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Is Globalization Reducing Absolute Poverty?

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Summary. — Using data from 114 countries (1983–2007), we examine the relationship between globalization and World Bank absolute poverty estimates. We find a significant negative correlation between globalization and poverty, robust to several econometric specifications, including a fixed-effect panel—a "long run" first difference—and a pooled OLS-regression. Introducing two instruments for globalization we also show that results are robust to correction for potential endogeneity. We motivate and test the instruments in several ways. In particular information flows and more liberal trade restrictions robustly correlate with lower absolute poverty.

Key words — globalization, poverty, panel data, endogeneity

1. INTRODUCTION

Is globalization good or bad for the poor? Despite lots of indicative evidence (Collins & Graham, 2004; Noguer & Siscart, 2005; Wacziarg & Welch, 2008; Yanikkaya, 2003), two paramount problems still linger. First, previous research typically studies economic growth rather than absolute poverty (Bhagwati & Srinivasan, 2002; Dollar & Kraay, 2004).[1] Second, studies inevitably suffer from the endogeneity problem: Globalization may well be both a cause and an effect of rising incomes.

This paper contributes in both these areas. Recent improvements in data availability allow a meaningful analysis of panel data where the dependent variable is head count measures of absolute poverty collected from the World Bank's household surveys. Our regressions include more than 100 countries, with poverty data averaged over four five-year periods, the first one being 1988–92.

We also introduce two instruments for globalization in order to examine whether the estimated relationships are causal: preceding average economic globalization of neighboring countries, and the number of years with the presence of McDonalds in a country. We examine both instruments carefully, showing that they are powerful, directly uncorrelated with poverty, and theoretically meaningful in the sense of capturing globalization the way it actually happens.

Using the KOF Index of Globalization, (Dreher 2006a, 2006b; Dreher & Gaston, 2008) we find evidence of a negative relationship between different types of globalization and absolute poverty. The effect appears in a fixed-effect panel, a long first difference estimation, in a pooled OLS regression and when instrumenting for globalization. In particular, information flows and more liberal trade restrictions seem to reduce poverty.

Section 2 provides an analytical framework discussing the possible links from globalization to absolute poverty. Section 3 describes our data and empirical strategy, and presents baseline panel regression results, with a number of robustness tests. Section 4 introduces our instrumental variable strategy and presents results when instrumenting for globalization. The article closes with some concluding remarks on the implications of the findings.

2. BACKGROUND

(a) *Related literature on the relationship between globalization and poverty*

Wade (2004) describes what he calls the neoliberal argument, which holds that world poverty and income inequality showed signs of falling around 1990 thanks to increasing economic integration. He questions the empirical basis of the neoliberal argument by noting (among other things) that the small decline in population-weighted between-country world PPP-income inequality that has occurred since around 1980 is driven entirely by China.

Our aim is not to say something about the global income distribution, but rather to analyze if countries with higher levels of globalization fare differently in terms of absolute poverty. For this question, the standard approach in the literature (illustrated in Figure 1a) is to focus on the country level relationship between economic globalization and economic growth. For example, the often cited study by Dollar and Kraay (2004) argues that trade is good for growth, and that there is no systematic relationship between changes in trade volumes and changes in the income distribution within countries. Thus, they conclude, if trade increases growth rates, this translates into proportionate increases in the income of the poor.[2]

At least in the short run, globalization can affect absolute poverty regardless of its effect on growth. Growth occurs when average real income increases, but absolute poverty depends only on the real incomes of the poor. Noting this is not merely a theoretical oddity: As shown by Kalwij and Verschoor (2007), the capacity of growth to reduce absolute poverty exhibits large regional variations.[3]

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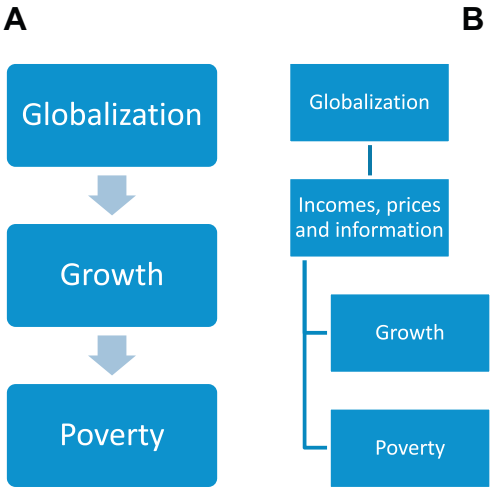

Figure 1. *Two views on the relations between globalization, growth and poverty.*

Another problem with the standard approach is that recent findings suggest that globalization in addition to causing growth also causes higher income dispersion within countries (Bergh & Nilsson, 2010; Lundberg & Squire, 2003; Milanovic & Squire, 2006). In this case the effect on absolute poverty is ambiguous.

Contrasting the standard approach, our preferred approach (illustrated in Figure 1b) assumes that globalization affects prices, incomes and information flows, which in turn may or may not lead to economic growth and/or poverty reduction.

The paper most closely related to ours Aisbett *et al.* (2008), who share our critique of the standard approach and present evidence on the relationship between trade openness (measured as trade shares and tariffs), GDP growth, and poverty. Results suggest a negative effect of (both measures of) trade openness on poverty that disappears when adding country-fixed effects, and also cannot be confirmed in a IV-regression where trade shares are instrumented using its own three-year lag. We improve on these results by having access to more data (allowing country dummies to be included), a broader multi-dimensional measure of globalization, and by using two different external instruments to examine causality.

(b) *Measuring poverty and globalization*

Measuring poverty involves a number of methodological choices. For example, there is a large discrepancy between national accounts and survey data estimates of consumption. For recent overviews of the debate and choices involved see Anand, Segal, and Stiglitz (2010) and Deaton (2001, 2010). Our preferred measure of absolute poverty is the headcount index calculated for a poverty line of one PPP dollar per day from the World Bank (2010), which is based on household surveys. While subject to debate, Ravallion (2010) argues that the World Bank estimates remain the best projections available for studying absolute poverty worldwide.

Our measure of globalization is the so-called KOF Index developed by Dreher (2006a, 2006b) and updated in Dreher, Gaston, and Martens (2008). The index quantifies *economic*, *social*, and *political globalization*, using principal components analysis, to construct an aggregate index that is comparable over time and between countries from 1970 and onward. The index also allows for a separation between different dimensions of globalization, is updated every year, and is available on the web. Tables 1 and 11 and in the Appendix presents the details of the index.[4]

As with poverty, the question of how to measure globalization is a debated topic. One of the most widely used measures of economic openness is the index introduced by Sachs and Warner (1995). This index, however, is binary and questions have been raised by, among others, Rodriguez and Rodrik (2000) with regard to what it actually measures.[5] An important point brought up by these scholars is the distinction between trade flows (such as imports and exports) and trade policies (such as tariffs, taxes, and regulations). Studies finding that trade flows are linked to growth are not sufficient to conclude that policies of economic openness lead to growth. More liberal trade restrictions need not necessarily lead to higher trade flows. An advantage of using the KOF-index is that it allows a separate analysis of *economic flows* and *trade policies*. Similarly, social globalization can be further broken down into *information flows*, *personal contact*, and *cultural proximity*, allowing for a deeper understanding of the globalization-poverty relationship.

(c) *Possible links from globalization to poverty*

Agénor (2004) describes several reasons for expecting economic globalization to foster growth and decrease poverty in the long run. Many mechanisms are straightforward applications of mainstream economic theory: specialization, scale economies, competition, incentives for macro-economic stability, and innovation are all likely to be important mechanisms. Higher integration in the global economy may also increase the returns to higher education in poor countries, as described by Stark (2004), negatively affecting poverty in the long run.

Table 1. *Indicators of economic and social globalization: expected effects on poverty*

Type of globalization	Economic	Social
Measure	Flows: Trade, investments and international transfers (% of GDP)	Information flows: Internet hosts, Internet users, cable television, and radios (all measured per capita), trade in newspapers (% of GDP)
	Policies: Mean tariff rates, taxes, import barriers, and capital account restrictions	Personal contacts: Outgoing telephone traffic, transfers, tourism, and foreign population in percent of total population
		Cultural proximity: McDonald's and IKEA per capita, trade in books (% of GDP)
Short-run effects on	Prices and wages via changes in supply and demand	Available information. Supply and demand
Possible long-run effects on	Growth, innovation, and human capital	Social norms and lifestyle
Expected effect on absolute poverty	Ambiguous in the short run, negative in the long run	Ambiguous both in the short and long run

Agénor (2004) notes also that there are several reasons why the short-run effect of globalization may well be an increase in absolute poverty, suggesting that globalization has an inverted J-curve effect on absolute poverty. Such reasons include:

- *Transition costs*: As an economy opens, more and cheaper capital becomes available. When firms replace labor with capital in production, poverty may increase before laid-off workers find new employment. Increasing competition following economic openness may also affect unemployment by forcing some domestic firms out of business.
- *Shortage of human capital*: If openness leads to the introduction of more advanced technologies, or more capital intense production, the full benefits may require more skilled labor than is initially available.
- As discussed by Bhagwati and Srinivasan (2002), higher economic openness likely comes with a greater commitment to low *inflation*, which should foster growth in the long run and particularly assist the poor if they are vulnerable to inflation. The transition from high to low inflation may, however, be associated with higher unemployment in the short run.
- Globalization may affect government size and, for example, *social spending*, in turn affecting poverty. As suggested by the race to the bottom hypothesis (Sinn, 1997) open economies may have to compete by lowering taxes in turn followed by less social spending. An opposite mechanism—termed the compensation hypothesis—has however also been proposed in the literature (Rodrik, 1998 and Lindbeck, 1975) where open economies rather develop larger welfare states as an insurance institution. [6]

Some plausible mechanisms suggest that globalization decreases poverty also in the long run. For example, Kawachi and Wamala (2007) propose that openness can lead to a faster and geographically broader spread of infectious diseases (such as HIV and the H5N1 avian influenza virus), which may increase poverty through lower productivity and labor supply. This adverse effect may well hit the poor relatively more than the rich, and thus illustrates the possibility that openness can promote growth without decreasing poverty. Globalization may also affect social norms and lifestyle patterns, such as eating and smoking habits (Medez & Popkin, 2004; Yach, Wipfli, Hammond, & Glantz, 2007), which may have negative health and productivity effects.

