigating the impact of social globalization on child labor. The results show that the impact of social globalization on the number of economically active children on average is consistently negative and significant. This result holds even when a number of control variables are added to the regressions, including the log of per capita GDP and the value added in agriculture as a percentage of GDP. Further, the significant negative relationship between child labor and social globalization holds when the relationship is analyzed using an older and larger data set, and when using instrumental variables estimation techniques. Therefore, the results support the hypothesis that social globalization does indeed have a real effect on the incidence of child labor that, in contrast to economic globalization, does not appear to be driven by income effects. However, it is not possible to distinguish the channels through which this effect works. Thus an area of future research is to explore the relationship between social globalization and child labor at a smaller unit of analysis.

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Appendix A

The simple theoretical model developed here is based on the model presented in Bhalotra and Heady (2003), and is a two period model of a peasant household where it is assumed that each household contains one parent and one child. I maintain the assumption that the parent always works and that their labor supply can be normalized to one. Further, the child does not bargain with its parent, i.e. the parent decides how the child's time is allocated.[10] In the case where the child does not work, first period household income, Y_1, is simply $Y_1 = w_{a1}$, whereas in the case where the child works, household income in the first period is given by $Y_1 = w_{a1} + w_{c1}L_{c1}$. In the previous equations, w_{a1} and w_{c1} are wages paid to the adult and child respectively, while L_{c1} is the labor supplied by the child. The wages here do not necessarily have to be an explicit wage; it may be the marginal product of own farm labor, for example.

In the second period the child has become an adult and may or may not continue to live in the family household, but for simplicity it is assumed that their income and consumption remain part of the household total. The child's second period wage is a function of the first period activity in which the child participated, i.e. work or school. This allows for a dynamic effect for the choice of activity in the first period. Second period household income is given by:

$$Y_2 = w_{a2} + w_{c2}\left(L_{c1}, S\right) L_{c2}. \tag{3}$$

The household can either save or borrow in the first period, so that first period consumption is not bound by first period income. Further, the household is assumed to inherit some initial financial wealth (which can be either positive or negative) from period zero. First period net financial wealth, ω_1, is thus given by:

$$\omega_1 = \omega_0 + Y_1 - X_1 - C\left(S\right) \tag{4}$$

where ω_0 is initial financial wealth, $C\left(S\right)$ is the direct cost of schooling ($= 0$ if the child does not attend school) and X_1 is first period consumption (the price

[10] See Basu (1999) for an overview of models of child labor with intra-household bargaining. The assumption that children do not bargain with their parents is quite reasonable, as the only recourse a young child would have is to leave the household, which is not likely an attractive alternative. Bhalotra and Heady point out that this option becomes even less attractive for children who can expect to inherit the family farm.

of which is normalized to unity). Second period net financial wealth is given by:

$$\omega_2 = Y_2 - X_2 + \omega_1 (1 + r) \tag{5}$$

Simplifying this expression somewhat, we can express the corresponding second period budget constraint as:

$$X_2 = Y_2 + \omega_1 (1 + r). \tag{6}$$

The household now endeavors to maximize its utility function, which is assumed to be time separable and is given by:

$$U = U_1 (X, L_{c1}, S) + \delta U_2 (X_2, L_{c2}) \tag{7}$$

where $\delta \leq 1$ is the inverse of the time discount factor, ρ, (i.e. $\delta = \frac{1}{\rho}$). The utility function is assumed to be a twice differentiable positive concave function of consumption and leisure, so that the marginal utility of consumption is positive while the marginal utility of labor and schooling is negative (i.e. the marginal utility of leisure is positive). Thus, the parent is faced with the following maximization problem:

$$\begin{aligned} \max\ U \qquad & \text{subject to } \omega_1 - \omega_0 - Y_1 + X_1 + C(S) = 0 \text{ and} \\ & X_2 - w_{a2} - w_{c2} (L_{c1}, S) L_{c2} - \omega_1 (1 + r) = 0. \end{aligned} \tag{8}$$

