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**Working Paper**

## The Evidence on Globalization

CESifo Working Paper, No. 4708

**Provided in Cooperation with:**

Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

*Suggested Citation:* Potrafke, Niklas (2014) : The Evidence on Globalization, CESifo Working Paper, No. 4708, Center for Economic Studies and ifo Institute (CESifo), Munich

This Version is available at:

<https://hdl.handle.net/10419/96829>

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## The Evidence on Globalization

Niklas Potrafke

CESIFO WORKING PAPER NO. 4708

CATEGORY 2: PUBLIC CHOICE

MARCH 2014

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# The Evidence on Globalization

## Abstract

Globalization is blamed for many socio-economic shortcomings. I discuss the consequences of globalization by surveying the empirical globalization literature. My focus is on the KOF indices of globalization (Dreher 2006a and Dreher et al. 2008a), that have been used in more than 100 studies. Early studies using the KOF index reported correlations between globalization and several outcome variables. Studies published more recently identify causal effects. The evidence shows that globalization has spurred economic growth, promoted gender equality, and improved human rights. Moreover, globalization did not erode welfare state activities, did not have any significant effect on labor market interaction and hardly influenced market deregulation. It increased however within-country income inequality. The consequences of globalization thus turn out to be overall much more favorable than often conjectured in the public discourse.

JEL-Code: F000, F590.

Keywords: globalization.

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17 March 2014

This paper has been accepted for publication in *World Economy*.

# 1. Introduction

Globalization is a controversial topic. The classical and neo-classical literature on the gains from trade shows how globalization interpreted as free trade is globally beneficial in increasing national incomes. Distributional effects are at the focus of the debate. The Stolper-Samuelson theorem set in a Heckscher-Ohlin context shows that a country's relatively abundant factors gain and relatively scarce factors lose from freer trade. Other income distribution effects arise from outsourcing and from non-traded goods and from inputs becoming traded, as for example the services of a radiologist. There are gender consequences when globalization results in low-skilled women entering the labor market when low-income countries have a comparative advantage in the production of goods that are intensive in low-skilled labor. Through income distribution, globalization therefore has consequences for social justice. Critics of globalization have attributed to globalization responsibility for porous social security systems, poverty, social injustice and diminishing size and scope of government – because of increasing competition between individuals, firms, governments and countries (e.g., Wood 1995, 1998; Stiglitz 2002, 2004; Heine and Thakur 2011).

The end of the Cold War and rapid economic growth in several Asian countries were examples of benefits of globalization (and capitalism). The financial crisis starting in 2007 and rising income inequality increased however criticism of capitalism and globalization in industrialized countries. Joseph Stiglitz proposes in his book *The price of inequality – How today's divided society endangers our future* published in 2012 that government policies failed: “globalization, as it's been managed, is narrowing the choices facing our democracies, making it more difficult for them to undertake the tax and expenditure policies that are necessary if we are to create societies with more equality and more opportunity” (p. 142).<sup>2</sup> Other observers propose that *hyperglobalization* has gone too far. Dani Rodrik resorts in his book *The Globalization Paradox* published in 2011 to public opinion polls and his judgment of the attitudes of economists: “The rather dramatic decline in support for economic globalization in major countries like the United States reflects this new trend. The proportion of respondents in an NBC/ *Wall Street Journal* poll saying globalization has been good for the U.S. economy has fallen precipitously, from 42 percent in June 2007 to 25 percent in March 2008. And surprisingly, the dismay has also begun to show up in an expanding list of mainstream economists who now question globalization's supposedly unmitigated virtues” Rodrik (2011: XIV). See also Chinn and Frieden (2011: 171 ff.).

An important issue is how to define and measure globalization. Globalization is a multifaceted concept including economic, social and political aspects that go beyond indicators such as trade openness and capital movements. Encompassing indices have been developed that include economic, social and political aspects; e.g., the Kearney/Foreign Policy Magazine globalization index, the CSGR Globalization index (Lockwood and Redoano 2005) or the GlobalIndex (Raab et al. 2008), and the Maastricht Globalisation Index (Martens and Zywiets 2006, Martens and Raza 2009, and Figge and Martens 2014). The KOF index of globalization (Dreher 2006a and Dreher et al. 2008a) has become the most often used globalization index. A list of studies using this index is available at <http://globalization.kof.ethz.ch/papers/>. In defining globalization, the KOF index follows Clark (2000: 86): “globalization” describes the process of creating networks of connections among actors at multicontinental distances, mediated through a variety of flows including

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<sup>2</sup> Wade (2004) used some descriptive statistics of aggregated data to test the “neo-liberal argument”. For example, he arrived at the conclusion: “If the number of people in extreme poverty is not falling and if global inequality is widening, we cannot conclude that globalization in the context of the dollar-Wall Street regime is moving the world in the right direction, with Africa's poverty as a special case in need of international attention. The balance of probability is that – like global warming – the world is moving in the wrong direction” (p. 582).

people, information and ideas, capital, and goods”. On how to define globalization, see also Dreher et al. (2008a) and Scholte (2008).<sup>3</sup> The advantage of the KOF index is that it is available for up to 208 countries over the period 1970-2010 (version 2013) and encompasses economic, social and political dimensions of globalization.<sup>4</sup> The KOF index is updated annually. An encompassing index is needed to evaluate the consequences of globalization. I focus on the KOF index because many studies have used this index and I can compare results based on, for example, samples and empirical methods.

Dreher et al. (2008a) survey the early literature that used the KOF indices and concluded that the net effect of globalization is positive. I review more than 100 empirical studies using the KOF indices not covered by Dreher et al. (2008a) and studies that have been revised. I focus on selected studies in the main text. Table 1 shows a detailed list summarizing the findings of the individual studies.

I show one main shortcoming of empirical studies using the KOF indices: endogeneity problems when reverse causality is present. Table 1 therefore includes information on whether the individual studies have dealt with potential reverse causality. When I explore the merits and demerits of globalization by summarizing the empirical studies in the main text, I use verbs such as “to be correlated with” if studies report correlations and “to influence” if studies describe a causal relation. I show that most authors – I include myself here – did not take causality too seriously when using the KOF indices in studies published in the late 2000s and elaborate much more seriously on causality in studies published since around 2011.

Some empirical studies have tested theoretically well-founded hypotheses on how globalization is expected to influence a dependent variable such as government expenditures.<sup>5</sup> In other empirical studies, the KOF globalization indices have been included as explanatory variables to avoid potential omitted variable bias. Including a globalization variable in an empirical model has been en vogue and is empirically justified in many models. Table 1 includes information on whether globalization was the main explanatory variable.

The objective of my study is to illustrate the consequences of globalization and to compile studies that scholars may refer to when investigating merits and disadvantages of globalization in more detail.

## 2. The KOF index of globalization

### 2.1 The 2013 KOF index

The 2013 KOF index cumulates 23 variables to an overall index and three sub-indices covering the economic, social and political dimensions of globalization. The *economic* globalization index includes two variable groups: (i) actual flows (trade, foreign direct investment, portfolio investment, and income payments to foreign nationals), (ii) restrictions (hidden import barriers, mean tariff rate, taxes on international trade, and capital account restrictions). The *social* globalization index includes three variable groups: (i) data on personal contact (telephone traffic, transfers, international tourism, foreign population, international letters), (ii) data on information flows (internet users, television, trade in newspapers), (iii) data on cultural proximity (number of McDonald’s restaurants, number of

<sup>3</sup> Martens et al. (2010: 574) emphasize: “Scholte (2002) argues for the globalization concept moving beyond being a buzzword for almost anything that is vaguely correlated with it. Otherwise, discourse on globalization runs the risk of being brushed aside as being”...‘globaloney’, ‘global babble’ and ‘glo-bla-bla’”.

<sup>4</sup> Quinn et al. (2011) review the main indicators of financial openness and integration and compare advantages and disadvantages.

<sup>5</sup> Some studies have used the KOF index or one of its components as dependent variable (e.g. Ross and Voeten 2013).

IKEA, trade in books). The *political* globalization index includes four individual variables: embassies in countries, membership in international organizations, participation in U.N. Security Council Missions, international treaties. The three sub-indices together define the overall index. The weighting of the sub-indices is based on a principal component analysis. The principal component analysis uses all available data of an individual variable and computes the variance of the variables used. The larger the variance of an individual variable, the greater is the weight of the variable. Missing values of individual variables are often inter- and extrapolated. An example is internet users. Data on internet users are available since the 1990s. For previous years since 1970, the first available number of internet users in every individual country is extrapolated till 1970. The detailed method of calculation is available on the KOF website.<sup>6</sup> Table 2 lists the variables and weights in detail. The individual components portray different aspects of globalization. The correlation coefficient between the economic and the social globalization index is 0.81, between the economic and the political globalization index 0.41 and between the social and the political globalization index 0.28.

The overall KOF index is available for 187 countries, the political globalization sub-index for 207 countries, the economic globalization sub-index for 150 countries and the social globalization sub-index for 193 countries. The original KOF index was published in 2002 (see Dreher et al. 2008a for details).

The overall index and the sub-indices assume values scaled from 1 (minimum of globalization) to 100 (maximum of globalization). Globalization (average over the period 1970-2010) is high in countries such as Belgium (84.5), the Netherlands (83.8), Canada (81.3) and Denmark (80.8) and low in countries such as Equatorial Guinea (18.5), Lao PDR (19.0), Afghanistan (19.8) and Burundi (21.9).

Globalization was proceeding rapidly over the period 1970-2010 (Figure 1). The overall globalization index increased from 36.2 to 56.6, the economic globalization index from 39.4 to 62.1, the social globalization index from 33.9 to 49.3, the political globalization index from 34.6 to 60.9.

## 2.2 Shortcomings of globalization indices

Globalization indices attempt to measure globalization. To be sure, no such index truly measures globalization. Experts who design globalization indices need to decide which individual components to include based on data availability and quality. The indices therefore have shortcomings by definition. The KOF globalization index does, for example, not include variables that measure migration and religion. By measuring social globalization by the number of McDonald's restaurants and the number of IKEA, social globalization resembles westernization. Globalization may however take non-western directions such as Islamic globalization (Scholte 2008).

Higher values of the globalization indices do not imply a seal of quality. When societies do not wish to move towards western directions, higher values of social globalization as measured by the number of McDonald's restaurants are not proficient.<sup>7</sup> De Lombaerde and Iapadre (2008), Dreher et al. (2010), Caselli (2008), and Caselli (2012) compare globalization indices and describe strengths and weaknesses.