The KOF Index divides social globalization into *information flows*, *personal contacts,* and *cultural proximity*, which are all likely to affect the functioning of markets, as well as the behavior of buyers and sellers on the market. In general, the functioning of markets is critically dependent on information flows. In less developed countries with high transaction costs and potentially large information asymmetries, there is a large potential gain in market efficiency from increased use of information and communication technologies (ICT). Both telecommunications and the Internet are powerful tools for information transfer and improve the functioning of markets in general. A classic example of the benefits of telecommunications is Hirschman (1967), showing that long-distance telephone networks led to a credit market for coffee trade in Ethiopia. [7] As noted by Aker and Mbiti (2010), the distribution of these efficiency gains among consumers, producers, and firms is theoretically ambiguous. Lower search costs could benefit sellers in the short term if they make better use of spatial arbitrage opportunities, but as markets become more competitive, benefits will shift toward consumers as markets approach the law of one price (Aker & Mbiti, 2010, p. 216). There are also studies showing that rural telephony increases the prices farmers receive for their crops and the earnings from off-farm activities (e.g., Duncombe & Heeks, 1999; Elbers & Lanjouw, 2001). Empirical evidence also suggests that telephone services can improve government services such as health care (ITU, 1998). Forestier, Grace, and Kenny (2002) summarize a wide array of research on the effects of information and communication technology (ICT) and show that ICT in general is positively related to growth, but the effect on inequality is less clear.

In general, information decreases transaction costs and brings markets closer to the competitive equilibrium. Because transaction costs essentially work as a tax wedge, the effect of lowering such costs benefits both producers and consumers and increases output.

In addition to information flows, social globalization comprises cross-border personal contacts. Outgoing telephone traffic likely contributes to the transmission of information and knowledge, similar to many indicators of information flows. Tourism is, however, a type of personal contact with less obvious consequences for poverty. Chao, Hazari, and Sgro (2004) note that tourism is good for development through terms of trade effect and resource flows, but also that negative externalities of mass tourism might offset these effects. [8]

The third and final component of social globalization in the KOF Index is cultural proximity, measured by the number of McDonald's restaurants and IKEA stores per capita, as well as trade in books in percent of GDP. In low- and middle-income countries, a substantial part of the index's variation is related to the opening of McDonald's restaurants. Indeed, McDonald's is often used as a symbol of globalization and has also given rise to the sociological term McDonaldization. [9]

Obviously, the opening of multinational companies like McDonald's and IKEA requires a certain level of economic globalization. IKEA, for example, relies heavily on cheap imports from developing countries in Asia. Therefore, it is only to be expected that the levels of economic and social globalization are positively correlated ($r = 0.83$), and in our main specifications they are therefore not included simultaneously. [10]

Following the above discussion, Table 1 summarizes our measures of globalization and their expected effects on poverty.

3. DATA, EMPIRICAL STRATEGY, AND BASELINE RESULTS

Our dataset covers the 1983–2007 period, with poverty data available from 1988, averaged over four five-year periods: 1988–92, 1993–97, 1998–2002, and 2003–07. Five-year averages are used both because we lack yearly data and to minimize the impact of measurement errors. The panel is unbalanced but includes information for 114 countries, and the efficient sample consists of more than 300 observations meeting baseline specifications. An absolute majority of these observations refers to conditions in countries classified as low- or lower middle-income countries with a 2008 GNI per capita of USD 3,855 or less. Table 12 in the Appendix presents descriptive statistics and sources for all variables used in the analysis, and Table 13 in the Appendix presents details about the country sample.

The main dependent variable is the percentage of the population in a country living on less than one dollar per day (PPP adjusted 1993). This absolute measure comes from the Povcal

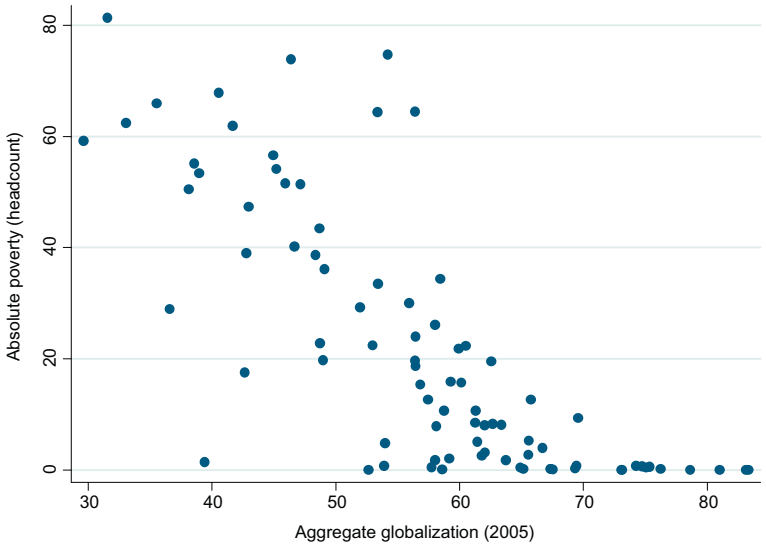

Figure 2. *Aggregate globalization and absolute poverty (2005).*

database (World Bank, 2010) and is derived from household surveys. Our globalization measure is the KOF Index (Dreher *et al.*, 2008), as described in Section 2. We use the index both as a composite measure (KOF), in which the three dimensions of globalization are equally weighted together, and in a disaggregated format (KOF1 and KOF2). Moreover, we use the sub-components for the economic and the social globalization index (flows and restrictions, and information flows, personal contact, and cultural proximity, respectively). The index takes values between 0 and 100 with higher values indicating more globalization. As can be seen in Figure 2, the cross-country correlation between the aggregate globalization index and poverty is clearly negative.

Our baseline is a panel data setting that should capture potential short-run effects on poverty. We specify an equation that relates globalization to poverty and to a set of control variables as follows (countries being indicated by i and time by t):

$$Poverty_{it} = \alpha + Glob_{it-1}\beta_1 + \left[Glob^2_{it-1}\beta_2 +\right]X_{it}\beta_3 + \delta_i + \rho_t + \varepsilon_{it} \quad (1)$$

In Eqn. (1), the brackets indicate that the quadratic term of globalization may be excluded. Glob is a vector for different types of globalization, X includes control variables, δ_i corresponds to a country-fixed effect that captures stable differences in poverty between countries, and ρ_t is a period-fixed effect capturing the influence of shocks that affect poverty in multiple countries at the same time. Finally, ε_{it} is an error term assumed to be normally distributed.

In the baseline regression, globalization is lagged one period. For example, average globalization in 1983–87 is used to explain average poverty in 1988–92. With this specification, if the J-curve hypothesis is correct, a linear globalization term should have no or possibly a negative sign, whereas a quadratic specification is likely to fit the data better. [11]

We begin by estimating a relatively parsimonious baseline, controlling only for country log real GDP per capita (PPP adjusted) collected from the World Bank (2010). To maximize comparability across specifications including the same indicator of globalization, we let the sample contain the same countries. The number of observations might, however, vary across index-specific estimations. [12] The null hypothesis of no country effects is rejected in all estimations and using a Hausman test, the random-effect model is rejected against the fixed-effect model. Moreover, time dummies are jointly significant in a majority of baseline specifications, suggesting they should be included in the model. All specifications consequently include country-fixed and time-fixed effects. Table 2 presents baseline results using panel regressions.

As expected, the linear specifications in columns 1, 4, and 7 fit worse than the remaining quadratic specifications: As shown in columns 2 and 3, aggregated globalization negatively associates with absolute poverty with decreasing marginal effect, consistent with the inverted J-curve hypothesis. Note that the aggregate index includes political globalization that we do not analyze separately. [13] Results for the different types of globalization (columns 5, 6, 8, and 9) suggest that the poverty-decreasing effect holds for both economic and social globalization. Interestingly, the size of the association decreases only marginally when controlling for income (columns 3, 6, and 9). This result suggests that globalization tends to decrease poverty, but not mainly via the income channel—at least not in the short run captured by the panel.