By setting up a Lagrangian function Γ with multipliers λ_1 and λ_2, one can derive the first order conditions relevant to the child labor/schooling decision:

$$\frac{\partial \Gamma}{\partial X_1} = \left(\frac{\partial U_1}{\partial X_1} \right) - \lambda_1 = 0 \tag{9}$$

$$\frac{\partial \Gamma}{\partial X_2} = \delta \left(\frac{\partial U_2}{\partial X_2} \right) - \lambda_2 = 0 \tag{10}$$

$$\frac{\partial \Gamma}{\partial L_{c1}} = \left(\frac{\partial U_1}{\partial L_{c1}} \right) + w_{cw1} \lambda_1 + L_{c2} \left(\frac{\partial w_{c2}}{\partial L_{c1}} \right) \lambda_2 \leq 0 \tag{11}$$

$$\frac{\partial \Gamma}{\partial S} = \left(\frac{\partial U_1}{\partial S} \right) - \left(\frac{\partial C}{\partial S} \right) \lambda_1 + L_{c2} \left(\frac{\partial w_{c2}}{\partial S} \right) \lambda_2 \leq 0. \tag{12}$$

According to (11), the child will work if the first period wage plus the value of the increase in the second period wage due to wage work experience is equal to the marginal disutility of wage labor, while (12) shows that the parent will

send their child to school if the value of the increase in the second period wage due to schooling minus the marginal cost of schooling is equal to the marginal disutility of schooling. So how does social globalization potentially come into the picture? One way is via $\left(\frac{\partial U_1}{\partial S}\right)$ and $\left(\frac{\partial U_1}{\partial L_{c1}}\right)$, i.e. the marginal disutility of schooling and child labor, by affecting norms. Increased exposure to international norms may cause households to place a higher intrinsic value on schooling, which would lower the marginal disutility of schooling and make it more likely that equation (12) holds with equality. Similarly, international norms could lead households to hold a more negative view of child labor, which would increase the marginal disutility of child labor and make it less likely that equation (11) holds with equality. Social globalization could also have an impact on $\left(\frac{\partial w_{c2}}{\partial S}\right)$, i.e. the return to schooling, via access to a larger labor market or as a reflection of changes in skilled labor demand in the economy. This again would make schooling a relatively more attractive option than child labor.