The shortcomings of globalization indices notwithstanding, when experts would like to investigate the consequences of globalization by using econometric models, variables

<sup>6</sup> [http://globalization.kof.ethz.ch/media/filer\\_public/2013/03/25/method\\_2013.pdf](http://globalization.kof.ethz.ch/media/filer_public/2013/03/25/method_2013.pdf) (accessed on 23 August 2013).

<sup>7</sup> In a similar vein, the MGI globalization index includes, for example, organized violence as measured by trade in conventional arms and ecological footprint and bio-capacity data. Higher values in these environmental categories imply more globalization and may not be applauded.

which measure the multifaceted concept of globalization need to be available. The KOF index is an excellent case in point.

### 3. Hypotheses and empirical evidence

#### 3.1 Macroeconomic performance

##### 3.1.1 Fiscal and social policy

Two hypotheses juxtapose how globalization influences the size of government. The efficiency hypothesis predicts that tax competition puts a downward pressure on tax rates and on mobile factors. Consequently, governments have to reduce public spending, especially the social welfare state expenditures. The concept is also called disciplining hypothesis (see also Sinn's selection principle and *New Systems Competition* 2003). By contrast, the compensation hypothesis (Lindbeck 1975, Cameron 1978, Katzenstein 1985, Rodrik 1997, 1998, 2007) predicts that globalization increases the size of government. "People demand compensation against risk when their economies are more exposed to international economic forces; and governments respond by erecting broader safety nets, either through social programs or through public employment (more typical in poor nations)" (Rodrik 2011: 18).<sup>8</sup>

Empirical evidence has shown that globalization did not erode size of government, especially in industrialized countries. Governments kept spending and did not undermine tax rates. I first elaborate on the association between globalization and taxes and later on globalization and government expenditures.

##### *Taxes*

Becker et al. (2012) investigate how globalization was correlated with tax revenues. The dataset includes OECD countries over the period 1990-2005. The results show that economic globalization was positively correlated with consumption tax revenue as a share of total tax revenue and was not correlated with business tax revenue as a share of total tax revenue. Becker et al. (2012) estimate a common panel data model including fixed country effects.

Onaran et al. (2012) investigate how globalization was correlated with implicit tax rates (ITR) on labor income, capital income, and consumption and the tax revenues of the individual taxes as a share of total tax revenues in the European Union. An innovation by Onaran et al. (2012) is to disentangle how globalization is correlated with ITRs in different types of welfare regime. Welfare state regimes are: social-democratic regimes (Sweden, Finland, Norway, Denmark), conservative regimes (Germany, France, Austria, Belgium, Italy, Japan, Switzerland and the Netherlands), liberal regimes (United Kingdom, United States, Ireland, Canada, and Australia), Southern European countries (Italy, Spain, Greece and Portugal) and the Central and Eastern European New Eastern European Member States (CEE NMS). The authors include interaction terms between dummy variables for the individual welfare state regimes and the overall and economic KOF globalization indices. The effects by regime types are disentangled for the individual ITR, but are not disentangled by regime types for the individual tax revenues. The authors use Eurostat data which provide ITRs since 1995 and extend the data backwards since the 1970s and 1980s.

To compare the results by Onaran et al. (2012) with Becker et al. (2012), I first discuss the effects on tax revenues. The baseline results by Onaran et al. (2012) show that globalization was not correlated with capital, labor and consumption tax revenues (as a share

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<sup>8</sup> On the globalization-welfare state nexus see Schulze and Ursprung (1999), Dreher (2006b), Dreher et al. (2008b), Ursprung (2008), Koster (2009a).

of total tax revenues) in the EU15 countries over the period 1970-2007. Another sample includes the EU15 countries and the CEE NMS over the period 1995-2007. To disentangle the effects in the EU15 countries and the CEE NMS, the authors include an interaction term between the globalization variables and a CEE NMS dummy variable. The results show that globalization was not correlated with labor tax revenues. In the EU15 countries, however, the share of capital tax revenues was decreasing and the share of consumption tax revenues was increasing when economic globalization was proceeding rapidly. The authors interpret the results showing that the effect has been exactly the opposite in the CEE NMS, but do not show marginal effects describing the effect of the globalization variables on the individual tax revenues in the CEE NMS.

The results by Onaran et al. (2012) and Becker (2012) thus differ somewhat, but are hard to compare for at least three reasons. First, the time periods considered differ (1970-2007 and 1995-2007 versus 1990-2005). Second, the explanatory variables included differ in the two studies. Third, Becker et al. (2012) do not report which individual countries are included and differences may thus arise from different samples.

In a very similar study to Onaran et al. (2012), Onaran and Boesch (2014) also investigate how globalization was correlated with ITRs on labor income, capital income, and consumption in the European Union. In both studies, the baseline results show that overall and economic globalization was not correlated with ITRs on capital. Economic globalization was positively correlated with ITRs on labor. Globalization was negatively correlated with ITRs on capital in social democratic regimes and also with ITRs on consumption in social democratic and conservative regimes. Globalization was positively correlated with ITRs on labor in all regimes, but the southern regimes. To disentangle the effects between the EU15 countries and the CEE NMS, Onaran et al. (2012) use the full dataset and include interaction terms, whereas Onaran and Boesch (2014) estimate sub samples for the EU15 countries and the CEE NMS. Both approaches show that, in CEE NMS, globalization was not correlated with ITRs on labor and negatively correlated with ITRs on consumption. Globalization was somewhat positively correlated with ITRs on capital in CEE NMS (Onaran and Boesch 2014). Onaran and Boesch (2014) distinguish among the CEE NMS between “post-communist European type” and “Baltic type” countries and concluded that there is no negative association between globalization and ITRs on consumption in the Baltic type countries. Because the authors do not compute a marginal effect of globalization for the Baltic type countries, we do however not know, whether the marginal effect of globalization in the Baltic countries is negative and statistically significant.

### *Expenditures*

I now describe how globalization was correlated with government expenditures. Meinhard and Potrafke (2012) use panel data for 186 countries over the period 1970-2004 (five-year averages). Size of government is measured by the government expenditures of the Penn World Tables. The advantage of the size of government measure by the Penn World Tables is that it is available for a large sample encompassing many countries. The disadvantage is that the size of government measure by the Penn World Tables does not include social expenditures. Countries with a larger size of government usually have, however, larger social expenditures. The results show that globalization was positively correlated with government expenditures (as a share of GDP). The effects were especially pronounced for social globalization and in OECD countries.

Globalization-induced effects vary across regions. In Sub-Saharan Africa, economic globalization has been shown to be positively correlated with overall government spending, while social and political globalization have been shown to be negatively correlated with overall government spending. Adams and Sakyi (2012) derived these results by using data for 42 Sub-Saharan African countries over the period 1970-2009 (five-year averages).

Leibrecht et al. (2011) use social expenditure data for 27 EU countries over the period 1990-2006 and estimate a linear panel data model in levels. The baseline results show that in Western Europe, globalization was positively correlated with social expenditures, whereas globalization was negatively correlated with social expenditures in Eastern Europe. Extending the model for the West European countries, the authors examine the globalization-welfare state nexus by distinguishing between welfare regimes and include the interaction terms between globalization and the welfare state regime dummies. The results show evidence in favor of the compensation hypothesis in conservative welfare state regimes and evidence for the efficiency hypothesis in social democratic welfare state regimes. Onaran and Boesch (2014) include the globalization variable in levels and exclude one of the interaction terms between globalization and the welfare state regime dummies as reference category. The baseline results (not including interaction terms) show that economic globalization was positively correlated with social expenditures (as a share of total expenditures) in the EU15 countries over the period 1970-2007. Overall globalization does not turn out to be statistically significant in the sample covering the EU15 countries and in the CEE NMS sample. Economic globalization also does not turn out to be statistically significant in the CEE NMS sample. Disentangling by regime type, the authors interpret the results showing that overall globalization was positively correlated with social expenditures in conservative welfare state regimes and negatively in liberal welfare regimes. In a similar vein, for the CEE NMS, the authors conclude: “In the post-communist European regime the effect of globalization (KOFglobal) on social expenditures is significant and positive, but in the Baltic countries there is a significant negative effect of both indices” (p. 389). The results indeed show that the effect of globalization is smaller in the Baltic countries as compared to the post-communist European regime countries, but we do not know whether the marginal effect of globalization in the Baltic countries is negative and statistically significant.

Potrafke (2009) investigates how government ideology was correlated with social expenditures depending on whether globalization was proceeding rapidly/slowly. The dataset includes 20 OECD countries over the period 1980-2003. The dependent variable is the growth rate of social expenditures (as a share of GDP). I include the interaction term of a government ideology variable and the growth rate of the KOF globalization indices and compute marginal effects. The results show that leftist governments had higher social expenditures than rightwing governments when globalization was proceeding rapidly.

Gaston and Rajaguru (2013) investigate how international migration was correlated with annual social expenditures (as a share of GDP). The dataset includes 25 OECD countries over the period 1980-2008. The economic globalization index is included as explanatory variable and is shown to be negatively correlated with social expenditures. This result contradicts with the results of studies with similar data for OECD countries. The sample by Gaston and Rajaguru (2013) is however somewhat different as compared to the other studies using data for OECD countries: the sample does not include the established OECD countries Ireland and Iceland, but includes the Czech Republic, Hungary, Poland, Slovakia, South Korea, and Turkey.

Bove and Efthyvoulou (2013) investigate political cycles in social and military expenditures in 22 OECD countries over the period 1988-2008. The authors use the growth rates of social and military expenditures as dependent variable. In the baseline model, the growth rate of the economic globalization index is included as explanatory variable and is shown to be negatively correlated with social expenditures. The growth rate of the overall KOF index does however not turn out to be correlated with the growth rate of social expenditures suggesting that “the social and political dimensions of globalization do not play an important role in explaining the dynamics of social spending in our sampled countries” (footnote 18). Globalization was not correlated with military expenditures.

Baskaran and Hessami (2012) investigate whether globalization was correlated with education expenditures. The authors use education expenditure data from the World Bank's EdStats database distinguishing between expenditures for primary, secondary and tertiary education. The dataset includes 104 countries over the period 1992-2006. The authors estimate a dynamic panel data model by using a one-step system GMM estimator with annual data in levels. The results show that globalization was negatively correlated with primary education expenditures and positively correlated with secondary and tertiary education expenditures.

Experts have focused on other research questions than whether globalization influenced the size of government and included the KOF globalization indices as control variables. Klomp and de Haan (2013) investigate, for example, political budget cycles in 65 democratic countries over the period 1970-2005. Fiscal policies are measured by the budget balance and total government spending. The results show that overall globalization was neither correlated with the budget balance nor with total spending.