Table 3 examines what components of economic and social globalization that explain the negative association with absolute poverty in Table 2. Including trade flows and trade restrictions separately and together (columns 1–6) suggests that the significant coefficient on economic globalization comes from restrictions rather than from flows. [14] A similar exercise for social globalization (columns 7–14) points to the importance of information flows for reducing poverty, while cultural proximity actually seems to have a small poverty-increasing effect when all components of social globalization are included simultaneously.

To further check the robustness of our baseline findings using panel regressions, Table 14 in the Appendix presents the results from the following sensitivity tests: changing the specification to a random effects model, using globalization in period t rather than t-1, excluding observations with extreme values of globalization and poverty, using alternative measures of poverty, and excluding various geographical regions. [15] Overall baseline results are robust to these changes, suggesting that globalization is good for the poor. In particular, more liberal trade restrictions and larger information flows correlate with less absolute poverty.

Table 2. *Baseline panel regression results. Dependent variable: absolute poverty*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
KOF (*t*-1)	−0.00	−1.48***	−1.23***						
	[0.14]	[0.40]	[0.40]						
KOF (*t*-1)^2		0.01***	0.01***						
		[0.00]	[0.00]						
KOF1 (*t*-1)				−0.01	−0.85***	−0.83***			
				[0.12]	[0.25]	[0.25]			
KOF1 (*t*-1)^2					0.01***	0.01***			
					[0.00]	[0.00]			
KOF2 (*t*-1)							0.01	−0.98***	−0.81***
							[0.12]	[0.27]	[0.27]
KOF2 (*t*-1)^2								0.01***	0.01***
								[0.00]	[0.00]
GDP per capita (t)			−8.16*			−10.06**			−11.43***
			[4.51]			[4.10]			[4.25]
Constant	19.68***	59.42***	116.12***	20.20***	43.53***	122.03***	24.43***	43.68***	129.34***
	[7.36]	[12.45]	[34.27]	[6.55]	[6.98]	[31.79]	[3.76]	[6.37]	[33.86]
R-squared (within)	0.16	0.23	0.25	0.15	0.20	0.23	0.15	0.23	0.27
Observations	301	301	301	294	294	294	301	301	301
Number of countries	106	106	106	101	101	101	105	105	105

Country- and year-fixed effects included in all regressions.
Robust standard errors in brackets.
* Statistical significance at the 10% levels.
** Statistical significance at the 5% levels.
*** Statistical significance at the 1% levels.

(a) *Testing for mechanisms and robustness*

To gain knowledge about potential mediators in the globalization-poverty relationship we add a number of control variables to the baseline regression: The average level of education in the population over 15 years old, the share of the population residing in urban areas, and the government final consumption expenditure as a share of GDP and inflation.

While an expected negative effect of education on poverty is uncontroversial, there are different views on the poverty consequences of urbanization, as noted by Leon (2008) who describes the more recent view on urbanization as more optimistic for the poor than the older view. With regard to government consumption, there are several reasons to expect that states with larger welfare systems have lower poverty rates, but higher government expenditure does not necessarily imply a larger welfare state. For example, many developing countries allocate relatively large shares of public expenditures to defense activities, and as shown by Mosley and Suleiman (2007) such expenditures seem to hurt, not support, the poor. Inflation is generally assumed to be harmful to the poor, whose assets are typically less protected against inflation.

Table 4 summarizes the results from regressions including control variables, starting with the baseline estimates to facilitate comparison. Next, we control for government consumption as a share of GDP. This variable is not significant and does not change other coefficients by much at all, suggesting that government size is not an important mechanism for poverty reduction. Urbanization, on the other hand, turns out to be negatively related to poverty, supporting the newer rather than the older view as described above, but the variable inclusion does not change the globalization coefficients. Surprisingly, education seems to be unrelated to poverty, and inflation associates with less poverty. Finally, including all the above control variables in the same specification changes little except for small reductions in the size of the globalization coefficients suggesting that there is something else in the globalization process benefiting the poor.

One concern is that baseline results are driven by unobserved institutional changes, not captured by the country- and time-fixed effects, which are systematically related to globalization and poverty reduction. As a test of robustness we include information of a county's legal structure and security of property rights, measuring the quality of the legal system, in terms of judicial independence, impartial courts, military interference, and integrity, and of the extent to which economic actors perceive the legal system to protect their property and contracts. The variable refers to the second area of the Economic Freedom Index (Gwartney, Lawson, & Hall, 2011). Baseline results are also robust to the inclusion of this institutional measure (see Table 4). In fact, institutional quality and improvements thereof do not seem to be related to absolute poverty in the short run (which is less surprising in a model with country-fixed effects).

We also examine if the relationship between globalization and poverty depends on the level of democracy using the Polity IV index by Marshall and Jaggers (2009), ranging from 10 to 10 with higher values indicating more democratic regimes. [16] Only including observations with a Polity IV score of at least 7 in the estimations (there are 115 such observations from 50 countries, with an average Polity IV score of 8.26), results in a slightly larger coefficient on the aggregated globalization index, and also makes social globalization insignificant. The insignificance of social globalization masks, however, a negative association with information flows and a positive association with cultural proximity, similarly to the results when analyzing the full sample. For economic globalization, the effect result once again seems to be driven by restrictions.

Running a separate regression on the remaining 186 observations (coming from 82 countries with an average Polity IV score of 2.76) reveals that the negative coefficient on economic globalization in less democratic countries is driven by trade flows rather than restrictions.

Table 3. *Baseline panel regression results cont. Dependent variable: absolute poverty*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Trade flows (*t*-1)	−0.33*	−0.26			−0.25	−0.17								
	[0.17]	[0.17]			[0.19]	[0.17]								
Trade flows (*t*-1)^2	0.00**	0.00*			0.00	0.00								
	[0.00]	[0.00]			[0.00]	[0.00]								
Restrictions (*t*-1)			−0.54**	−0.65***	−0.55**	−0.61**								
			[0.23]	[0.24]	[0.26]	[0.27]								
Restrictions (*t*-1)^2			0.01***	0.01***	0.00**	0.01**								
			[0.00]	[0.00]	[0.00]	[0.00]								
Personal contact (*t*-1)							−1.16*	−0.75					−0.47	−0.07
							[0.66]	[0.63]					[0.49]	[0.49]
Personal contact (*t*-1)^2							0.01*	0.01					0.01	0.00
							[0.01]	[0.01]					[0.01]	[0.01]
Information flows (*t*-1)									−0.85***	−0.81***			−0.92***	−1.00***
									[0.18]	[0.19]			[0.17]	[0.19]
Information flows (*t*-1)^2									0.01***	0.01***			0.01***	0.01***
									[0.00]	[0.00]			[0.00]	[0.00]
Cultural proximity (*t*-1)											-0.13	−0.07	0.11	0.18**
											[0.13]	[0.11]	[0.10]	[0.09]
Cultural proximity (*t*-1)^2											0.00	0.00	−0.00	−0.00**
											[0.00]	[0.00]	[0.00]	[0.00]
GDP per capita (t)		−9.47**		−11.26***		−10.06**		−12.64***		−14.42***		−9.29**		−11.83***
		[4.40]		[4.19]		[4.39]		[4.51]		[4.38]		[4.43]		[4.09]
Constant	31.19***	103.91***	30.65***	126.28***	41.22***	120.62***	40.72***	134.58***	44.03***	156.04***	16.99***	93.18**	50.21***	136.28***
	[4.58]	[33.62]	[7.80]	[36.22]	[7.50]	[34.88]	[13.48]	[38.14]	[4.21]	[35.68]	[2.60]	[36.87]	[11.64]	[35.83]
R-squared (within)	0.11	0.14	0.19	0.23	0.17	0.21	0.12	0.16	0.19	0.24	0.15	0.18	0.26	0.31
Observations	284	284	277	277	255	255	312	312	318	318	253	253	249	249
Number of countries	99	99	95	95	86	86	109	109	114	114	84	84	81	81

Country- and year-fixed effects included in all regressions.
Robust standard errors in brackets.
* Statistical significance at the 10% levels.
** Statistical significance at the 5% levels.
*** Statistical significance at the 1% levels.