Appendix B

<Table B here>

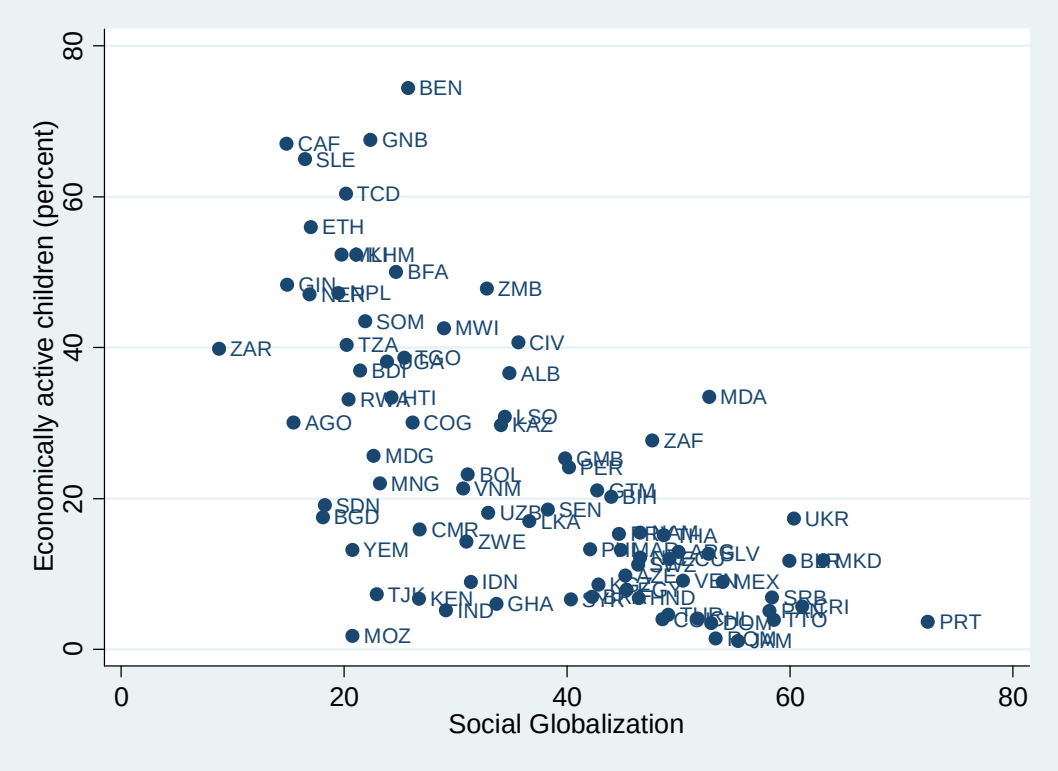

Figure 1: Economically active children and social globalization

Source: World Bank (2011) and KOF Index of Globalization (Dreher, 2006).

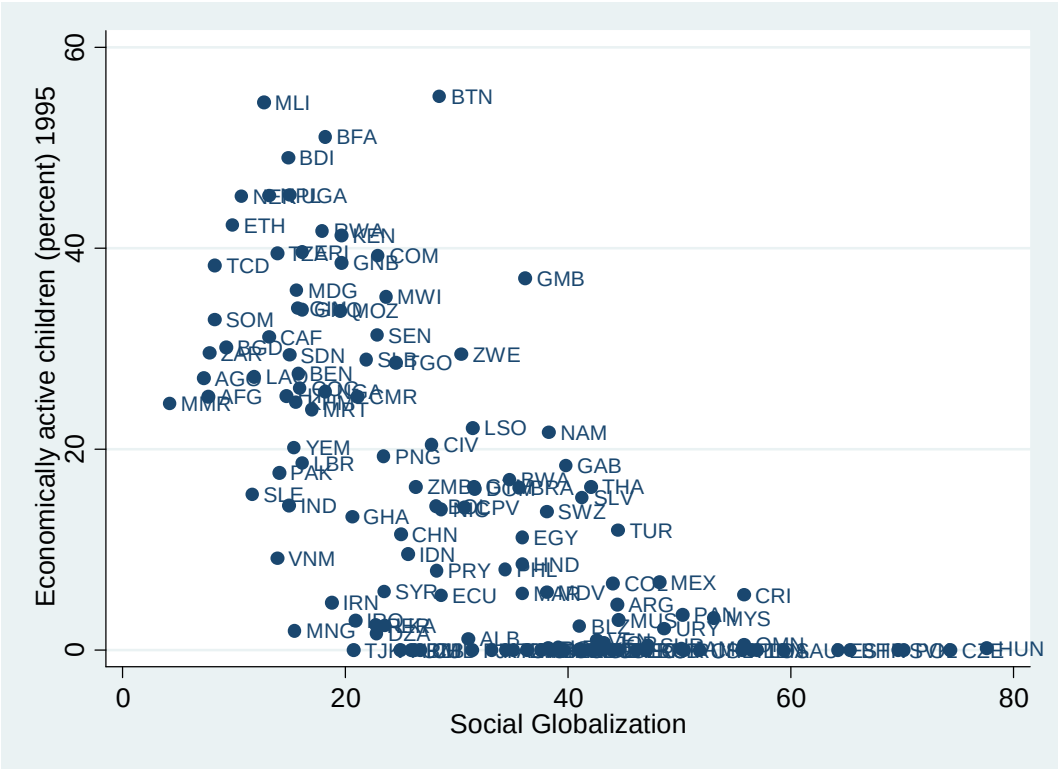

Figure 2: Economically active children in 1995 and social globalization

Source: International Labour Organization (2000) and KOF Index of Globalization (Dreher, 2006).