### *Non-stationary variables*

The studies elaborating on the globalization-welfare state nexus have shortcomings. Hardly any study deals with reverse causality. It is conceivable that designing fiscal and social policies also influences globalization. Governments may, for example, keep the size of government at a quite moderate level to attract foreign direct investments. Experts have dealt with reverse causality when investigating how globalization influences other variables and should do so also when elaborating on globalization-induced effects on fiscal and social policy outcomes.

Many studies used annual data in levels. An issue is whether using annual data in levels gives rise to misleading conclusions because of spurious regression. When the results derived by using annual data in levels suffer from spurious regression, we cannot trust the inferences. Expenditures as a share of the overall size of government are, for example, bounded or limited processes. "Although limited time series cannot be integrated in the usual sense,..., in many theoretical and applied studies they are modeled as pure I(1) processes" (Cavaliere and Xu 2014: 259). Cavaliere (2005) and Cavaliere and Xu (2014) elaborate on testing for unit roots in bounded times series. By employing panel unit root tests, empirical studies have shown that the KOF indices contain a unit root (Chang and Lee 2010 and 2011, Chang et al. 2011, Sakyi 2011, Potrafke 2010a).<sup>9</sup> I acknowledge that the employed panel unit root tests are not designed for bounded variables. Experts should use panel unit root tests for bounded variables to explore the time series properties of the KOF indices and bounded dependent variables such as government expenditure categories as a share of total expenditures or as a share of GDP. Globalization is the explanatory variable X in the studies I discuss. Experts examine how globalization influences a dependent variable Y. Spurious regression exacerbates when the dependent variable Y is not stationary.

Econometricians disagree on the spurious regression problem in panel data models.<sup>10</sup> When Y and X are non-stationary variables, spurious regression occurs in a static panel data model. When a lagged dependent variable is included, the spurious regression problem may not occur. There are two cases to be considered. When Y and X are cointegrated, OLS and GMM estimators are not efficient. When Y and X are not cointegrated, the coefficient estimate of the lagged dependent variable will converge to one in probability, and the error

<sup>9</sup> Panel unit root tests by Levin et al. (2002), Im et al. (2003), Breitung (2000), Hadri (2000), Maddala and Wu (1999), and Pesaran (2007) have been used. On issues related to the tests by Levin et al. (2002) and Im et al. (2003) see Westerlund and Breitung (2013).

<sup>10</sup> On spurious regression in panel data models see Pesaran and Smith (1995), Entorf (1997), Kao (1999), Phillips and Moon (1999), Bai et al. (2009). On whether the spurious regression problem is spurious see McCallum (2010), Sollis (2011) and Martínez-Rivera and Ventosa-Santaulària (2012).

term is stationary. Many models using government expenditures, tax rates, and tax revenues in levels as dependent variables also include a lagged dependent variable. In such regression equations, however, the t-statistic of the explanatory variable is asymptotically normally distributed, when X is strictly exogenous. Because scholars did not take reverse causality seriously when exploring the nexus between globalization and size of government, we do not exactly know whether we can trust the inferences. Some studies therefore use the first difference or growth rate of the dependent variable Y and the KOF indices and other explanatory variables to avoid spurious regression problems.<sup>11</sup> More research needs to be done in this area.

### 3.1.2 Economic growth, economic performance and per capita GDP

Globalization is expected to spur economic growth for many reasons. Trade openness enables, for example, countries to exploit comparative advantages, to gain from specialization, to foster innovation and efficient production. The internet and telephone access have simplified communication and information flows. Agents diminish transaction costs. By contrast, Stiglitz (2004) conjectures that globalization (“when not well managed”) does not spur economic growth because globalization, for example, adversely affects job creation and induces risk. National governments lost control of monetary policy in the course of globalization. How globalization influences economic growth remains an empirical question.

#### *Economic growth (long-run)*

By using five-year averages of per capita GDP growth, Dreher (2006a) and Dreher et al. (2008a) have shown that globalization was positively correlated with economic growth around the world. The results by Dreher (2006c) show that controlling for IMF support, globalization was positively correlated with economic growth in program countries. Dreher (2006a, 2006b) and Dreher et al. (2008a) derived their results based on data over the periods 1970-2000 and 1970-2004. Successive studies have (1) re-examined the correlation/influence between globalization and economic growth, (2) investigated the correlation/influence between globalization and per capita GDP, and (3) investigated the correlation/influence between globalization and economic performance (annual GDP growth rates).

Some panel data studies use five-year averages of per capita GDP growth as dependent variables and show that globalization was positively correlated with economic growth but hardly in OECD countries (Bergh and Karlsson 2010, Osterloh 2012, Villaverde and Maza 2011, Ali and Imai 2013). Bergh and Karlsson (2010) investigate the nexus between government size and growth. The data set includes 29 OECD countries over the periods 1970-1995 and 1970-2005. The authors estimate common fixed effects panel data models. The KOF index of globalization is included as explanatory variable and does not turn out to be statistically significant. Osterloh (2012) examines whether government ideology influenced economic growth in a panel of 23 OECD countries over the period 1971-2004. The panel data model includes fixed country and fixed period effects and the overall KOF globalization index as control variable. The KOF index does not turn out to be statistically significant. The study by Villaverde and Maza (2011) suggests that globalization as measured by the four KOF indices increased economic growth. The dataset includes up to 101 developing and developed countries over the period 1970-2005. Thus, as compared to Dreher’s early studies, the period covered is extended by five years. The authors first estimate a growth regression by OLS

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<sup>11</sup> Some other studies employ panel cointegration techniques by Pedroni (1999, 2004) to examine the long-run relationship between, for example, globalization and per capita GDP. De (2011) investigates cointegration between the KOF indices across countries.

including fixed country and fixed period effects and explanatory variables as used in the related studies. The results show that the overall, economic and social globalization indices were positively correlated with economic growth. Second, the authors estimate the model by using a one-step GMM estimator and treat globalization as endogenous. The GMM-results show that overall, economic, social and political globalization was positively correlated with economic growth. To be sure, the GMM estimator uses lagged values of the globalization and the other explanatory variables as instruments for globalization in period  $t$ . When employing instrumental variables (IVs), one cannot test the exclusion restriction which assumes that the IV (e.g., lagged globalization in the model by Villaverde and Maza 2011) is not correlated with the dependent variable (economic growth in period  $t$ ) controlled for the other variables in the model. It is, of course, hardly conceivable that lagged globalization is not correlated at all with economic growth in period  $t$  indicating that the assumptions of the IV approach are not fulfilled. In any event, the exclusion restriction is likely to be fulfilled in only a few GMM approaches using lagged values of the instrumented variable as instruments (see, for example, Bazzi and Clemens 2013). Villaverde and Maza (2011) have advanced empirical studies on globalization-induced economic growth by treating globalization as endogenous. Because the exclusion restriction is however not likely to be fulfilled, we cannot interpret the effects as causal. Ali and Imai (2013) use data for 41 African countries over the period 1970-2009 and investigate how economic globalization and economic crisis influenced economic growth. The baseline model includes the economic globalization and economic crisis variable. The authors estimate a common panel data model including fixed period and fixed county effects and a dynamic panel data model using the system GMM estimator by Arellano and Bover (1995) and Blundell and Bond (1998) treating globalization as endogenous. The results show that economic globalization was positively correlated with economic growth.

Rao et al. (2011) criticize two issues of the previous studies using five-year averages in a panel data framework. First, five-year average growth rates are inadequate proxies for the unobservable Steady State Growth Rate (SSGR) because an economy is not likely to attain its SSGR within a time period of five years. Second, panel data models assume a homogenous effect of globalization on economic growth across countries. But pooling countries in panel data studies is not suitable when the effect of globalization on economic growth varies across countries. Both points are certainly well taken. The authors therefore extend the growth model by Solow (1956) by including globalization and derive some structural equations. It was however not quite clear how one can derive the coefficient estimates of the reduced form the authors present and interpret. The dataset includes annual time series data for Singapore, Malaysia, Thailand, India and the Philippines over the period 1974-2004. The model is estimated separately for every individual country. Rao et al. (2011) employ unit root tests showing that the variables are non-stationary in levels and estimate an error correction model. A shortcoming which the authors explicitly acknowledge is that the sample sizes are small and the results therefore need to be interpreted carefully. Indeed, the authors' baseline econometric models include up to eight explanatory variables and have 31 observations. The results show that the influence of globalization on economic growth differs across countries.

Rao and Vadlamannati (2011) pursue a similar strategy as Rao et al. (2011) by elaborating on how globalization influenced SSGR. Rao and Vadlamannati (2011) do however not use data for individual countries separately but estimate panel data models for 21 low-income African countries. The period covered is not quite clear. The authors estimate common panel data models with fixed and random effects and also employ the system GMM estimator by Arellano and Bover (1995) and Blundell and Bond (1998). The GMM results are questionable because the number of instruments by far exceeds the number of countries included. I again had problems how to interpret the coefficient estimates of the reduced form. The authors conclude based on their results that "globalization in its aggregate measure has positive and significant long run growth effects" (p. 801).

The results by Rao et al. (2011) and Rao and Vadlamannati (2011) indicating that globalization induced economic growth in developing countries are in line with the panel data studies using five-year averages. There is hence evidence that in the course of globalization economic growth accelerated more in developing countries as compared to developed countries. These findings refute the skeptical view of globalization claiming that “globalization, as currently managed, adversely affects growth in developing countries” (Stiglitz 2004: 473).

#### *Per capita GDP*

In OECD countries globalization and per capita GDP have been shown to be cointegrated (Chang and Lee 2010, Chang et al. 2011). Chang and Lee (2010) use data for 23 OECD countries over the period 1970-2006. First-generation panel unit root tests show that the KOF globalization indices and per capita GDP contain a unit root.<sup>12</sup> Cointegration tests show that the globalization indices and per capita GDP are cointegrated. By estimating a panel vector error correction model (VECM), Chang and Lee (2010) also employ panel causality tests to examine the causal relationship between globalization and per capita GDP. Chang and Lee (2010) conclude that overall, economic and social globalization had a positive influence on per capita GDP. Chang et al. (2011) use data for the G7 countries over the period 1970-2006, employ second generation panel unit root tests which consider cross-sectional dependence (Pesaran 2007), panel unit root tests with multiple breaks (Carrion-i-Silvestre et al. 2005), and an estimation procedure which considers structural breaks in a panel cointegration model (Westerlund 2006). The baseline results show that the KOF indices and per capita GDP contain a unit root, but only economic globalization and per capita GDP are cointegrated. The baseline results thus propose that there is no long-run relationship between per capita GDP and overall, social and political globalization. The authors describe however that the baseline unit root and cointegration tests have ignored structural breaks. Panel unit root tests considering structural breaks and panel unit root tests considering cross-sectional dependence confirm that the time series are not stationary in levels. The panel cointegration tests considering structural breaks show that per capita GDP and overall and social globalization are cointegrated – this result confronts with the baseline model. The authors relate their results to empirical studies which have investigated how globalization was correlated with economic growth (e.g., Dreher 2006a).