Table 4. *Exploring the mechanisms from globalization to poverty reduction*

Variation	Composite KOF index		Significant components					Comments
Baseline model	−1.23***	[0.40]	KOF1 (*t*-1)	−0.83***	[0.25]	Restrictions (*t*-1)	−0.61**	[0.27]	Baseline estimates
	0.01***	[0.00]		0.01***	[0.00]		0.01**	[0.00]	Corresponds to the results in Tables 1 and 2
			KOF2 (*t*-1)	−0.81***	[0.27]	Information flows (*t*-1)	−1.00***	[0.19]	
				0.01***	[0.00]		0.01***	[0.00]	
						Cultural proximity (*t*-1)	0.18**	[0.09]	
							−0.00**	[0.00]	
Controlling for government consumption (% of GDP)	−1.22***	[0.40]	KOF1 (*t*-1)	−0.84***	[0.26]	Restrictions (*t*-1)	−0.80***	[0.25]	Government consumption negative and significant
	0.01***	[0.00]		0.01***	[0.00]		0.01***	[0.00]	
			KOF2 (*t*-1)	−0.73**	[0.28]	Information flows (*t*-1)	−1.00***	[0.20]	
				0.01***	[0.00]		0.01***	[0.00]	
						Cultural proximity (*t*-1)	0.17*	[0.09]	
							−0.00**	[0.00]	
Controlling for urban population (% of total)	−1.21***	[0.39]	KOF1 (*t*-1)	−0.77***	[0.25]	Restrictions (*t*-1)	−0.56**	[0.27]	Urban population negative and significant
	0.01***	[0.00]		0.01***	[0.00]		0.01**	[0.00]	
			KOF2 (*t*-1)	−0.74***	[0.25]	Information flows (*t*-1)	−0.95***	[0.18]	
				0.01***	[0.00]		0.01***	[0.00]	
						Cultural proximity (*t*-1)	0.18*	[0.09]	
							−0.00**	[0.00]	
Controlling for education	−1.18***	[0.43]	KOF1 (*t*-1)	−0.83***	[0.27]	Restrictions (*t*-1)	−0.59**	[0.28]	Education insignificant in all estimations
	0.01***	[0.00]		0.01***	[0.00]		0.01**	[0.00]	
			KOF2 (*t*-1)	−0.72***	[0.26]	Information flows (*t*-1)	−1.04***	[0.21]	
				0.01***	[0.00]		0.01***	[0.00]	
						Cultural proximity (*t*-1)	0.20**	[0.09]	
							−0.00**	[0.00]	
Controlling for inflation	−1.33***	[0.40]	KOF1 (*t*-1)	−0.69***	[0.24]	Information flows (*t*-1)	−0.92***	[0.19]	Inflation negative and significant
	0.01***	[0.00]		0.01***	[0.00]		0.01***	[0.00]	
			KOF2 (*t*-1)	−0.84***	[0.25]	Cultural proximity (*t*-1)	0.19**	[0.09]	
				0.01***	[0.00]		−0.00**	[0.00]	
Including all potential mechanisms in the same specification	−1.22***	[0.41]	KOF1 (*t*-1)	−0.65**	[0.26]	Restrictions (*t*-1)	−0.55**	[0.27]	
	0.01***	[0.00]		0.01***	[0.00]		0.01**	[0.00]	
			KOF2 (*t*-1)	−0.64***	[0.23]	Information flows (*t*-1)	−0.94***	[0.20]	
				0.01***	[0.00]		0.01***	[0.00]	
						Cultural proximity (*t*-1)	0.19*	[0.09]	
							−0.00**	[0.00]	
Including economic and social globalization in the same specification			KOF2 (*t*-1)	−0.79**	[0.34]				
				0.01***	[0.00]				
Interaction term between economic and social globalization			KOF1 (*t*-1)*KOF2 (*t*-1)	−0.012	[0.01]				

(*continued on next page*)

Table 4 (*continued*)

Variation	Composite KOF index		Significant components					Comments
Controlling for Economic Freedom Index Area 2	−1.35***	[0.40]	KOF1 (*t*-1)	−0.89***	[0.26]	Trade flows (*t*-1)	−0.35*	[0.19]	Economic Freedom Index insignificant in all estimations
	0.01***	[0.00]		0.01***	[0.00]		0.00**	[0.00]	
			KOF2 (*t*-1)	−0.72***	[0.24]	Restrictions (*t*-1)	−0.81***	[0.23]	
				0.01***	[0.00]		0.01***	[0.00]	
						Information flows (*t*-1)	−0.78***	[0.17]	
							0.01***	[0.00]	
Only including observations for democracies	−1.42**	[0.62]	KOF1 (*t*-1)	−0.64*	[0.34]	Restrictions (*t*-1)	−0.60**	[0.27]	Sample consists of observations with a Polity IV index equal or larger than 7
	0.01**	[0.00]		0.01**	[0.00]		0.01***	[0.00]	
						Information flows (*t*-1)	−0.67***	[0.20]	
							0.00***	[0.00]	
						Cultural proximity (*t*-1)	0.23*	[0.12]	
							−0.00**	[0.00]	
Only including observations for non-democracies	−0.97*	[0.55]	KOF1 (*t*-1)	−0.86**	[0.43]	Trade flows (*t*-1)	−0.51*	[0.30]	Sample consists of observations with a Polity IV index lower than 7
	0.01**	[0.00]		0.01**	[0.01]		0.00	[0.00]	
			KOF2 (*t*-1)	−1.00**	[0.45]	Information flows (*t*-1)	−0.71**	[0.30]	
				0.01***	[0.00]		0.01**	[0.00]	

Country- and year-fixed effects included in all regressions.
Robust standard errors in brackets.
* Statistical significance at the 10% levels.
** Statistical significance at the 5% levels.
*** Statistical significance at the 1% levels.

Table 5. *The long-run relationship between globalization and poverty—Baseline results*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
ΔKOF	−0.52**										−0.50**		
	[0.19]										[0.24]		
ΔKOF1		−0.20*										−0.23*	
		[0.12]										[0.12]	
ΔKOF2			−0.64***										−0.71***
			[0.18]										[0.24]
ΔFlows				−0.05		−0.05							
				[0.08]		[0.08]							
ΔRestrictions					−0.21*	−0.18							
					[0.11]	[0.11]							
ΔPersonal contact							−0.21			−0.07			
							[0.22]			[0.25]			
ΔInformation flows								−0.42***		−0.40***			
								[0.12]		[0.12]			
ΔCultural proximity									−0.09	−0.07			
									[0.06]	[0.06]			
Initial poverty	−−0.30***	−0.27***	−0.34***	−0.25***	−0.23***	−0.24***	−0.24***	−0.25***	−0.26***	−0.28***	−0.32***	−0.29***	−0.38***
	[0.05]	[0.05]	[0.05]	[0.06]	[0.06]	[0.06]	[0.06]	[0.06]	[0.07]	[0.06]	[0.07]	[0.07]	[0.08]
Economic growth	−0.07**	−0.09***	−0.05**	−0.07***	−0.07***	−0.07***	−0.07***	−0.06**	−0.08***	−0.05**	−0.06*	−0.07***	−0.04
	[0.03]	[0.03]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.03]	[0.03]	[0.03]	[0.02]	[0.03]
Constant	13.78***	9.96***	15.12***	3.50*	7.362***	6.83**	3.25	13.17***	5.93*	15.26***	12.63**	8.08***	16.73***
	[3.76]	[2.82]	[3.59]	[2.09]	[2.54]	[2.90]	[2.00]	[3.71]	[3.25]	[4.32]	[4.68]	[2.72]	[4.83]
Time effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	n.a.	n.a.	n.a.
Observations	70	70	71	59	59	59	59	59	59	59	45	45	45
Adjusted R-squared	0.370	0.343	0.467	0.285	0.315	0.304	0.269	0.392	0.283	0.383	0.420	0.400	0.511

Robust standard errors in brackets.
Columns 1–10 refer to countries having information on a change in absolute poverty over at least 10 years. Columns 11–13 refer to countries having information on a change in poverty over 15 years.
Columns 1–10 control for time effects using a dummy indicating the length of a country's poverty spell (10 or 15 years).
* Statistical significance at the 10% levels.
** Statistical significance at the 5% levels.
*** Statistical significance at the 1% levels.

Table 6. *The poorest and least globalized countries at the time of McDonald's entry*

Country	Entry year	ln GDP	Poverty (%)	KOF
Honduras[*]	1990	7.9	39	41
Pakistan[*]	1998	7.6	39	48
India[*,#]	1996	7.3	52	38
Urban China[#]	1990	7.0	18	33
Belarus[#]	1996	8.5	1	40

[*] Among the three poorest countries in our sample at the time of entry.
[#] Among the least globalized three countries in our sample at the time of entry.

(b) *The long-run relationship between globalization and poverty*

To capture the long-run effects of globalization, we estimate the relationship by considering the differences over a longer time period, by running the following regression:

$$\Delta Poverty_i = \alpha + \beta_1(\Delta Glob_i) + \beta_2(X_i) + \varepsilon_i \quad (2)$$

In equation (2), $\Delta Poverty_i$ and $\Delta Glob_i$ refer to the change in poverty and globalization in country i over a longer time period. Following Ravallion (2006), we maximize the length of this time period for each country, and the dependent variable might consequently correspond to changes in poverty over different periods for different countries. In our setting we focus on changes that take place over 10 or 15 years, but exclude countries for which we only have information on poverty in two adjacent time periods. To minimize potential reverse causality, globalization is lagged by one time period. The spell length for poverty and globalization is the same, and a dummy variable is included to control for the spell length and to control for time effects.