Table 1: Pair-wise correlation coefficients for child labor, social globalization, and selected control variables

Full Sample	Econ. Active Children	Social Globalization	Log pcGDP	Rural pop	Agriculture	Services	Political Rights	C138
Econ. Active Children	1.0000							
Social Globalization	-0.6591	1.0000						
Log pcGDP	-0.6295	0.8649	1.0000					
Rural pop	0.4398	-0.6249	-0.6787	1.0000				
Agriculture	0.6492	-0.7082	-0.8640	0.5423	1.0000			
Services	-0.4754	0.6265	0.5389	0.2948	-0.5485	1.0000		
Political Rights	0.1990[b)]	-0.4378	-0.3729	0.3383	0.2749[a)]	-0.4510	1.0000	
C138	-0.0478[c)]	0.2034[b)]	0.1805[c)]	-0.2019[b)]	0.1234[c)]	0.0383[c)]	-0.0953[c)]	1.0000
Education Exp.	-0.2775[b)]	0.3787	0.3079	-0.1771[c)]	-0.2648[a)]	0.3470	-0.1619[c)]	-0.2717[a)]

Note: All correlation coefficients are significant at <1% except: a) significant at <5%, b) significant at <10% and c) not significant.

Table 2: Regression results for economically active children, all

	Dependent Variable: Economically Active Children				
	(1)	(2)	(3)	(4)	(5)
Social Glob	-0.58***	-0.61***	-0.58**	-0.61***	-0.58**
	(0.19)	(0.22)	(0.25)	(0.22)	(0.24)
Log pcGDP	-5.04*	-2.25	3.96	4.21	3.72
	(2.97)	(3.43)	(5.11)	(5.27)	(5.63)
Lac		-3.86	-2.49	-4.93	-5.03
		(5.08)	(5.61)	(6.81)	(7.53)
Mena		-11.01	-7.51	-8.54	-8.25
		(8.02)	(7.24)	(7.31)	(7.86)
Ssa		4.06	5.75	3.54	2.58
		(6.48)	(6.82)	(6.95)	(8.22)
esea		-4.64	-1.82	-4.57	-4.96
		(7.05)	(6.55)	(7.43)	(8.09)
sa		-7.22	-5.49	-9.10	-11.17
		(10.78)	(10.60)	(11.85)	(13.36)
Rural pop			0.04	0.06	0.06
			(0.09)	(0.08)	(0.09)
Agriculture			0.48*	0.49*	0.47
			(0.26)	(0.27)	(0.29)
Services			-0.00	-0.03	-0.04
			(0.17)	(0.19)	(0.21)
Political Rights				-0.77	-0.94
				(1.41)	(1.45)
C138				-1.36	-3.15
				(4.65)	(5.71)
Education Exp.					-0.84
					(1.38)
N	81	81	76	75	73
R-squared	0.5346	0.5777	0.5996	0.6033	0.6085

Note: Robust standard errors are given in (). Estimated intercepts and dummy variables for survey year are omitted from the table. The superscripts ***/**/* indicate a p-value less than 0.01/0.05/0.10, respectively.

Table 3: Regression results for economically active boys and economically active girls