Chang and Lee (2011) disentangle how globalization and per capita GDP were correlated in former communist countries and OECD countries. The dataset includes 10 former communist countries and 18 European OECD countries over the period 1990-2006. In line with the authors’ related studies, based on unit root tests the authors report that the globalization and the per capita GDP variable are not stationary in levels. The authors use “new heterogeneous panel cointegration and panel-based fully modified ordinary least squares (FMOLS) and dynamic ordinary least squares (DOLS) techniques ... to reinvestigate the relationship between economic growth and the trend of globalization across our samples” (p. 9). I had some problems with the authors’ method employed and the conclusions the authors arrive at. The results shall show that globalization had a stronger influence on per capita GDP in former communist countries.

Sakyi (2011) uses data for 31 Sub-Saharan African countries over the period 1980-2005 and shows that economic globalization and per capita GDP have been cointegrated. The results of a group mean FMOLS estimator for cointegrated panels indicate that economic globalization had a positive influence on per capita GDP in the long run. These findings correspond with the results on the association between globalization and economic growth: in developing countries, per capita income increased in the course of globalization.

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<sup>12</sup> On panel unit root tests see, for example, Breitung and Pesaran (2008).

### *Economic performance (annual GDP growth)*

Another issue is how globalization has been correlated with economic performance (annual GDP growth). I know of three papers using annual growth rates and focusing on the association between economic globalization variables and annual GDP growth: Quinn et al. (2011) use annual GDP growth data by the Penn World Tables for up to 189 countries (including developed and developing countries). The authors employ the system GMM estimators by Arellano and Bover (1995) and Blundell and Bond (1998), treat globalization as endogenous by using the first and third lag of the explanatory variables and “global democracy” as IVs. The results show that the growth rate of economic globalization increased annual per capita GDP growth. Chang et al. (2013) investigate whether energy exports and globalization have been correlated with annual GDP growth in five South Caucasus countries (Azerbaijan, Armenia, Georgia, Russia and Turkey) over the period 1990-2009. Because the number of countries included is small, the authors use the bias-corrected least square dummy variable estimator. Results are shown for the five South Caucasus countries and for a subsample of three countries (Azerbaijan, Georgia and Turkey). In the baseline model, the authors include energy exports and add overall, economic, social and political globalization. Energy exports and all four globalization variables are positively correlated with annual GDP growth. In an extended model, the authors also include the interaction term between energy exports and the globalization variables. The results show that energy exports have been stronger correlated with annual GDP growth in countries where globalization was high.

In some studies where annual GDP growth is used as dependent variable, researchers investigate other questions than globalization-induced effects but include the KOF indices as explanatory variables to avoid omitted variable bias. Osterloh (2012) and Potrafke (2012a) examine, for example, how electoral cycles and government ideology have influenced economic performance in OECD countries. Osterloh (2012) includes the overall KOF index in levels. The results show that the overall KOF index in levels was negatively correlated with economic performance in a panel of 23 OECD countries over the period 1971-2004. Potrafke (2012a) includes the growth rate of the KOF indices. The results show that the growth rate of political, social and overall globalization was not correlated with economic performance in a panel of 21 OECD countries over the period 1971-2006. By contrast, the growth rate of the economic globalization index was positively correlated with economic performance. Goulas and Zervoyianni (2012) examine how crime influences economic performance in 25 developed and developing countries over the period 1991-2007, and also include the economic globalization index in levels as control variable. Their results show that the level of the economic globalization index was positively correlated with annual GDP growth.

The differences in results on how the KOF indices are correlated with economic performance may thus result from: including the KOF indices in levels or growth rates, the choice of the KOF index (e.g., overall or economic), the countries included, and the time period considered. More research is needed showing why the differences arise.

## **3.2 Distributional consequences**

Globalization is expected to have various distributional consequences and to influence human development in manifold ways. The standard static comparative advantage argument is not able to disentangle all redistribution effects that are triggered by global economic integration. Globalization gives rise to a transfer of technology to low-wage countries with the consequence that highly skilled workers (e.g., mainly men) in the low-wage countries benefit from the technology transfer more than they lose via the increase in imports of sophisticated merchandise and services (Acemoglu, 1998). If industrialized countries specialize in producing skill-intensive goods and low-income countries specialize in producing the labor-

intensive goods, the more industrialized countries specialize in producing skill-intensive goods, the lower is demand for unskilled workers and the higher is demand for skilled workers. Consequently, within-country income inequality increases in industrialized countries.<sup>13</sup> In the low-income countries, income inequality may increase in the course of globalization because multinational firms are expected to pay higher wages to skilled employees than domestic firms. When globalization gives rise to tax competition, and consequently, lower social expenditures and a porous social security system, within-country income inequality is expected to increase even more.

### *Income inequality*

Previous empirical studies have shown that globalization was positively correlated with income inequality over the period 1970-2000 especially in OECD countries (Dreher and Gaston 2008, Gaston 2008). The positive correlation was however not attributable to economic globalization.<sup>14</sup> Bergh and Nilsson (2010a) re-examine how globalization influenced income inequality. The authors use the income Gini coefficients of household net income by the Standardized World Income Inequality Database (SWIID) compiled by Solt (2008) as dependent variable. The advantage of the SWIID is having income inequality data which are available and comparable for many countries. The dataset includes 79 countries over the period 1970-2005. The baseline linear panel data model is estimated in five-year averages including fixed country and fixed period effects. The baseline results show that overall and social globalization were positively correlated with income inequality. Economic and political globalization lack statistical significance. Bergh and Nilsson (2010a) acknowledge that the baseline results are likely to suffer from reverse causality bias: “Politicians may respond to increases in income inequality by implementing certain policies, favoring either more or less economic freedom or globalization...” (p. 494). The authors deal with reverse causality in three ways. First, the authors regress income inequality in period *t* on lagged globalization variables in period *t*-1. Second, the authors estimate a cross-sectional model using the end-period Gini coefficient as dependent variable and the period averages of the globalization variables as explanatory variables. Third, the authors employ the system GMM estimator by Arellano and Bover (1995) and Blundell and Bond (1998) and treat globalization as endogenous. Using lagged globalization variables confirms the baseline results and also displays a positive effect of economic globalization on income inequality. This result is also robust to excluding outliers. Including quadratic globalization variables displays however any significant association between globalization and income inequality. Regressing the end-period Gini coefficient on the averages of the globalization variables confirms the baseline inferences. The GMM regression results show that overall and economic globalization increased income inequality. Social and political globalization did not turn out to be statistically significant. Splitting the sample by per capita income shows that the effect of social globalization is pertinent in middle- and low-income countries.

By using Gini coefficients based on data from the World Income Inequality Database, Martinez-Vazquez et al. (2012) investigate how tax and expenditure policies are associated with income redistribution in an unbalanced panel of developing and developed countries over the period 1970-2009. The authors include the overall globalization index as control variable and estimate the model by the GMM estimator by Arellano and Bond (1991) and treat the tax and expenditure policy variables as endogenous. The baseline results also show that overall

<sup>13</sup> On the “skill-based technological change versus the North-South trade debate to explain wage inequality see Chusseau et al. (2008). Hellier (2012) elaborates on globalization and inequality by extending the Heckscher-Ohlin model.

<sup>14</sup> To be sure, overall globalization may not be correlated with/influence an outcome variable because components of the KOF indices have opposite effects (e.g., Bergh et al. 2014). Experts thus disentangle effects of the components of the KOF indices.

globalization was positively correlated with income inequality. In another specification, the authors also include an interaction term between globalization and corporate income tax rates. In these specifications, the globalization variable in levels does not turn out to be statistically significant. The interaction term between globalization and corporate income tax rates is statistically significant in one specification and lacks statistical significance in other specifications. The authors do not compute marginal effects. The empirical models include up to 79 countries.

Doerrenberg and Peichl (2012) examine whether redistributive policies influence inequality in OECD countries over the period 1981-2005. Income inequality is measured by Gini coefficients based on micro data from the Luxembourg Income Study (LIS), the UN World Income Inequality Database (WIID), and the University of Texas Inequality Project (UTIP). The baseline panel data model is estimated in levels including fixed period and fixed country effects. The KOF globalization index is included as explanatory variable measured in period  $t-1$ . In the 15 baseline specifications, the KOF index lacks statistical significance in 14 specifications and is once statistically significant at the 10% level indicating that globalization was positively correlated with income inequality. The authors then deal with reverse causality of the main explanatory variables, which is redistributive policies by using IVs. The KOF index is statistically significant in two out of 15 specifications. The authors elaborate on causal effects of their main explanatory variables on income inequality. Globalization is just another control variable and the results only report correlations. In any event, based on the results, we cannot conclude that globalization was positively correlated with income inequality in OECD countries. As compared to the early results by Dreher and Gaston (2008), it is thus conceivable that the influence of globalization on income equality extenuated in OECD countries.

Common wisdom is that income equality and social justice coincide.<sup>15</sup> Critics of globalization suspect that globalization jeopardizes social justice. Social scientists have always been concerned with social justice, which is, however difficult to define and measure. The Bertelsmann Stiftung (2010) compiled a new social justice indicator based on qualitative and quantitative measures. The social justice indicator is based on five sub-indicators: poverty prevention, equitable access to education, labor market inclusiveness, social cohesion and equality, and intergenerational justice. The data are available as a cross-section for 31 OECD countries measuring social justice in 2008-2010. Kauder and Potrafke (2014) investigate how the social justice indicator is correlated with the KOF globalization indices over the period 1991-2007. The results show that OECD countries which experienced rapid globalization enjoy social justice. To be sure, the sample is small, and the social justice indicator serves only as a proxy for social justice. The correlation between the KOF globalization indices and the social justice indicator is however strong and indicates that voters demand more active governments when globalization is proceeding rapidly (compensation hypothesis).

### *Human rights*

Proponents of globalization expect globalization to improve human rights because globalization, for example, enhances wealth and induces political cooperation between nation states which, in turn, ensures international human rights norms. Discontents of globalization fear that globalization impairs human rights especially in developing countries because the poor lose for the benefit of the rich by, for example, deteriorating working conditions of unskilled workers and decreasing wages. See De Soysa and Vadlamannati (2011) for more theoretical considerations.