For example, in our sample there is information on poverty outcomes in Zambia for all four time periods of the panel. We therefore calculate the change in poverty by taking the poverty level in 2005 minus the poverty level in 1990. Likewise, we calculate the Zambian change in globalization using a 15-year time spell. In the Zambian example, this variable is thus derived by using data on globalization in 1985 and 1970.

As a robustness test, we run the same regression on a sample of 15-year periods only, which means regressing the change in poverty during 1990–2005 on the change in globalization during 1970–85 for all countries included in the exercise.

This first difference analysis bundles all time-invariant country characteristics into an error component, and estimates the relationship between globalization and poverty robustly to latent heterogeneity due to time-invariant effects. Specifications, however, include information on economic growth and initial poverty, referring to the poverty level in the earliest year in each country's poverty spell. [17]

Table 5 presents the results. The long-run first difference analysis confirms baseline panel findings. The results that trade restrictions and information flows matter for poverty are confirmed, while the positive poverty effect of cultural proximity appearing in some of the panel estimations disappears when applying a long-run perspective. Similarly, despite substantially reducing the country sample analyzed, results are also more or less the same when using only 15-year spells (columns 11–13).

4. INSTRUMENTING FOR GLOBALIZATION

A panel data specification with time- and country-fixed effects and lagged independent variables reduce the risk of reverse causality driving the results. The problem of common

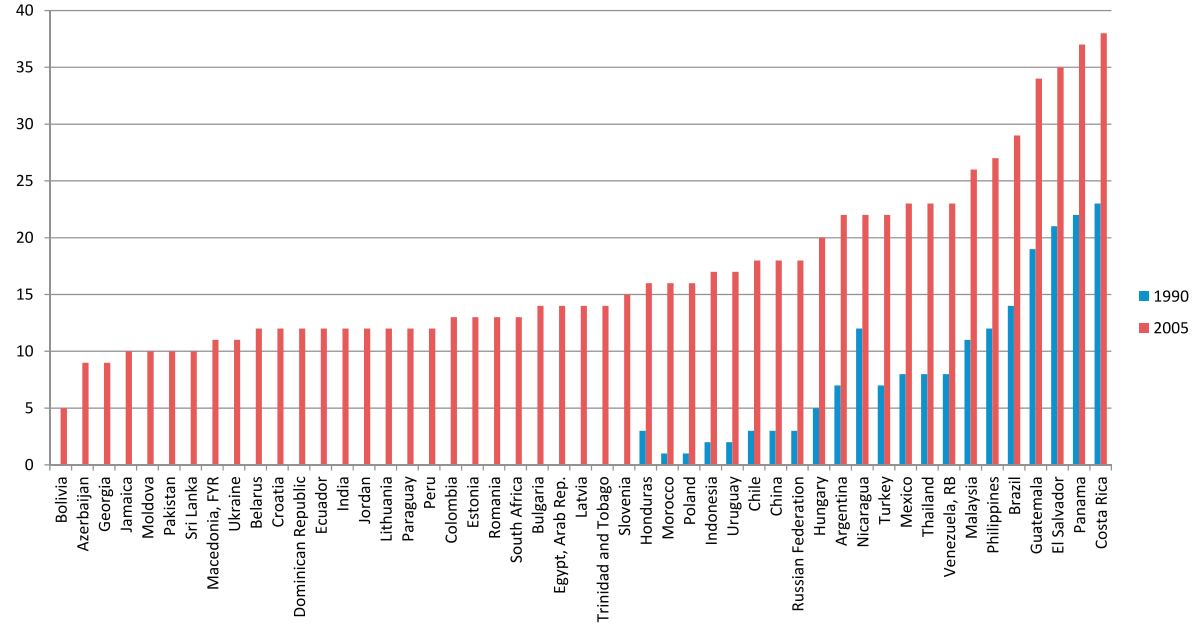

Figure 3. *Years of McDonald's presence (1990 and 2005) in countries where McDonald's enters.*

Table 7. *Baseline estimations using pooled OLS. Dependent variable: absolute poverty*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
KOF (*t*-1)	−1.19***							
	[0.34]							
KOF (*t*-1)^2	0.01***							
	[0.00]							
KOF1 (*t*-1)		−0.80***						
		[0.22]						
KOF1 (*t*-1)^2		0.01***						
		[0.00]						
KOF2 (*t*-1)			−0.77***					
			[0.20]					
KOF2 (*t*-1)^2			0.01***					
			[0.00]					
Trade flows (*t*-1)				−0.22				
				[0.17]				
Trade flows (*t*-1)^2				0.00				
				[0.00]				
Restrictions (*t*-1)					−0.60***			
					[0.19]			
Restrictions (*t*-1)^2					0.01***			
					[0.00]			
Personal contact (*t*-1)						−0.49		
						[0.52]		
Personal contact (*t*-1)^2						0.01		
						[0.01]		
Information flows (*t*-1)							−0.67***	
							[0.16]	
Information flows (*t*-1)^2							0.01***	
							[0.00]	
Cultural proximity (*t*-1)								−0.03
								[0.10]
Cultural proximity (*t*-1)^2								0.00
								[0.00]
GDP per capita (t)	−8.67**	−10.79***	−11.70***	−11.66***	−11.40***	−14.46***	−12.40***	−13.00***
	[3.57]	[3.08]	[3.69]	[2.84]	[2.80]	[2.67]	[3.66]	[2.77]
Constant	103.00***	110.81***	115.75***	103.37***	110.81***	129.96***	121.33***	109.70***
	[27.56]	[24.81]	[29.05]	[22.14]	[23.64]	[21.49]	[29.30]	[23.09]
Adjusted R-squared	0.93	0.93	0.92	0.92	0.93	0.90	0.91	0.93
Observations	301	294	301	284	277	312	318	253

Robust standard errors in brackets.
All specifications include country dummies.
** Statistical significance at the 5% levels.
*** Statistical significance at the 1% levels.

causality, however, remains: There may be omitted variables that influence both poverty and globalization. For example, aid programs targeting poor countries have often recommended economic openness as a main policy. In addition, the endogeneity of trade flows is a well-known problem in the empirical literature on openness and growth (cf. Rodriguez & Rodrik, 2000).

In the absence of controlled experiments, the problem is often handled using regressions with instrumental variables. Statistically, a good instrument is correlated with the endogenous regressor and uncorrelated with the outcome variable beyond its effect on the endogenous regressor. In an accessible introduction to the topic of instrumental variable regressions, Angrist and Krueger (2001) also stress that a good instrument should be correlated with the endogenous variable for reasons the researcher can verify and explain. They argue that good instruments come from detailed knowledge of the economic mechanism and institutions determining the regressor of interest.

We examine our results using two instruments that are very different from each other. If different instruments produce qualitatively different results, this serves as a warning lamp indicating that baseline findings should not be interpreted causally. Our first instrument is *the number of years with presence of McDonald's in a country*, derived from information retrieved directly from the company. Our second instrument is *the preceding average level of economic globalization in neighboring countries*.

(a) *Motivating the instruments*

Being a symbol of globalization, a lot of sociological research suggests that McDonald's presence can work as an instrument for globalization (Ritzer, 1995, 1996). According

Table 8. *Including the instruments in baseline pooled regressions. Dependent variable: Absolute poverty*

				KOF	KOF1	KOF2	Trade flows	Restrictions	Personal contact	Information flows	Cultural proximity
Globalization (*t*-1)				−1.35***	−0.86***	−0.80***	−0.28	−0.68***	−0.41	−0.70***	−0.05
				[0.38]	[0.23]	[0.23]	[0.18]	[0.20]	[0.52]	[0.17]	[0.10]
Globalization (*t*-1)^2				0.01***	0.01***	0.01***	0.00*	0.01***	0.01	0.01***	0.00
				[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]	[0.00]	[0.00]
Neighbors globalization (*t*-2)	−0.07		−0.04	0.35	0.35	0.23	0.21	0.34	0.17	0.56	−0.24
	[0.55]		[0.55]	[0.54]	[0.47]	[0.52]	[0.53]	[0.48]	[0.58]	[0.49]	[0.63]
Neighbors globalization (*t*-2)^2	−0.00		−0.00	−0.00	−0.00	−0.00	−0.00	−0.00	−0.00	−0.01	0.00
	[0.01]		[0.01]	[0.01]	[0.00]	[0.01]	[0.01]	[0.00]	[0.01]	[0.00]	[0.01]
McDonald's (*t*-2)		0.08	0.18	−0.17	−0.03	0.26	−0.14	−0.07	0.22	0.09	−0.23
		[0.29]	[0.30]	[0.30]	[0.30]	[0.32]	[0.29]	[0.30]	[0.31]	[0.29]	[0.32]
McDonald's (*t*-2)^2		−0.01	−0.01	−0.01	−0.01	−0.02*	−0.01	−0.01	−0.01	−0.01	−0.00
		[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
GDP per capita (t)	−12.34***	−13.55***	−12.70***	−7.99**	−10.72***	−11.69***	−9.81**	−11.68***	−13.79***	−12.05***	−9.43**
	[3.33]	[3.16]	[3.91]	[4.05]	[3.84]	[4.26]	[3.79]	[3.85]	[4.12]	[4.10]	[4.35]
Constant	110.65***	114.10***	112.50***	93.73***	104.36***	112.27***	86.47***	105.61***	123.36***	107.72***	90.38***
	[20.30]	[26.64]	[26.85]	[27.06]	[26.96]	[30.21]	[24.92]	[27.56]	[28.90]	[29.01]	[28.40]
Adjusted R-squared	0.91	0.91	0.91	0.93	0.93	0.92	0.92	0.93	0.91	0.92	0.93
Observations	330	330	330	301	294	301	284	277	312	318	253

