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**GlobalIndex**  
*A Sociological Approach to Globalization  
Measurement*



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**abstract:** This article suggests a multidimensional globalization measure, encompassing economic, (socio)technological, cultural and political dimensions of global change. This measure builds on previous work by Dreher, Lockwood and Redoano, the OECD and Kearney, but extends it by additional dimensions and indicators that represent central facets of a genuine sociological concept of globalization. The article first describes in detail the multidimensional nature of the globalization process and then develops an overall sociological index of globalization, which the authors call GlobalIndex. This index covers the development of globalization in 97 different countries from 1970 to 2002. Using the GlobalIndex, the authors describe the development of globalization on a worldwide scale as well as for different country contexts. Finally, they include the GlobalIndex as an explanatory variable in two micro-level longitudinal analyses of labour market transitions during the early career period in Germany and the UK.

**keywords:** analyses of labour market processes ♦ cross-national comparisons ♦ globalization ♦ index of globalization ♦ multi-level analysis

## Introduction

Today, the term 'globalization' has become a key concept in the social sciences to understand the rapidly accelerating changes in modern societies during the last three decades. However, the abundant literature on

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globalization in sociology has mainly focused on grand theories (Alasuutari, 2000). For example, the theoretician Giddens states that globalization is 'the intensification of world-wide social relations which link distant localities in such a way that local happenings are shaped by events occurring many miles away and vice versa' (Giddens, 1990: 64). Or theorists such as Held and his colleagues conceptualize globalization as

'a process (or set of processes) which embodies a transformation in the spatial organization of social relations and transactions – assessed in terms of their extensity, intensity, velocity and impact – generating transcontinental or inter-regional flows and networks of activity, interaction, and the exercise of power. (Held et al., 2000: 55)]

Of course, these definitions are far too broad for an empirical analysis of the central claims of globalization theorists and the ultimate effects of globalization on the life of individuals in the advanced societies. When we empirically wish to assess whether there is globalization at all, whether globalization represents a distinctive new historical phenomenon, and to which extent globalization has an impact on the life courses of individuals in industrialized societies, we have to specify globalization much more precisely, and then try to measure it in order to include it as an explanatory variable into statistical models.

So far, measurements of globalization are mostly to be found in the economic literature. Scholarship on economic globalization mainly uses macroeconomic indicators such as financial flows, international trade in goods and services or foreign direct investments (Sutcliffe and Glyn, 1999). Although these measurements provide some insight into the increasing international integration of economic activity, they clearly are too narrow from a sociological point of view. Giddens's (1990) 'world-wide social relations which link distant localities' or Held et al.'s (2000) 'generating transcontinental or interregional flows and networks of activity' clearly include not only economic activities but refer also to complex cultural, political and social exchanges.

The purpose of this article is to develop a multidimensional globalization measure, encompassing interpersonal as well as aggregated economic, (socio)technological, cultural and political relations. This measure builds on previous work by Dreher (2006), Lockwood and Redoano (2005), the OECD (2005) and Kearney/*Foreign Policy Magazine* (2001), but extends this work by additional dimensions and indicators that represent central facets of a sociological concept of globalization. The article is organized as follows. First, we describe in detail the multidimensional nature of the globalization process and then develop an overall sociological index of globalization, which we call GlobalIndex. This index covers the development of globalization in 97 different countries from 1970 to

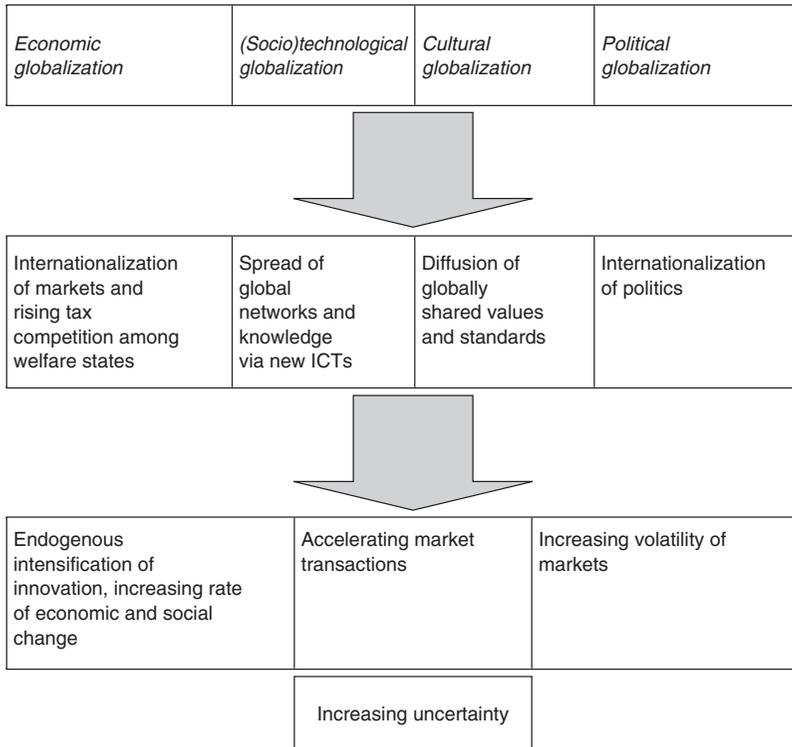
2002. Using individual life histories and the GlobalIndex, we analyse whether globalization has an impact on labour market entry processes and the risk of becoming unemployed after the first job in Germany and the UK. Based on these individual-level analyses, we draw conclusions about the usefulness of this aggregated globalization index.