Empirical studies show that globalization improved human rights as measured by the Physical Integrity Rights index (Cingranelli and Richards (CIRI) Human Rights Dataset). De

<sup>15</sup> See Hillman (2008) on globalization and social justice.

Soysa and Vadlamannati (2011) use panel data for 118 countries over the period 1981-2005. The baseline model is an ordered probit including fixed period effects. The results suggest that overall, social, economic, and political globalization improved human rights. It is conceivable, however, that causality is reverse and human rights also influence globalization. Governments may, for example, improve human rights to attract foreign direct investment. To deal with potential reverse causality, De Soysa and Vadlamannati (2011) use the average of the regional globalization index (excluding country it's globalization) and geographic size of a country as IVs.<sup>16</sup> The results show that the IVs are strong and that overall and economic globalization improve human rights. To further test whether the results are robust, the authors employ Extreme Bounds Analysis (EBA). The EBA results confirm the globalization-induced effects. Dreher et al. (2012) corroborate the positive globalization-induced effect on physical integrity rights. Social globalization has been shown to somewhat increase empowerment rights. The authors use data for 106 countries over the period 1981-2004, estimate ordered probit models and employ EBA. The authors also elaborate on causality by using Granger causality tests. The results show that the four globalization indices Granger cause the Physical Integrity Rights index while the Physical Integrity Rights index does not Granger cause the four globalization indices. The studies by De Soysa and Vadlamannati (2011) and Dreher et al. (2012) are prime examples on how to deal with causality problems between globalization and human rights and show that globalization has improved human rights.

### *Gender equality*

Social globalization has been shown to promote women's rights and gender equality. Cho (2013) examines whether globalization influenced women's rights. Women's rights as measured by the composite CIRI which encompasses women's economic rights such as rights for equal pay and work, women's social rights including, for example, the right for equal inheritance and equal marriage, and women's political rights including, for example, the right to vote and run for political office. The CIRI indices assume values between 0 (minimum of women's rights) and 3 (maximum of women's rights). Because the CIRI index is categorical, the author estimates an ordered probit model as baseline. Globalization is measured by trade openness and foreign direct investment and the three sub categories of the KOF social globalization index: information flows, personal contacts and cultural proximity. The dataset includes 150 countries over the period 1981-2008. The baseline results show that trade openness, information flows and personal contacts were positively correlated with women's economic rights. Information flows and personal contacts were also positively correlated with women's social rights. By contrast, no variable measuring economic and social globalization was correlated with women's political rights. In her well-executed study, Cho (2013) explicitly addresses reverse causality between women's rights and globalization. Reverse causality is likely to arise because "the active participation of women in society may increase information and personal exchanges across countries because there will be a larger pool of internet users, travelers etc." (p. 7). The author employs Granger causality tests and shows that globalization Granger causes women's rights. The tests however also indicate, for example, that women's economic rights Granger cause globalization variables such as information flows (the null hypothesis that women's economic rights do not Granger cause information flows can be rejected at the 5% level). The author thus uses three IVs for globalization: the level of restrictions to trade and capital flows, the number of McDonald's restaurants in a country and voting in line with G-7 countries in the United Nations General

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<sup>16</sup> The KOF index has also been used as an instrumental variable: Bentolila et al. (2008) use the overall globalization index as an instrumental variable for forward looking inflation in an industry-specific forward-looking new Keynesian Phillips curve model. Cho and Vadlamannati (2012) use the KOF Cultural Proximity Index as an instrumental variable for ratification of the UN Anti-trafficking Protocol (the dependent variables are the Anti-trafficking indices by Cho et al. 2014).

Assembly on key issues as suggested by Dreher and Sturm (2012). The results show that personal contacts improved women's economic rights. As compared to the baseline ordered probit model, using the IV-approach does not confirm any influence of trade openness or information flows on women's economic rights. For robustness tests, Cho (2013) employs EBA. The results confirm that personal contacts improved women's economic rights and information flows improved women's social rights.

Potrafke and Ursprung (2012) examine how globalization influenced gender equality in developing countries. Gender equality is measured by the new Social Institutions and Gender Index (SIGI) compiled for the OECD (Branisa et al. 2009). The SIGI is based on twelve institutional variables that are compiled in the OECD Gender, Institutions and Development database and roughly refer to the year 2000. It is available for up to 120 countries. The SIGI is based on five sub-indices: family code, civil liberties, physical integrity, son preference and ownership rights.<sup>17</sup> In the baseline model, Potrafke and Ursprung (2012) regress the inverted SIGI on globalization measured in the year 2000. The results show that overall, economic and social globalization were positively correlated with gender equality. Political globalization did not turn out to be statistically significant. To identify a causal effect of globalization on gender equality, we use globalization as measured in the years 1990, 1980 and 1970 as explanatory variables in further specifications. We also include the initial level of globalization in the year 1970 and the difference of the KOF indices over the years 1970 and 2000 as explanatory variables. The results show that especially social globalization exert a decidedly positive influence on the social institutions that reduce female subjugation and promote gender equality. To be sure, our empirical strategy to identify a causal effect is certainly less convincing than in related studies using cross-sectional data, panel data, and a valid IV for the KOF indices.

The association between globalization and human rights and gender equality indicators may not be linear: Kilby and Scholz (2011) describe a non-linear association and show an inverted-U relationship between globalization and gender earnings inequality (measured in 2007) in a cross-section of up to 160 countries. The link between globalization and gender income inequality depends to some extent on countries in the Middle East and North Africa (MENA) which have middling levels of globalization and high gender earnings inequality. The MENA countries are Muslim majority countries. Women have been shown to be discriminated in Muslim majority countries. Globalization may promote gender equality especially in Muslim majority countries because, for example, foreign western investors are not likely to discriminate between men and women when hiring new personnel in Muslim majority countries. In a similar vein, social globalization is likely to promote gender equality because by using the internet women in Muslim majority countries learn about how women live in western countries.

Political, economic and overall globalization has been shown to be positively correlated with other human development indicators. Sapkota (2011) uses annual data for 124 developing countries over the period 1997-2005. Human development is measured by the indicators of the United Nations Development Program (UNDP): the Human Development Index (HDI), the Gender Development Index (GDI) and the Human Poverty Index for developing countries (HPI-1). The author specifies a common panel data model using the logarithms of the development indicators as dependent variables. The models do however not include fixed period effects. The results show that overall, economic, social and political globalization were positively correlated with the HDI. Overall and economic globalization were positively correlated with the GDI. Overall, economic, social and political globalization were negatively correlated with the HPI-1 indicating that poverty was smaller in countries that

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<sup>17</sup> "The innovation of SIGI is that it shows how social institutions affect gender inequality; thus, it focuses not on gender outcomes, but on institutions that affect such outcomes" (Klasen and Schüler 2011: 8).

enjoyed rapid globalization. Sapkota's (2011) results are in line with the results of the keener studies; the methods employed do however not show causal relationships.

#### *Poverty, life expectancy, violence*

In developing countries globalization reduced poverty:<sup>18</sup> Bergh and Nilsson (2013) use data for 114 countries over the period 1988-2007. Absolute poverty is measured by the World Bank's headcount index calculated for a poverty line of one PPP dollar per day. In the baseline model, the authors use four-year averages in a common fixed effects framework. The results show that overall, economic and social globalization were negatively correlated with absolute poverty. In fact, the pattern follows an inverted J-curve indicating that globalization may well have some short-run costs which increase poverty but decreases poverty in the long-run. The authors also confirm the robustness of their results in many ways. For example, the authors explore the "long-run" effect by estimating a cross-sectional model in first differences over the entire sample period. The authors deal with potential reverse causality of the globalization variables by estimating an IV model. The IV is the number of years with country presence of McDonald's restaurants. The IV explains quite some variation of the overall and social globalization index in the first stage regressions and turns out to be a strong instrument. Globalization is thus shown to reduce absolute poverty.

Globalization increased life expectancy. Bergh and Nilsson (2010b) use data for 92 countries over the period 1970-2005 (four-year averages). Life expectancy is measured at birth in 2000 meaning "the average number of years newborns would live, assuming that current levels and patterns of mortality remain constant over their lifetimes. The measure refers to the whole population in each country and comes from the World Development Indicators" (p. 1194). The baseline results including all countries show that economic and overall globalization were positively and political globalization was negatively correlated with life expectancy. Social globalization does not turn out to be statistically significant. Bergh and Nilsson (2010b) have tested the robustness of the results in several ways. An interesting finding is that by restricting the sample to the 47 countries with low per capita income in 1970, the results show that overall, economic and social globalization were positively correlated with life expectancy. Political globalization did not turn out to be statistically significant. In a similar vein, the authors derive positive effects of overall, economic and social globalization by excluding countries with high per capita income (approximately higher than 4000 PPP dollars).

Bezemer and Jong-A-Pin (2013) examine to which extent democratization and globalization combine to increase ethnic violence in developing and emerging countries. The data set includes 107 countries over the period 1984-2003. The authors use a fixed effects panel estimator and focus on the variation of ethnic violence within countries. They investigate whether the combined effect of democratization and globalization is different in countries with "market-dominant minorities" (MDMs) as compared to the rest of the world. An issue is that "MDMs typically control large parts of the economy so that globalizing markets favor them disproportionately" (p. 108). Sub-Saharan African countries are prime examples for MDMs. Ethnic violence is measured by the International Country Risk Guide assessments of internal conflicts and ethnic tensions. Political institutions are measured by the *polity2* variable from the POLITY IV project. The authors include a dummy variable for MDMs, globalization and the interaction terms between political institutions, globalization and MDMs and compute and describe the marginal effects. The results show that democratization and globalization were correlated with ethnic violence in Sub-Saharan African countries but not in the rest of the world. In non-OECD MDM countries, democracy

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<sup>18</sup> See Aisbett (2007) on the nexus between poverty, inequality and globalization and Goldberg and Pavcnik (2007) on distributional effects of globalization in developing countries.

and ethnic violence were positively correlated at an almost constant level, no matter whether globalization was high or low. In non-OECD and non-MDM countries, democracy and ethnic violence were negatively correlated up to a threshold of globalization. Things are different in Sub-Saharan African countries: democracy and ethnic violence were positively correlated in MDM countries and negatively in non-MDM countries. The effects were stronger when globalization was proceeding rapidly. Bezemer and Jong-A-Pin (2013) compute and describe the marginal effects, though do not discuss the numerical meanings.