Column titles refer to the measure of globalization included in the specific regression. Neighbors globalization refers to average economic globalization in all neighboring countries.
Robust standard errors in brackets.
All specifications include country dummies.
Neighbors globalization refers to economic globalization.
* Statistical significance at the 10% levels
** Statistical significance at the 5% levels.
*** Statistical significance at the 1% levels.

to its website, McDonald's use local or regional providers wherever possible, suggesting that the immediate effect of McDonald's on trade flows might be small. Several findings suggest however that the presence of McDonald's in a country over time will increase both social and economic globalization (apart from the fact that the number of McDonald's restaurants per capita is a part of the KOF-index measure of cultural proximity).

First, the chain is typically among the first to enter new markets and its presence is likely to increase the likelihood of similar chains. For McDonald's and Burger King this has recently been shown by Yang (2012).

Second, human's intrinsic fear of new food items (so called *food neophobia*) and tourists' tendency to seeking the 'ontological comfort of home' (Quan & Wang, 2004, p. 301) suggest that the presence of McDonald's is likely to increase tourist flows. For example Mak, Lumbers, and Eves (2012) note that the desire to seek novel food and dining experiences can be a major motivations to visit foreign destinations, but also that many tourists need a certain degree of familiarity, especially in the case of Western tourists visiting destinations in developing countries (Cohen & Avieli, 2004). As a result, the presence of McDonald's may not only increase tourism, but also lead to increased interaction between tourists and local food producers. [18]

Third, McDonald's tendency to adapt to the local culture is also likely to increase globalization. An example is provided by Ram (2004) who describes the opening of McDonald's in Israel 1993. Ram describes how McDonald's started a process that contributed to a renaissance for the local delicacy 'falafel', where a 'McDonaldized' version was standardized, branded, and marketed globally through new international franchise chains.

All the above mechanisms are likely to be stronger over time but not necessarily in a linear fashion. For this reason we use the number of years since entry as an instrument and allow this to affect globalization using a quadratic first-stage specification.

According to Lafontaine (2004) the country level entry of McDonalds is explained by GDP per capita (which is confirmed in our sample; the correlation between duration and per capita GDP is 0.6), trade openness, population size, and distance to the US. McDonald's is often entering many additional markets at any given time in the data, and the firm does not saturate markets before entering new ones. The presence of competitors does not significantly affect the likelihood of entry. Finally, physical distance from the US has a clear and statistically negative effect on entry probabilities.

The importance of distance from the US suggests that conditional on GDP per capita, there is some exogenous variation in McDonald's presence that can be used for identification purposes.

As shown in Table 6, our sample contains countries that were both relatively poor and not very globalized when McDonald's entered, but it is still true that the company has not entered the poorest and least globalized part of our sample. The reasons for not doing so may be related to poverty. While we will verify that the instrument is not correlated with poverty when included in the baseline regression, the obtained results will be the local average treatment effect (LATE) that differs from the average effect of interest, unless responses to globalization are homogenous—which is unlikely.

Figure 3 further shows that there is quite some variation in McDonald's presence across countries. The average years of the presence of McDonald's in our full sample is six years with a standard deviation of 8.5. In 2005 McDonald's was present in half of the countries in our sample (Figure 3 does not include countries where they were not yet present in 2005) and in many countries the company launched their first restaurant during the time period we study.

As a complement to the McDonald's instrument, we also use a second instrument: *preceding average level of economic globalization in neighboring countries*. As shown by Gassebner, Gaston, and Lamla (2011), there are geographical spill-overs (or peer effects) in market-liberalizing reforms, such that a country is likely to be more open if its neighbors are more open. It is unlikely that absolute poverty in a neighboring country directly affects globalization of the neighbors—especially as this globalization measure temporally precedes the poverty indicator. A similar IV-strategy has previously been applied by for example Eichengreen and Leblang (2008) and de Soysa and Vadlamannati (2011) who both instrument variables of openness with lagged values of openness of neighboring countries.

Economic globalization in neighboring countries is collected from Dreher *et al.* (2008). We define two countries as neighbors if they share a land or maritime boundary, the latter as

Table 9. *First-stage pooled regression of globalization on the instruments*

	KOF	KOF1	KOF2	Trade flows	Restrictions	Personal contact	Information flows	Cultural proximity
Neighbors globalization (*t*-2)	1.41***	1.15***	1.46***	1.06***	1.13***	0.08	2.82***	1.68***
	[0.20]	[0.26]	[0.22]	[0.37]	[0.40]	[0.20]	[0.38]	[0.55]
Neighbors globalization (*t*-2)^2	−0.01***	−0.01**	−0.01***	−0.00	−0.01**	−0.00	−0.02***	−0.01**
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.01]
McDonald's (*t*-2)	0.99***	1.04***	1.15***	1.21***	0.95***	0.20	1.29***	2.64***
	[0.19]	[0.23]	[0.21]	[0.31]	[0.31]	[0.14]	[0.33]	[0.46]
McDonald's (*t*-2)^2	−0.02***	−0.02***	−0.03***	−0.03***	−0.01	−0.01*	−0.02**	−0.07***
	[0.00]	[0.01]	[0.01]	[0.01]	[0.01]	[0.00]	[0.01]	[0.01]
1st stage F-test	43.44	28.00	37.11	18.59	11.20	1.10	31.40	13.82
Prob > F	0.00	0.00	0.00	0.00	0.00	0.359	0.00	0.00

Standard errors in brackets.
All specifications control for GDP per capita and include country dummies.
Neighbors globalization refers to economic globalization.
* Statistical significance at the 10% levels.
** Statistical significance at the 5% levels.
*** Statistical significance at the 1% levels.

recognized by the United Nations Convention on the Law of the Sea. However, territories are not classified as neighboring countries. [19]

We follow our baseline setting by using both neighbors' average globalization and globalization squared, and the years of McDonald's presence and its square in the IV-estimations. Moreover instruments are lagged one period with respect to globalization.

(b) *Testing the instruments*

Having discussed several theoretical aspects of our instruments, we proceed to test their validity on our data. Following the approach in Dutt, Mitra, and Priya (2009) who instrument trade policy by the number of years a country has been a GATT/WTO member since the GATT was founded, we use a pooled sample. [20]

As shown in Table 7, estimations using OLS on a pooled sample (including country dummies) generate results very similar to baseline results using panel data, although the magnitudes of the estimated coefficients are slightly smaller.

To assure that our instruments are unrelated to poverty, we include them in our baseline specification. The results in Table 8 show that both instruments are unrelated to poverty, that they add no explanatory value, and do not change the baseline coefficients on globalization very much.

Next, we verify that the instruments are powerful in predicting globalization. Table 9 shows the results from the first-stage regression estimating the relationship between the two instruments and the various measures of globalization, controlling for GDP per capita and including country dummies. Based on the F-tests and the size of the coefficients, the instruments seem to do a good job of predicting all globalization indicators except personal contacts.

Table 10. *Second-stage pooled regression, globalization instrumented. Dependent variable: absolute poverty*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
KOF (*t*-1)	−1.30***							
	[0.43]							
KOF (*t*-1)^2	0.01***							
	[0.00]							
KOF1 (*t*-1)		−1.04***						
		[0.34]						
KOF1 (*t*-1)^2		0.01***						
		[0.00]						
KOF2 (*t*-1)			−0.75***					
			[0.27]					
KOF2 (*t*-1)^2			0.01***					
			[0.00]					
Trade flows (*t*-1)				−0.67**				
				[0.31]				
Trade flows (*t*-1)^2				0.01**				
				[0.00]				
Restrictions (*t*-1)					−0.95***			
					[0.32]			
Restrictions (*t*-1)^2					0.01***			
					[0.00]			
Personal contact (*t*-1)						−1.58*		
						[0.83]		
Personal contact (*t*-1)^2						0.02**		
						[0.01]		
Information flows (*t*-1)							−0.65***	
							[0.21]	
Information flows (*t*-1)^2							0.01***	
							[0.00]	
Cultural proximity (*t*-1)								−0.50**
								[0.20]
Cultural proximity (*t*-1)^2								0.00**
								[0.00]
GDP per capita (t)	−8.97**	−9.09**	−11.51**	−8.69**	−12.42***	−9.08**	−12.14***	−7.63*
	[4.05]	[3.71]	[4.44]	[3.52]	[3.61]	[3.63]	[4.47]	[3.93]
Constant	112.01***	106.16***	114.55***	92.88***	141.43***	104.22***	118.62***	68.17**
	[27.96]	[26.95]	[32.53]	[24.12]	[23.11]	[27.71]	[33.28]	[32.03]
Adjusted R-squared	0.93	0.93	0.92	0.92	0.93	0.91	0.91	0.93
Observations	298	291	298	281	277	309	315	253
Sargan test (*p*-value)	0.225	0.233	0.225	0.060	0.250	0.046	0.245	0.022

Robust standard errors in brackets.
All regressions control for GDP per capita (*t*) and includes country dummies.
Dimensions of globalization are instrumented by McDonalds duration and neighbors average economic globalization.
* Statistical significance at the 10% levels.
** Statistical significance at the 5% levels.
*** Statistical significance at the 1% levels.