Dependent Variable:	Economically Active Boys					Economically Active Girls				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Social Glob	-0.58***	-0.62***	-0.64**	-0.67***	-0.66**	-0.58***	-0.60***	-0.52**	-0.55**	-0.50**
	(0.20)	(0.23)	(0.25)	(0.23)	(0.25)	(0.20)	(0.21)	(0.25)	(0.23)	(0.25)
Log pcGDP	-5.13*	-2.63	4.06	4.41	3.88	-4.96*	-1.89	3.83	3.96	3.50
	(3.03)	(3.56)	(5.18)	(5.27)	(5.63)	(2.96)	(3.37)	(5.15)	(5.38)	(5.73)
lac		-2.40	-1.12	-4.24	-4.24		-5.29	-3.85	-5.57	-5.75
		(5.33)	(5.82)	(7.07)	(7.84)		(5.02)	(5.60)	(6.74)	(7.40)
mena		-10.44	-7.00	-8.39	-7.48		-11.59	-8.03	-8.65	-8.99
		(7.97)	(7.31)	(7.38)	(8.01)		(8.16)	(7.24)	(7.34)	(7.81)
ssa		3.51	4.77	1.95	0.73		4.62	6.73	5.20	4.51
		(6.54)	(6.85)	(6.88)	(8.27)		(6.53)	(6.87)	(7.12)	(8.24)
esea		-5.55	-3.02	-6.52	-7.08		-3.72	-0.62	-2.56	-2.78
		(7.19)	(6.62)	(7.48)	(8.24)		(7.05)	(6.64)	(7.56)	(8.13)
sa		-8.26	-7.56	-12.14	-14.54		-6.20	-3.45	-6.02	-7.74
		(10.38)	(10.16)	(11.44)	(13.12)		(11.45)	(11.32)	(12.60)	(13.96)
Rural pop			0.07	0.09	0.10			0.02	0.03	0.03
			(0.09)	(0.09)	(0.10)			(0.09)	(0.08)	(0.09)
Agriculture			0.50*	0.51*	0.49*			0.46*	0.46	0.45
			(0.25)	(0.27)	(0.29)			(0.26)	(0.29)	(0.31)
Services			0.08	0.05	0.03			-0.09	-0.10	-0.11
			(0.17)	(0.19)	(0.21)			(0.17)	(0.19)	(0.22)
Political Rights				-0.96	-1.15				-0.59	-0.72
				(1.43)	(1.47)				(1.43)	(1.46)
C138				-1.79	-3.56				-0.85	-2.67
				(4.63)	(5.76)				(4.75)	(5.74)
Education Exp.					-0.72					-0.96
					(1.35)					(1.42)
N	81	81	76	75	73	81	81	76	75	73
R-squared	0.5340	0.5742	0.5952	0.6033	0.6083	0.5260	0.5725	0.5963	0.5965	0.6023

Note: Robust standard errors are given in (). Estimated intercepts and dummy variables for survey year are omitted from the table. The superscripts ***/**/* indicate a p-value less than 0.01/0.05/0.10, respectively

Table 4: Regression results for economically active children, work only

	Dependent Variable: Economically Active Children, Work Only				
	(1)	(2)	(3)	(4)	(5)
Social Glob	-0.39***	-0.39**	-0.42**	-0.45***	-0.42**
	(0.13)	(0.15)	(0.17)	(0.17)	(0.16)
Log pcGDP	-3.25	-1.44	3.82	3.56	3.22
	(2.01)	(2.43)	(2.81)	(2.95)	(3.23)
lac		-0.47	1.18	-0.54	-1.97
		(3.56)	(3.54)	(3.84)	(3.94)
mena		3.84	6.52	6.11	4.88
		(4.48)	(4.55)	(4.51)	(4.84)
ssa		6.01*	6.97**	5.14	3.36
		(3.22)	(3.02)	(3.22)	(3.52)
esea		-3.02	-0.90	-3.06	-4.27
		(2.94)	(3.00)	(3.37)	(3.12)
sa		-3.81	-3.07	-6.27	-9.73
		(5.38)	(6.07)	(6.77)	(7.49)
Rural pop			0.04	0.05	0.05
			(0.07)	(0.07)	(0.07)
Agriculture			0.42**	0.40**	0.39*
			(0.18)	(0.18)	(0.19)
Services			0.10	0.07	0.10
			(0.13)	(0.14)	(0.16)
Political Rights				-0.78	-0.95
				(0.69)	(0.72)
C138				-1.32	-3.65
				(3.04)	(3.79)
Education Exp.					-1.45*
					(0.81)
N	81	81	76	75	73
R-squared	0.4833	0.5425	0.6029	0.6092	0.6323

Note: Robust standard errors are given in (). Estimated intercepts and dummy variables for survey year are omitted from the table. The superscripts ***/**/* indicate a p-value less than 0.01/0.05/0.10, respectively