### **3.3 Regulations, industrial policies and economic reforms**

Increasing competition in the course of globalization is likely to give rise to deregulation and economic reforms. Governments compete for international investors. “Competition across countries for investment takes many forms – not just lowering wages and weakening worker protections. There is broader “race to the bottom” trying to ensure that business regulations are weak and taxes are low” (Stiglitz 2012: 61). One might suspect that labor market institutions erode and deregulation of product markets accelerates (e.g. Sinn 1997). Governments may privatize state owned companies.

#### *Labor markets*

Globalization is “transformative” and influences labor market outcomes such as employment and wages and labor market institutions (Gaston and Nelson 2004). Globalization is expected to put pressure on labor market institutions. Critics of globalization tend to believe that, for example, governments are forced to limit employment protection and reduce minimum wages to keep working conditions attractive.

Potrafke (2010b) examines how globalization was correlated with labor market institutions as measured by Bassanini and Duval (2006). I distinguish between eight labor market institutions: the replacement rate, benefit length, active labor market expenditures, employment protection (regularly and temporary employed workers), the tax wedge and union density. The dataset includes 20 OECD countries over the period 1980-2003. The baseline model is estimated in growth rates including fixed country and fixed period effects. The results show that globalization was not correlated with any of the labor market institutions measures except negatively correlated with employment protection of regularly employed workers. Using five-year averages in levels, the results do not show any correlation between the overall KOF index and labor market institutions.

Fischer and Somogyi (2012) use the indices of Employment Protection Legislation (EPL) by the OECD as dependent variables: one index measures employment protection of regularly employed workers and one of temporary employed workers. The indices assume values between 0 (minimum of employment protection) and 6 (maximum of employment protection). The dataset includes 28 countries over the period 1985-2003. The authors estimate a common fixed effects panel data model with annual data in levels. To address potential endogeneity bias, the authors regress the EPL indices in period  $t$  on the globalization indices and other explanatory variables in period  $t-2$ . The baseline results show that overall and political globalization were negatively correlated with employment protection of regularly employed workers and positively correlated with employment protection of temporary employed workers. Economic globalization was negatively correlated with both EPL indices. Social globalization does not turn out to be statistically significant when the index for regularly employed workers is used as dependent variable, but is shown to be positively correlated with employment protection of temporary employed workers. The authors show in the baseline results that inferences regarding the sub-indices of globalization

do not change depending on whether one includes the three sub-indices together or separately in the empirical model.

Hessami and Baskaran (2013) examine whether globalization was correlated with collective bargaining. The dataset includes 44 countries over the period 1980-2009. Collective bargaining is measured by three variables provided by the Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS) by Visser (2011): the union density rate, an index measuring the centralization of the wage bargaining process, and an index measuring the extent of government intervention in the wage bargaining process. The authors estimate a panel data model including the lagged dependent variable by using the Anderson and Hsiao (1981) estimator. The results of the baseline model show that economic globalization was negatively correlated with the union density rate, but was correlated neither with centralization of collective bargaining nor with government intervention in collective bargaining. Robustness tests show that the correlation between economic globalization and the union density rate is not to be explored by the 13 non-OECD countries in the sample or the time period considered (inferences do not change for the period 1980-1999). Further robustness tests show however that social globalization was positively correlated with the union density rate; a result contrasting with the previous findings by Dreher and Gaston (2007). Hessami and Baskaran (2013) describe this finding showing that “cultural assimilation to Western values in our broader set of countries motivates workers to unionize in order to achieve an improvement of their working conditions” (p. 14).

Causality between globalization and labor market institutions may also be reverse. For example, firms may invest more in countries with quite deregulated capital, labor and product markets. National governments may therefore induce deregulation to attract foreign direct investment. Potrafke (2013b) exploits variation across developed and developing countries and deals with reverse causality. Labor market institutions are measured by the economic freedom labor market indices (Gwartney et al. 2012). I first estimate a panel data model by using the system GMM estimator by Arellano and Bover (1995) and Blundell and Bond (1998). The sample includes 49 countries. The results do not show that globalization eroded labor market institutions. I also estimate a cross-sectional model for up to 139 countries. Dependent variables are the labor market institutions indicators averaged over the period 2006-2010. The explanatory variables are the KOF indices averaged over the period 1970-2009. The OLS results indicate that globalization and labor market deregulation were positively correlated. To deal with potential reverse causality, I use a constructed trade share as proposed by Frankel and Romer (1999) as IV.<sup>19</sup> The IV results do not show that globalization influenced labor market institutions.

Vadlamannati (2014) examines whether leftwing governments improved labor rights in Latin America. Labor rights are measured by Mosley and Uno's (2007) and Mosley's (2011) composite index capturing “basic collective labor rights” including six categories: the freedom of association and collective bargaining-related liberties, the right to establish and join worker and union organizations, other union activities, the right to collectively bargain, the right to strike, and restricted rights in export processing zones. The dataset includes 148 developing countries over the period 1985-2002. The baseline linear panel data model in levels includes fixed country and fixed period effects. The results show that overall and social globalization were positively correlated with labor rights. Economic and political globalization did not turn out to be statistically significant. Economic globalization is however likely to be endogenous because, “for example, poorer labor rights could deter investment or trade, which could subsequently affect economic globalization” (p. 17). Vadlamannati (2014) deals with potential reverse causality of the globalization variable and uses the average of the

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<sup>19</sup> The constructed trade share is often used as instrumental variable for trade openness (e.g., Felbermayr and Gröschl 2013).

aggregate globalization and economic globalization indices in the other countries weighted by per capita GDP as instrument for overall and economic globalization. The IV results confirm the positive effect of overall globalization and also show that economic globalization improved labor rights. For robustness checks, the author employed EBA. The results show a robust effect of overall and social globalization on labor rights. In the well-executed study, Vadlamannati (2014) shows that globalization did not induce a “race to the bottom” in labor rights. The author acknowledges however that the sample used is rather short. Further research is needed using data including years later than 2002.

### *Capital and credit markets*

An intriguing issue is how globalization influences financial markets, especially credit market regulation. Sinn (2010) explores, for example, that lax credit market regulation gave rise to the financial crisis (competition in laxity). Globalization has increased national preferences for market financing as measured by the domestic stock market capitalization relative to domestic assets of deposit money banks. Sinn’s (2003) *New Systems Competition – Chapter 7: Limited Liability, Risk-Taking and the Competition of Bank Regulators* describes how globalization gives rise to credit market deregulation. Banks’ equity requirements are lax when national banks compete for international lenders.

Aggarwal and Goodell (2009) investigate what determines national preferences for financial intermediation. The authors use the domestic stock market capitalization relative to domestic assets of deposit money banks as dependent variable. The dataset includes 30 countries over the period 1996-2003. The authors include the overall KOF index as explanatory variable and find a significant positive effect. Aggarwal and Goodell (2009: 1778) interpret this result “as suggesting that societal openness is generally correlated more with the development of markets than with the development of banking.”

Klomp (2010) investigates determinants which were correlated with banking crises in 110 countries over the period 1970-2007. The binary dependent variable assumes the value one when a banking crisis occurred in an individual country and year. The author estimates a random coefficient logit model and arrives at the conclusion that high credit growth, a negative GDP growth and a high real interest rate are the most important correlates of banking crises. Economic globalization is also included as explanatory variable. The baseline regression results show that the coefficient of economic globalization is positive indicating that economic globalization was positively correlated with banking crises. Drilling down further, the results do not indicate a robust correlation between economic globalization and banking crises: the coefficient of the globalization variable is statistically significant at the 10% level for systemic crises and currency crises, but lacks statistical significance for non-systemic crises. The correlation between globalization and banking crisis appears to be stronger in developing countries as compared to OECD countries.

Heinemann and Tanz (2008) examine on how social trust was correlated with economic reforms as measured by the first difference of the Economic Freedom Indices from 1995 to 2005 for a cross-section of 54 countries. Overall globalization is included as control variable. The results show that globalization was positively correlated with more market-oriented trade policies but was *negatively* correlated with reforms towards more flexible credit markets.

Potrafke (2014) investigates whether globalization influenced credit market deregulation as measured by the index on credit market freedom of the Economic Freedom of the World (EFW) index by the Fraser Institute (Gwartney et al. 2012). The index consists of three sub-indicators that measure deregulation regarding the ownership of banks, private sector credit, and interest rate controls / negative real interest rates. The empirical strategy is similar to Potrafke (2013b) using the average of credit market deregulation over the period 2006-2010, the average of the KOF globalization indices over the period 1970-2009, and a

constructed trade share as IV. The OLS results show that globalization was positively correlated with overall credit market deregulation, ownership of banks deregulation and interest rate controls deregulation but less so with the sub-indicator on private sector credit deregulation. The IV results do however not show that globalization influenced overall credit market deregulation and ownership of banks deregulation.

## 4. Conclusion

The KOF index of globalization successfully measures globalization and evaluates its consequences. The advantage of the KOF index is that it is available for a large panel dataset and encompasses the multifaceted aspects of globalization. A definition and encompassing index of globalization is needed to evaluate its merits and demerits.

Economic aspects of globalization such as trade openness, foreign direct investment and looser capital account restrictions did not jeopardize the welfare state, especially in established OECD countries. Tax revenues and government expenditures did not erode in the course of globalization. Many empirical studies have dealt with the globalization-welfare state nexus. Data availability and quality on government expenditures especially in OECD countries is excellent. Scholars use panel data sets exploiting variation across countries and over time. When using annual data, I propose to deal with the time series properties of the variables included to avoid spurious regression.

Early studies using the KOF indices did not take causality between globalization and a dependent variable Y seriously. Studies now however explicitly elaborate on identifying causal effects by, for example, using IVs. Empirical research has much improved in this respect.

After the outbreak of the financial crisis in 2007, many observers changed however their views on the merits and demerits of globalization and began to argue that *hyperglobalization* has gone too far. Experts tend to agree that global governance is needed to overcome the dark sides of globalization.<sup>20</sup> Indeed, a consequence of globalization has been increasing within-country income inequality especially in developing countries. I am somewhat hesitant, however, to interpret the distributional consequences of globalization as purely negative because, first, income inequality across countries decreased in the course of globalization (e.g., Chotikapanich et al. 2012). And, second, an increase of within-country inequality may simply be a precondition for the poor to receive more in absolute terms.

Globalization has also been attributed to induce credit market deregulation and thus to induce the financial crisis starting in 2007. Preliminary empirical evidence does however not show that globalization influenced credit market deregulation except interest rate control deregulation.