Finally, Table 10 presents the second-stage regression results, where predicted globalization levels from the first stage are used to estimate the effect on absolute poverty. The baseline finding that globalization reduces poverty is confirmed. Note however that the Sargan-statistics indicate problems for trade flows, personal contacts, and cultural proximity, suggesting that instruments are not valid for these dimensions of globalization. Importantly, the instruments work well for trade restrictions and information flows, and confirm the baseline findings that these dimensions of globalization negatively relate to absolute poverty.[21]

5. CONCLUSIONS

We set out to test the links from globalization to poverty reduction, and our results are coherent enough to identify some interesting patterns. Globalization correlates negatively with absolute poverty both across countries, in a panel with fixed effects, and in a longer first difference regression. While we cannot be certain that our results are causal, two different instrumental variable approaches support our baseline findings.

The size of the effect in our baseline panel estimate is not remarkable. For example, consider the case of Bangladesh. During 1980–2000, the country increased its KOF value from 17 to 38. According to the long-run estimates in Table 5, this translates to a reduction of absolute poverty by about 11 percentage points, which roughly means that it takes a two standard deviation increase in globalization to decrease poverty by half a standard deviation. Overall, the absolute value of the instrumented coefficients in Table 10 are slightly bigger than the OLS coefficients in Table 7, suggesting that ordinary least square estimates can be considered a lower bound for the magnitude of the poverty effect of globalization.

Looking closer at the factors included in the KOF index, less trade restrictions and larger information flows are robustly associated with lower poverty levels. A likely explanation for the importance of trade restrictions is that these matter for import prices.

Analyzing trade flows only, the standard approach in the globalization-poverty nexus (assuming that trade increases growth and that growth reduces poverty), holds up well. In both the short-run and long-run analysis, we find that higher trade flows are on average followed by lower poverty, but the effect is no longer significant once we control for income or growth. The fact that trade restrictions turn out to be more robust than trade flows should however probably be carefully interpreted: Deaton (1995) notes that trade data may be biased upward due to over-invoicing of imports, a method often used to transfer funds abroad from low-income countries, causing a systematic bias in trade data and in national accounts.

For both trade restrictions and information flows, a relatively large poverty-decreasing effect remains after controlling for GDP per capita, suggesting that the standard approach actually underestimates the poverty-reducing impact of globalization. A possible explanation to this is that there are income distribution effects such that the incomes of the poor increase more than the average income. Another possibility is that the result follows from measurement errors in the GDP data. As discussed by e.g., Heston (1994), productivity increases in the subsistence sector and the informal sector are often insufficiently captured in GDP data.[22]

Our results leave room for cautious optimism. Although the fact that many low-income countries embarked on programs of external economic liberalization in recent decades has been intensely debated, our analysis suggests that the underlying premises of current and previous poverty reduction strategies are correct: poverty reduction can be achieved by means of closer economic integration and higher levels of globalization.

NOTES

1. Among the few exceptions we find a panel data study by Aisbett, Harrison, and Zwane (2008), a cross-country study by Heshmati (2007), and a panel data study by Agénor (2004) with $N = 16$. There are also some illuminating case studies of specific countries, including Verme (2010) for Kazakhstan and Ravallion (2006) for China and Morocco.

2. For additional studies using the standard approach, see Bhagwati and Srinivasan (2002) and Agénor (2004). For further discussions of the standard approach, see Harrison and McMillan (2007), Lundberg and Squire (2003) and Bourguignon (2004).

3. Their study covers 58 developing countries over the period 1980–98. The poverty-reducing effect of growth is found to be smallest in sub-Saharan Africa and largest in the Middle East and North Africa region.

4. Because the indicators of political globalization are slightly hard to interpret, we focus on the relationship between economic and social globalization and poverty. When using the aggregate index, political globalization is included in order to obtain results for globalization when measured as intended by the creators of the KOF Index.

5. Responding to some of the critiques, Wacziarg and Welch (2008) update the Sachs-Warner index and find it to be significantly related to growth during the 1970s and the 1980s, but not during the 1990s. The same result appears in Rajan and Subramanian (2008).

6. For more recent evidence on the compensation hypothesis see Kim (2007).

7. A more recent example is when the Indian company ITC launched a system called e-Choupals, which enabled rural farmers to connect themselves and check crop prices online. This led to many of them bypassing local auction markets and selling crops directly to ITC for $6 more per tonne than they previously received (Pralahad & Hammond, 2002).

8. Links between tourism, trade, and growth have also recently been investigated by Katircioglu (2009) for the case of Cyprus.

9. The term refers to the process by which the principles of the fast-food restaurant are coming to dominate more and more sectors of American societies as well as the rest of the world (Ritzer, 1996:293).

10. Views differ as to whether to include the various dimensions of globalization simultaneously or not, see Heckelman and Stroup (2005) and Dreher and Gaston (2008).

11. Using preceding levels of globalization in our specifications is theoretically motivated by the fact that globalization likely affects poverty with some delay. This structure also somewhat reduces the risk that the level of absolute poverty influences globalization.

12. Notably, results do not change when restricting the sample to the very same observations across all specifications. In this case, the sample consists of 283 observations.

13. Examining the effect of political globalization separately reveals a poverty-increasing effect, which is not robust and appears to be driven by less democratic countries.

14. Note that restrictions and flows are not very highly correlated ($r = 0.51$) because exports and imports tend to be higher as a share of GDP in smaller countries.

15. The data also allow us to increase the lag length of globalization with one period without any major sample deviations. Reassuringly, using a two-period lag confirms baseline findings. Due to data restrictions further increases of the lag length are not meaningful.

16. The index aims to capture three elements of democracy: (i) the presence of institutions and procedures enabling citizens to express their preferences for policies and leaders; (ii) the existence of effective constraints on the exercise of power by the executive; and (iii) guarantee of civil liberties to participate in the political process.

17. Needless to say, the long run, poverty-decreasing effects from globalization may be small and/or take more than 15 years (the maximum length of $\Delta Poverty$ in our sample) to materialize.

18. This is in line with Chang *et al.* (2010) who find that for tourists in China who are enthusiastic to sample local food, their core food preference may still be dominant.

19. A complete list of neighboring countries is available from the authors on request.

20. Note however that our instruments vary over time and can be used in a panel setting. Although such specification is less ideal since McDonalds duration will be highly correlated with the time trend, results from IV-panel regressions confirms our main findings.

21. The two instruments also work well when included in the instrumental variable analysis separately (results are not shown in the paper, but available upon request). First-stage results suggest instruments correlate positively with dimensions of globalization and first-stage F-tests are large and significant. Reassuringly the second-stage regressions confirm our findings presented in Table 10 and suggest that globalization reduces absolute poverty.

22. Deaton (1995) also discusses complications with the GDP data in developing countries, and suggests that consumption measures based on household surveys may be preferable to measures based on national accounts.

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APPENDIX A.

Table 11. *The KOF Index of Globalization*

A. Economic Globalization
(i) Actual Flows
Trade (percent of GDP)
Foreign direct investment, flows (percent of GDP)
Foreign direct investment, stocks (percent of GDP)
Portfolio investment (percent of GDP)
Income payments to foreign nationals (percent of GDP)
(ii) Restrictions
Hidden import barriers
Mean tariff rate
Taxes on international trade (percent of current revenue)
Capital account restrictions
B. Social Globalization
(i) Data on Personal Contacts
Outgoing telephone traffic
Transfers (percent of GDP)
International tourism
Foreign population (percent of total population)
International letters (per capita)
(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 IKEAs (per capita)
Trade in books (percent of GDP)
C. Political Globalization
Embassies in country
Membership in international organizations
Participation in UN Security Council missions