Table 5: Regression results for economically active children, 1995

	Dependent Variable: Economically Active Children 1995				
	(1)	(2)	(3)	(4)	(5)
Social Glob	-1.41***	-0.86***	-0.70***	-0.70***	-0.78***
	(0.20)	(0.20)	(0.19)	(0.19)	(0.21)
(Social Glob)^2	0.01***	0.01***	0.01***	0.01***	0.01***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Log pcGDP	-3.87**	-4.14***	-2.98**	-2.96**	-2.20*
	(1.54)	(1.18)	(1.22)	(1.23)	(1.25)
Lac		-3.84	-0.94	-1.28	-0.57
		(5.53)	(5.48)	(5.63)	(5.85)
Mena		-9.17*	-4.65	-5.73	-5.16
		(5.42)	(5.28)	(5.55)	(6.02)
Ssa		9.91*	10.92**	10.55**	11.85**
		(5.26)	(5.16)	(5.32)	(5.70)
Esea		-5.89	-3.65	-4.06	-4.98
		(5.65)	(5.59)	(5.73)	(5.93)
Eeandca		-11.16**	-8.59	-9.27	-7.75
		(5.53)	(5.68)	(5.80)	(6.22)
Rural pop			0.12**	0.12**	0.10*
			(0.05)	(0.05)	(0.05)
Agriculture			0.22***	0.22***	0.22***
			(0.07)	(0.07)	(0.08)
Services			0.19**	0.20**	0.20**
			(0.07)	(0.08)	(0.08)
Political Rights				0.26	0.56
				(0.49)	(0.54)
C138				0.29	0.26
				(1.37)	(1.39)
Education Exp.					-0.72
					(0.47)
N	119	119	116	116	107
R-squared	0.5718	0.7873	0.8204	0.8211	0.8281

Note: Robust standard errors are given in (). Estimated intercepts are omitted from the table. The superscripts ***/**/* indicate a p-value less than 0.01/0.05/0.10, respectively.

Table 6: Regression results for economically active children, robustness checks

	Dependent Variable: Economically Active Children				
	(1)	(2)	(3)	(4)	(5)
Social Glob	-0.58***	-0.56***	-1.60**	-0.60***	
	(0.21)	(0.17)	(0.70)	(0.23)	
$(\text{Social Glob})_{t-1}$					-0.55**
					(0.22)
Log pcGDP	3.39	5.23	12.97	3.64	2.97
	(4.85)	(5.22)	(8.06)	(4.61)	(4.90)
Agriculture	0.48*	0.61**	0.42	0.47**	0.47*
	(0.26)	(0.31)	(0.27)	(0.22)	(0.26)
Lac	-2.70	-5.77	-5.90	-2.79	-2.16
	(5.64)	(4.39)	(5.73)	(5.04)	(5.71)
mena	-7.58	-12.57**	-14.19	-7.75	-7.52
	(7.03)	(6.01)	(9.43)	(6.28)	(7.10)
ssa	6.04	3.11	-2.34	5.82	6.60
	(6.49)	(6.87)	(9.67)	(5.59)	(6.45)
esea	-1.50	-8.77*	-10.72	-1.74	-0.88
	(6.53)	(4.94)	(10.01)	(5.68)	(6.48)
sa	-4.63	-3.25	-16.49	-4.95	-5.10
	(9.90)	(11.21)	(12.14)	(8.85)	(9.92)
N	76	63	76	76	76
R-squared	0.5987	0.6578	0.4437	0.5985	0.5931
IV Log pcGDP	No	Yes	No	No	No
IV Social Glob	No	No	Yes	Yes	No
Durbin-Wu-Hausman test		0.41 (0.5264)	2.24 (0. 1397)	0.02 (0.8918)	
Hansen J statistic		0.332 (0.5643)			
Kleibergen-Paap statistic		51.136	7.073	67.083	

Note: Robust standard errors are given in (). Estimated intercepts and dummy variables for survey year are omitted from the table. The superscripts ***/**/* indicate a p-value less than 0.01/0.05/0.10, respectively

Table A: The KOF Index of Globalization: Social globalization

i) Data on personal contacts

- Outgoing telephone traffic
- Transfers (percent of GDP)
- International tourism
- Foreign population (percent of total population)

ii) Data on information flows

- Internet hosts (per 1000 people)
- Internet users (per 1000 people)
- Cable television (per 1000 people)
- Trade in newspapers (percent of GDP)
- Radios (per 1000 people)

iii) Data on cultural proximity

- Number of McDonald's restaurants (per capita)
- Number of IKEA outlets (per capita)
- Trade in books (percent of GDP)

Source: Dreher, 2006.