Globalization has various desirable consequences. The empirical evidence shows that especially social globalization advanced human development and promoted gender equality and women's rights. Access to the internet, tourism and the spread of ideas inspires direct personal contact between people from different countries. Personal interaction encourages tolerance towards different lifestyles. Suppressed women in developing countries could get to know about women's life in developed countries. Poverty decreased in the course of globalization. Economic growth spurred especially in developing countries. The consequences of globalization are much more favorable than often conjectured in the public discourse.

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<sup>20</sup> See Frieden (2012) on global governance and Frieden et al. (2012) on problems of international economic cooperation.

## Acknowledgements

I would like to thank Andreas Bergh, Christian Bjørnskov, Jörg Breitung, Chun-Ping Chang, Seo-Young Cho, Lukas Figge, Helmut Herwartz, Arye Hillman, Richard Jong-A-Pin, Björn Kauder, Christopher Kilby, Andreas Steiner, Jan-Egbert Sturm, Heinrich Ursprung, and three anonymous referees for their very helpful comments, hints, and suggestions. I am also grateful to Raphael Becker, Gavin Goy, David Happersberger, Benjamin Larin, Margret Schneider and Christian Simon for their excellent research assistance.

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Table 1: Consequences of globalization. Studies using the KOF index.

“+” positive effect; “-” negative effect; “0” no significant effect; “+/0” positive effect in some specifications, no significant effect in other specifications; “-/0” negative effect in some specifications, no significant effect in other specifications; “?” authors describe to have included the KOF index but do not describe the effect.

ITR: “implicit tax rates”, rev: “revenue(s)”, exp: “expenditure(s)”; IV: “Instrumental variable”

Study	Influence on	Economic	Social	Political	Overall	Globalization main expl var	Reverse causality/ Endogeneity addressed by
<b>Macroeconomic performance</b>							
Gurgul and Lach (2014)	GDP / total labor force	+	+	+	+	Yes	Not addressed
Herwartz and Theilen (2014)	Social expenditures				0	No	Not addressed
Moessinger (2014)	Central government debt	+			0	No	Not addressed
Onaran and Boesch (2014)	ITR on capital	+/-			0/-	Yes	Lagged expl. variables
Onaran and Boesch (2014)	ITR on labor	+/-			+/-	Yes	Lagged expl. variables
Onaran and Boesch (2014)	ITR on consumption	+/-			+/-	Yes	Lagged expl. variables
Onaran and Boesch (2014)	Social expenditures	+/-			+/-	Yes	Lagged expl. variables
Ali and Imai (2013)	GDP growth (5 year av)	+				Yes	GMM
Bove and Efthyvoulou (2013)	Social expenditures	-			0	No	Not addressed
Bove and Efthyvoulou (2013)	Military expenditures	-				No	Not addressed
Chang et al. (2013)	annual GDP growth	+	+	+	+	Yes	Not addressed
Gaston and Rajaguru (2013)	Social expenditures	-				No	Lagged expl. variables
Klomp and de Haan (2013)	Budget balance				0	No	IV, lagged expl. variables
Klomp and de Haan (2013)	Total spending				0	No	IV, lagged expl. variables
Adams and Sakyi (2012)	Overall Spending	+	-	-	0	Yes	Not addressed
Baskaran and Hessami (2012)	1st education exp				-/0	Yes	Not addressed
Baskaran and Hessami (2012)	2nd education exp				+	Yes	Not addressed
Baskaran and Hessami (2012)	3rd education exp				+	Yes	Not addressed
Becker et al. (2012)	Share of business tax rev	0				Yes	Not addressed
Becker et al. (2012)	Share of consumption tax rev	+				Yes	Not addressed
Efthyvoulou (2012)	Net lending (% of GDP)				0	No	Not addressed
Efthyvoulou (2012)	Current exp (% of GDP)				0	No	Not addressed
Efthyvoulou (2012)	Current rev (% of GDP)				0	No	Not addressed
Goulas and Zervoyianni (2012)	Annual GDP growth	+				No	Not addressed
Leitão (2012)	Per capita GDP	+	+	+		Yes	Not addressed
Meinhard and Potrafke (2012)	Government size	+	0	0	+	Yes	Not addressed
Onaran et al. (2012)	ITR on capital	+/-			0/-	Yes	Lagged expl. variables
Onaran et al. (2012)	ITR on labor	+/0			+/0	Yes	Lagged expl. variables
Onaran et al. (2012)	ITR on consumption	+/-			+/-	Yes	Lagged expl. variables

Study	Influence on	Economic	Social	Political	Overall	Globalization main expl var	Reverse causality/ Endogeneity addressed by
Onaran et al. (2012)	Share of capital tax rev	+/0			0	Yes	Lagged expl. variables
Onaran et al. (2012)	Share of consump. tax rev	0/–			0	Yes	Lagged expl. variables
Onaran et al. (2012)	Share of labor tax rev	0			0	Yes	Lagged expl. variables
Osterloh (2012)	Annual GDP growth				–/0	No	Not addressed
Osterloh (2012)	GDP growth (5 year av)				0	No	Not addressed
Potrafke (2012a)	Annual GDP growth	+	0	0	0	No	Not addressed
Chang and Lee (2011)	Per capita GDP	+	+	+/–	+	Yes	GMM
Chang et al. (2011)	Per capita GDP	0	+	0	+	Yes	Panel cointegration technique
Leibrecht et al. (2011)	Social expenditures	+/–			+/–		Lagged expl. variables
Mutascu and Fleischer (2011)	Annual GDP growth				+	Yes	Globalization endogenous in VAR
Potrafke (2011)	Budget composition	0	0	0	0	No	Not addressed
Quinn et al. (2011)	Annual GDP growth	+				Yes	GMM, and external IVs
Rao and Vadlamannati (2011)	Steady state growth rates	0	+/–	0	+	Yes	Not addressed
Rao et al. (2011)	Steady state growth rates				+	Yes	ARDL with IV approach
Sakyi (2011)	Per capita GDP	+				Yes	Panel cointegration technique
Villaverde and Maza (2011)	GDP growth (5 year av)	+	+	+	+	Yes	GMM
Bergh and Karlsson (2010)	GDP growth (5 year av)				0	Yes	Not addressed
Chang and Lee (2010)	Per capita GDP	+	+	+	+	Yes	Panel cointegration technique
Potrafke (2010a)	Public health expenditures				0	No	Not addressed
Sapkota (2010)	Per capita GDP	0	0	–	0	Yes	Not addressed
Martinez-Vazquez and Timofeev (2009)	Fiscal decentralization indicator	?	+ /0	?	?	No	Not addressed
Martinez-Vazquez and Timofeev (2009)	General government consumption	?	–/0	?	+	No	Not addressed
Martinez-Vazquez and Timofeev (2009)	General government rev	?	+/0	?	+	No	Not addressed
Potrafke (2009)	Social exp	+/0	+/0	0	+/0	Yes	Not addressed
Younas and Bandyopadhyay (2009)	Trade tax rev	–					Not addressed
<b>Distributional consequences</b>							
Brech and Potrafke (2014)	Types of foreign aid	0	0	0	0	No	Not addressed
Cho et al. (2014)	Anti-trafficking policies	0	0	0	0	No	GMM
Kauder and Potrafke (2014)	Social justice	+	+	+	+	Yes	Lagged globalization, IV
Schinke (2014)	Top 1% income share	0	0	0	0	Yes	Not addressed
Bergh and Nilsson (2013)	Poverty	–	–		–	Yes	IV

Study	Influence on	Economic	Social	Political	Overall	Globalization main expl var	Reverse causality/ Endogeneity addressed by
Bezemer and Jong-A-Pin (2013)	Ethnic violence	0/+	0/+	0/+	0/+	Yes	Not addressed
Cho (2013)	Human trafficking inflows	0	+ (personal contacts)			Yes	Lagged expl. variables
Cho (2013)	Women's economic rights	0	+			Yes	Granger causality tests and IV
Cho (2013)	Women's political rights	0	0			Yes	Granger causality tests and IV
Cho (2013)	Women's social rights	0	+			Yes	Granger causality tests and IV
Gassebner et al. (2013)	Political institutions				0	No	GMM
Buehn and Farzanegan (2012)	Smuggling	– (trade restrictions)				Yes	Not addressed
Cho (2012)	Human trafficking	0	0	0	0	No	GMM
Cho and Vadlamannati (2012)	Ratification UN Anti trafficking protocol		+ (cultural proximity)			Yes	Not addressed (first stage regression)
Doerrenberg and Peichl (2012)	Income inequality				0/+	No	Not addressed
Dong et al. (2012)	Corruption				–	No	Not addressed
Dreher et al. (2012)	Empowerment rights	0	+	0	+/–	Yes	Granger caus. tests, lagged variables
Dreher et al. (2012)	Physical integrity rights	+	+	+	+	Yes	Granger caus. tests, lagged variables
Guerriero and Sen (2012)	Labor share of income	+ (trade restrictions)			+	No	Not addressed
Martinez-Vazquez et al. (2012)	Income inequality				+/0	No	Not addressed
Potrafke (2012a)	Anti-trafficking policies	0	0	0	0	No	Not addressed
Potrafke (2012b)	Corruption	–				No	Not addressed
Potrafke and Ursprung (2012)	Gender equality	+	+	0	+	Yes	Lagged values of globalization
Stepping (2012a)	Foreign aid for health		–	0		No	Lagged explanatory variables
Stepping (2012b)	Donor selection of Foreign aid for health		0	+/–		No	Lagged expl. variables
De Soysa and Vadlamannati (2011)	Physical integrity rights	0	+	+	+	Yes	IV
Kilby and Scholz (2011)	Gender earnings inequal.				Inv. U-shape	Yes	Not addressed
Özcan and Bjørnskov (2011)	Human development	+				No	Not addressed
Sapkota (2011)	Gender equality	+	0	0	+	Yes	Not addressed
Sapkota (2011)	Human development	+	+	+	+	Yes	Not addressed
Sapkota (2011)	Poverty	–	–	–	–	Yes	Not addressed
Bergh and Nilsson (2010a)	Income inequality	0/+	+/0	0	+	Yes	GMM
Bergh and Nilsson (2010b)	Life expectancy	+	+/–	–/0	+	Yes	Lagged globalization