Table 12. *Descriptive statistics*

Variable	Mean	Std. Dev.	Min	Max	Source
Headcount	24.80	25.29	0	92.55	World Bank (2010)
Poverty gap	9.82	12.44	0	63.34	World Bank (2010)
Squared poverty gap	5.35	7.99	0	48.51	World Bank (2010)
KOF	45.41	12.19	17.11	80.46	Dreher *et al.* (2008)
KOF1	45.96	14.62	10.66	88.17	Dreher *et al.* (2008)
KOF2	38.83	15.94	9.09	82.75	Dreher *et al.* (2008)
KOF3	54.52	20.10	5.19	92.31	Dreher *et al.* (2008)
Flows	51.95	17.61	8.76	92.21	Dreher *et al.* (2008)
Restrictions	45.27	17.05	10.16	93.59	Dreher *et al.* (2008)
Personal contact	37.13	16.40	8.74	79.23	Dreher *et al.* (2008)
Information flows	42.33	18.98	6.29	88.34	Dreher *et al.* (2008)
Cultural proximity	35.46	22.26	1.00	85.98	Dreher *et al.* (2008)
Ln Real GDP per capita (PPP)	8.01	0.95	5.58	10.07	World Bank (2010)
Economic growth	10.81	20.07	−64.87	96.97	World Bank (2010)
Government expenditure (per cent of GDP)	13.74	5.07	3.65	32.79	World Bank (2010)
Urban population (share of total)	47.98	20.21	6.28	92.19	World Bank (2010)
Inflation	2.37	1.33	−0.12	7.79	World Bank (2010)
Primary education	5.46	1.01	3.00	8.00	World Bank (2010)
Polity2	2.80	6.22	−9.00	10.00	Marshall and Jaggers (2009)
McDonald's (numbers of years present)	6.06	8.46	0	38.00	McDonald's (2010)
Average globalization in neighboring countries	50.18	11.28	20.90	80.96	Dreher *et al.* (2008)
East Asia & Pacific	0.12	0.32	0	1	World Bank (2010)
Europe and Central Asia	0.24	0.43	0	1	World Bank (2010)
Latin America and the Caribbean	0.25	0.43	0	1	World Bank (2010)
Middle East and North Africa	0.07	0.26	0	1	World Bank (2010)
South Asia	0.06	0.23	0	1	World Bank (2010)
Sub-Saharan Africa	0.26	0.44	0	1	World Bank (2010)

Table 13. *Country list*

Albania	China*	Haiti	Moldova*	Sri Lanka*
Algeria	Colombia*	Honduras*	Mongolia	St. Lucia
Angola	Comoros	Hungary*	Morocco*	Suriname*
Argentina*	Congo, Dem. Rep.	India*	Mozambique	Swaziland
Armenia	Congo, Rep.	Indonesia*	Namibia	Tajikistan
Azerbaijan*	Costa Rica*	Iran, Islamic Rep.	Nepal	Tanzania
Bangladesh	Cote d'Ivoire	Jamaica*	Nicaragua*	Thailand*
Belarus*	Croatia*	Jordan*	Niger	Timor-Leste
Benin	Djibouti	Kazakhstan	Nigeria	Togo
Bhutan	Dominican Republic*	Kenya	Pakistan*	Trinidad and Tobago*
Bolivia*	Ecuador*	Kyrgyz Republic	Panama*	Tunisia
Bosnia and Herzegovina	Egypt, Arab Rep.*	Lao PDR	Papua New Guinea	Turkey*
Botswana	El Salvador*	Latvia*	Paraguay*	Turkmenistan
Brazil*	Estonia*	Lesotho	Peru*	Uganda
Bulgaria*	Ethiopia	Liberia	Philippines*	Ukraine*
Burkina Faso	Gabon	Lithuania*	Poland*	Uruguay*
Burundi	Gambia, The	Macedonia, FYR*	Romania*	Uzbekistan
Cambodia	Georgia*	Madagascar	Russian Federation*	Venezuela, RB*
Cameroon	Ghana	Malawi	Rwanda	Vietnam
Cape Verde	Guatemala*	Malaysia*	Senegal	Yemen, Rep.
Central African Republic	Guinea	Mali	Sierra Leone	Zambia
Chad	Guinea-Bissau	Mauritania	Slovenia*	
Chile*	Guyana*	Mexico*	South Africa*	

* McDonald's is present in the country during the whole or parts of the time period analyzed.

Table 14. *Sensitivity tests*

Variation	Composite	KOF index	Significant components						Comments
Baseline model	−1.23***	[0.40]	KOF1 (*t*-1)	−0.83***	[0.25]	Restrictions (*t*-1)	−0.61**	[0.27]	Baseline estimates
	0.01***	[0.00]		0.01***	[0.00]		0.01**	[0.00]	Corresponds to the results in Table 1 and Table 2
			KOF2 (*t*-1)	−0.81***	[0.27]	Information flows (*t*-1)	−1.00***	[0.19]	
				0.01***	[0.00]		0.01***	[0.00]	
						Cultural proximity (*t*-1)	0.18**	[0.09]	
							−0.00**	[0.00]	
Random effects (RE) model	−1.22***	[0.37]	KOF1 (*t*-1)	−0.97***	[0.21]	Trade flows (*t*-1)	−0.25*	[0.15]	
	0.01***	[0.00]		0.01***	[0.00]		0.00*	[0.00]	
			KOF2 (*t*-1)	−0.92***	[0.23]	Restrictions (*t*-1)	−0.68***	[0.19]	
				0.01***	[0.00]		0.01***	[0.00]	
						Personal contact (*t*-1)	−0.67*	[0.38]	
							0.01**	[0.00]	
						Information flows (*t*-1)	−1.12***	[0.18]	
							0.01***	[0.00]	
						Cultural proximity (*t*-1)	0.28***	[0.09]	
							−0.00***	[0.00]	
Controlling for non-lagged globalization	−0.92***	[0.33]	KOF1 (t)	−0.74***	[0.25]	Information flows	−0.91***	[0.19]	
	0.01***	[0.00]		0.01***	[0.00]		0.01***	[0.00]	
			KOF2 (t)	−1.04***	[0.26]				
				0.01***	[0.00]				
Excluding extreme values of globalization	−1.49***	[0.43]	KOF1 (*t*-1)	−0.97***	[0.28]	Restrictions (*t*-1)	−0.63**	[0.29]	Excluding index observations
	0.02***	[0.00]		0.01***	[0.00]		0.01**	[0.00]	further than 2 standard deviations
			KOF2 (*t*-1)	−0.84***	[0.30]	Information flows (*t*-1)	−1.03***	[0.22]	away from the sample mean
				0.01***	[0.00]		0.01***	[0.00]	
						Cultural proximity (*t*-1)	0.24**	[0.11]	
							−0.00**	[0.00]	
Excluding extreme values of poverty	−1.14***	[0.40]	KOF1 (*t*-1)	−0.82***	[0.25]	Restrictions (*t*-1)	−0.64**	[0.27]	Excluding headcount observations
	0.01***	[0.00]		0.01***	[0.00]		0.01**	[0.00]	further than 2 standard deviations
			KOF2 (*t*-1)	−0.84***	[0.27]	Information flows (*t*-1)	−0.99***	[0.19]	away from the sample mean
				0.01***	[0.00]		0.01***	[0.00]	
Alternative measure of poverty—Poverty gap	−0.66***	[0.24]	KOF1 (*t*-1)	−0.49***	[0.16]	Restrictions (*t*-1)	−0.37**	[0.17]	Using the squared poverty gap
	0.01***	[0.00]		0.01***	[0.00]		0.00**	[0.00]	as the dependent variable generates similar results
						Information flows (*t*-1)	−0.45***	[0.11]	
							0.00***	[0.00]	
						Cultural proximity (*t*-1)	0.14**	[0.06]	
							−0.00**	[0.00]	
Excluding sub-Saharan African countries (36 countries)	−1.18***	[0.43]	KOF1 (*t*-1)	−0.67**	[0.28]	Restrictions (*t*-1)	−0.81***	[0.29]	
	0.01***	[0.00]		0.01**	[0.00]		0.01**	[0.00]	
			KOF2 (*t*-1)	−0.93***	[0.29]	Information flows (*t*-1)	−0.98***	[0.21]	
				0.01***	[0.00]		0.01***	[0.00]	

(*continued on next page*)

Table 14 (*continued*)

Variation	Composite	KOF index	Significant components					Comments
						Cultural proximity (t-1)	0.15*	[0.09]
							−0.00**	[0.00]
Excluding Latin American countries (23 countries)	−1.35***	[0.49]	KOF1 (t-1)	−0.85***	[0.28]	Information flows (t-1)	−0.92***	[0.22]
	0.01***	[0.00]		0.01***	[0.00]		0.01***	[0.00]
			KOF2 (t-1)	−0.96***	[0.29]			
				0.01***	[0.00]			
Excluding East Asian countries (11 countries)	−0.85*	[0.43]	KOF1 (t-1)	−0.76***	[0.27]	Restrictions (t-1)	−0.50*	[0.26]
	0.01***	[0.00]		0.01***	[0.00]		0.00**	[0.00]
			KOF2 (t-1)	−0.36*	[0.21]	Information flows (t-1)	−0.85***	[0.20]
				0.01***	[0.00]		0.01***	[0.00]
						Cultural proximity (t-1)	0.24***	[0.09]
							−0.00***	[0.00]

Country- and year-fixed effects included in all regressions.
Robust standard errors in brackets.
* Statistical significance at the 10% levels.
** Statistical significance at the 5% levels.
*** Statistical significance at the 1% levels.