Study	Influence on	Economic	Social	Political	Overall	Globalization main expl var	Reverse causality/ Endogeneity addressed by
King et al. (2010)	Returns to schooling and work experience				+/0	Yes	Conscious, but not addressed
Sapkota (2010)	Adult literacy	+	0	+	+	Yes	Not addressed
Sapkota (2010)	Gross school enrolment	+	0	0	0	Yes	Not addressed
Sapkota (2010)	Human development	+	+	+	+	Yes	Not addressed
Sapkota (2010)	Life expectancy	+	+	0	+	Yes	Not addressed
Gaston (2008)	Income inequality				+	Yes	Conscious, but not addressed
Shabbir and Anwar (2007)	Corruption				–	Yes	Not addressed
<b>Regulation</b>							
Chang and Lee (2014)	Fixed exch. rate regime				+ / –	No	Not addressed
Potrafke (2014)	Credit market deregulation	0	0	0	0	Yes	IV
Vadlamannati (2014)	Labor rights	0/+	+	0	+	Yes	GMM and IV-approach
Ben Salha (2013)	Aggregate labor demand	+				Yes	Not addressed
Ben Salha (2013)	Aggregate Wages	0				Yes	Not addressed
Ben Salha (2013)	Labor demand agriculture	+				Yes	Not addressed
Ben Salha (2013)	Labor demand manufacturing	0				Yes	Not addressed
Ben Salha (2013)	Labor demand services	0				Yes	Not addressed
Ben Salha (2013)	Wages agriculture	+				Yes	Not addressed
Ben Salha (2013)	Wages manufacturing	0				Yes	Not addressed
Ben Salha (2013)	Wages services	0				Yes	Not addressed
Hessami and Baskaran (2013)	Centralization of Collective Bargaining	0	0	0	0	Yes	Not addressed
Hessami and Baskaran (2013)	Collective Bargaining	–	+	0	0	Yes	Not addressed
Hessami and Baskaran (2013)	Government Intervention in Collective Bargaining	0	0	0	0	Yes	Not addressed
Potrafke (2013b)	Centralized collective bargaining				0	Yes	IV
Potrafke (2013b)	Conscription				+	Yes	IV
Potrafke (2013b)	Hiring and firing regulations				0	Yes	IV
Potrafke (2013b)	Hiring regulations and minimum wages				0	Yes	IV
Potrafke (2013b)	Hours regulation				0	Yes	IV
Potrafke (2013b)	Labor market deregulation (overall)	0	0	0	0	Yes	GMM and IV

Study	Influence on	Economic	Social	Political	Overall	Globalization main expl var	Reverse causality/ Endogeneity addressed by
Potrafke (2013b)	Mandated cost of worker dismissal				0	Yes	IV
Berdiev et al. (2012)	Fixed exchange rate regime				+/-	Yes	Not addressed
Fischer and Somogyi (2012)	Employment protection (regular)	-	0	-	-	Yes	Lagged globalization variables
Fischer and Somogyi (2012)	Employment protection (temporary)	-	+	+	+	Yes	Lagged globalization variables
Pierucci and Ventura (2012)	International risk sharing	+	+	+	+	Yes	Not addressed
Bjørnskov and Potrafke (2011)	Privatization				0	No	Not addressed
Chang and Berdiev (2011)	Electricity market deregulation	0	0	+	+/0		Not addressed
Chang and Berdiev (2011)	Gas market deregulation	+	+	0	+/0		Not addressed
Gassebner et al. (2011)	Economic Freedom Reforms		?			No	Not addressed
Klomp (2010)	Banking crises	+				No	Not addressed
Klomp (2010)	Currency crises	+				No	Not addressed
Klomp (2010)	Non-Systemic crises	0				No	Not addressed
Klomp (2010)	Systemic crises	+				No	Not addressed
Potrafke (2010b)	Active labor market policy expenditures	0	0	0	0	Yes	Not addressed
Potrafke (2010b)	Benefit duration	0	0	0	0	Yes	Not addressed
Potrafke (2010b)	Employment protection (overall)	0	0	0	0	Yes	Not addressed
Potrafke (2010b)	Employment protection (regularly employed)	0	-	0	-	Yes	Not addressed
Potrafke (2010b)	Employment protection (temporarily employed)	0	0	0	0	Yes	Not addressed
Potrafke (2010b)	Replacement rate	0	0	0	0	Yes	Not addressed
Potrafke (2010b)	Tax wedge	0	0	0	0	Yes	Not addressed
Potrafke (2010b)	Union density	0	0	0	0	Yes	Not addressed
Potrafke (2010c)	Product market deregulation				0	No	Not addressed
Temkin and Veizaga (2010)	Labor informality	+/-				Yes	Not addressed
Aggarwal and Goodell (2009)	Market financing				+	No	Not addressed
Heinemann and Tanz (2008)	EFR: Credit market deregulation				-	Yes	Conscious, but not addressed
Heinemann and Tanz (2008)	EFR: Government				0	Yes	Conscious, but not addressed

Study	Influence on	Economic	Social	Political	Overall	Globalization main expl var	Reverse causality/ Endogeneity addressed by
Heinemann and Tanz (2008)	EFR: Legal structure				0	Yes	Conscious, but not addressed
Heinemann and Tanz (2008)	EFR: Sound money				0	Yes	Conscious, but not addressed
Heinemann and Tanz (2008)	EFR: Total				0	Yes	Conscious, but not addressed
Heinemann and Tanz (2008)	EFR: Trade				+	Yes	Conscious, but not addressed
<b>Others</b>							
Bergh et al (2014)	Control of corruption	0	0				Lagged expl. variables
Bergh et al (2014)	Government effectiveness	0	0				Lagged expl. variables
Bergh et al (2014)	Political stability	+	0				Lagged expl. variables
Bergh et al (2014)	Regulatory quality	+	0				Lagged expl. variables
Bergh et al (2014)	Rule of law	+	0				Lagged expl. variables
Bergh et al (2014)	Voice and accountability	+	0				Lagged expl. variables
Berggren and Nilsson (2013)	Willingness of parents to teach tolerance to their children	+/-0	+	0	+	Yes	Not addressed
Potrafke (2013c)	Minority votes in the German Council of Economic Experts				0	No	Not addressed
Steiner (2013a)	Central bank reserves	+				No	Not addressed
Steiner (2013b)	Central bank reserves	+				No	IV
Bjørnskov and Foss (2012)	entrepreneurship		– (information flows)			Yes	IV
Bjørnskov and Paldam (2012)	Support for capitalism				0	No	Not addressed
Fischer (2012)	Political trust	–				Yes	IV
Gassebner and Méon (2012)	Cross-border mergers and acquisitions		+			No	Not addressed. Claimed as being unlikely
Jafari Samini et al. (2012)	Inflation	–				Yes	Not addressed
Machida (2012)	Ethnocentrism	–	–	0		Yes	Claimed to be unlikely
Morettini et al. (2012)	Migration to Italian provinces				0/+	No	Not addressed
Creusen and Smeets (2011)	Fixed export costs		– (cultural proximity)			Yes	Not addressed
Dreher and Voigt (2011)	Government credibility			membership in international organizations ? (embassies)		Yes	Lagged expl. variables, IVs, GMM
Dreher and Voigt (2011)	Membership in international organizations					Yes	Embassies as IV for membership in international organizations

Study	Influence on	Economic	Social	Political	Overall	Globalization main expl var	Reverse causality/ Endogeneity addressed by
Gassebner and Luechinger (2011)	Number of terror incidents				0	No	Conscious, but not addressed
Gassebner and Luechinger (2011)	Terrorist attacks against citizens from a particular country				0	No	Conscious, but not addressed
Gassebner and Luechinger (2011)	Terrorist attacks perpetrated by citizens of a particular country				0	No	Conscious, but not addressed
Hessami (2011a)	Life satisfaction				+	Yes	Not addressed
Hessami (2011b)	Trust in the IMF				+	Yes	Not addressed
Hessami (2011b)	Trust in the World Bank				+	Yes	Not addressed
Hessami (2011b)	Trust in the WTO				+	Yes	Not addressed
Kuhn (2011)	Euroscepticism				–	Yes	Not addressed
Leitão (2011)	Foreign direct investment				+	Yes	Not addressed
Moser and Sturm (2011)	Likelihood to sign an arrangement with the IMF	0		+		No	Not addressed
Aidt and Gassebner (2010)	Trade	+ (trade restrictions)				Yes	IV
Biglaiser and DeRouen (2010)	U.S. Foreign direct investment	0/- (trade restrictions)				No	Not addressed
Choi (2010)	militarized interstate disputes				–	Yes	Lagged expl. variables
Steiner (2010)	Voting turnout	–				Yes	Not addressed
Vandenbussche and Zanardi (2010)	Exports		?			No	Not addressed.
Dreher et al. (2009)	# of World Bank projects			–		Yes	Not addressed
Klomp and de Haan (2009)	Financial stability				?	No	Not addressed
Koster (2009b)	Compulsory solidarity	–/0	–/0	0/–		Yes	Not addressed
Koster (2009b)	Voluntary solidarity	+	0/+	0/+		Yes	Not addressed
Lamla (2009)	Pollution				–	No	Not addressed
Bjørnskov et al. (2008)	Life satisfaction				+/0	Yes	Conscious, but not addressed
Fischer (2008)	Trust	?					Not addressed
Torgler (2008)	Trust in the UN	+	–	+	+	Yes	Not addressed

Table 2. Components of the 2013 KOF Index of Globalization

Indices and Variables	Weights
<b>A. Economic Globalization</b>	<b>[36%]</b>
i) Actual Flows	(50%)
Trade (percent of GDP)	(21%)
Foreign Direct Investment, stocks (percent of GDP)	(28%)
Portfolio Investment (percent of GDP)	(24%)
Income Payments to Foreign Nationals (percent of GDP)	(27%)
ii) Restrictions	(50%)
Hidden Import Barriers	(24%)
Mean Tariff Rate	(27%)
Taxes on International Trade (percent of current revenue)	(26%)
Capital Account Restrictions	(23%)
<b>B. Social Globalization</b>	<b>[37%]</b>
i) Data on Personal Contact	(34%)
Telephone Traffic	(25%)
Transfers (percent of GDP)	(3%)
International Tourism	(26%)
Foreign Population (percent of total population)	(21%)
International letters (per capita)	(24%)
ii) Data on Information Flows	(35%)
Internet Users (per 1000 people)	(33%)
Television (per 1000 people)	(36%)
Trade in Newspapers (percent of GDP)	(31%)
iii) Data on Cultural Proximity	(31%)
Number of McDonald's Restaurants (per capita)	(45%)
Number of Ikea (per capita)	(45%)
Trade in books (percent of GDP)	(10%)
<b>C. Political Globalization</b>	<b>[26%]</b>
Embassies in Country	(25%)
Membership in International Organizations	(28%)
Participation in U.N. Security Council Missions	(22%)
International Treaties	(26%)

Figure 1. Aggregated Globalization Indices. 1970-2010.