## **Globalization: A Multidimensional Phenomenon**

There is an agreement in the literature that globalization is a multidimensional concept. The upper part of Figure 1, which builds on work by Mills and Blossfeld (2005), summarizes the four central macro processes of globalization discussed in this section. It describes processes of economic marketization, international networks and social cross-border interactions, an emerging global culture and the expanding international relations between nation-states. Figure 1 also illustrates that these basic dimensions of globalization contribute to the rapidly accelerating changes in modern societies (see Mills and Blossfeld, 2005: 1–6). Therefore, we discuss first whether it is possible to integrate these diverse dimensions of globalization into an overall analytical concept and relate it to general socioeconomic changes that can be observed in various modern societies.

### ***Economic Globalization***

The economy is the social subsystem that has been most frequently connected with globalization (see Fiss and Hirsch, 2005). Often globalization is even reduced to its economic dimension and the economy is seen as the basic ‘motor’ of globalization (Beck, 1999; Varwick, 2000). In particular, after the fall of the Iron Curtain and the integration of Asian countries such as India, Korea, Taiwan and China into the world economy, firms in advanced societies do not just compete in their own economy, but increasingly against firms from economies around the world (Fligstein, 1998). It is important to note that it is not the increasing level of economic exchange as such that is creating the economic turbulences on all kinds of markets but the rising interaction of countries with very different wages, social and environmental standards as well as productivity levels. This uneven competition poses new challenges for corporations and nation-states as well. In particular, advanced nation-states had to enter into a harsh tax competition. The growing world financial markets for debt, equity and currency force governments to pursue monetary and fiscal policies that promote low inflation and curb deficit spending (Fligstein, 1998). Governments of industrialized nations have difficulty raising taxes in general and on firms in particular because that will encourage corporations to move to other countries. They also cannot run large budget deficits over longer time spans because the world currency markets would then punish them by a



**Figure 1** *Four Dimensions of Globalization*  
 Source: Own illustration based on Mills and Blossfeld (2005).

falling value of their national currencies. Since the early 1990s, modern states therefore often cut back on social welfare spending and protection for workers and their families. They also have introduced new measures of privatization, liberalization and deregulation. In all modern societies, these developments have generated an unprecedented level of structural uncertainty for all kinds of (individual or corporate) actors (particularly in the form of ‘temporal uncertainty’ and ‘employment uncertainty’; see Mills and Blossfeld [2005] and Figure 1).

Empirical analyses of established economic indicators demonstrate that global integration has been most pronounced in the financial sector, followed by transnational trade (Deutscher Bundestag, 2002: 61–9). While decreasing costs for transport have promoted the international trade of goods, new information and communication technologies (ICTs) have contributed significantly to the expansion of international financial flows and the growth of transnational trade in services.

Although there has been an impressive economic globalization, a more in-depth consideration of trade and capital flows shows that global trade is often still constrained to a limited number of world regions – especially the European Union (EU), the countries of the North American Free Trade Agreement (NAFTA) or the Association of Southeast Asian Nations (ASEAN) (Fligstein, 1998). In addition, foreign direct investments mainly circulate between advanced regions and countries. Globalization sceptics hence frequently speak of regionalization or triadization of the world's economy rather than of an overall and universal globalization affecting all countries to the same extent (Deutscher Bundestag, 2002; Held and McGrew, 2000; Perraton et al., 2000).

The development among these advanced trade regions and between these regions and the rest of the world is particularly affected by tariff and non-tariff trade barriers. Although the General Agreement on Tariffs and Trade (GATT) and later the World Trade Organization (WTO) helped dismantle some of these trade barriers, many of them still exist. As a side-effect of the dismantling of tariff and trade barriers, there has also been a simultaneous growth of non-tariff trade barriers in recent years. In particular, the advanced industrial nations increasingly tend to revert to quotas, subsidies, standards, protective clauses and similar measures in highly competitive fields in order to protect their home economies from low-price competition from developing countries or transition states. This modern version of protectionism is, for example, reflected in agricultural subsidies – on which the industrial countries spend five times as much as on development aid (Deutscher Bundestag, 2002: 124).

In summary, economic globalization seems to have increased significantly and an ever growing number of nations with very different wage and productivity levels as well as social and environmental standards participate in the global competition. Nonetheless, there remain noticeable quantitative and qualitative variations that are due to different levels of economic development and protectionist policies.

### **(Socio)Technological Globalization**

An exclusive orientation towards economic indicators of globalization would not adequately reflect the multidimensionality of this process. Thus, one has to put globalization into a broader perspective considering also its (socio)technological, cultural and political aspects. The increase of international flows of finance, merchandise and services would not have been possible without the improvement and price reduction in transport technology as well the spread of global networks of people and firms linked by ICTs. The new ICTs, such as microcomputers and the Internet, together with modern mass media, transmit messages and images instantaneously from the largest city to the smallest village on every continent

and allow a faster diffusion of information and knowledge over long distances. In Manuel Castells' (2001) often-cited *Network Society*, the revolution of ICTs even becomes one of the most important elements of globalization. The OECD (1996) draws a similar picture of contemporary advanced societies when it speaks about their character as 'knowledge-based economies'.

New ICTs not only contribute to the globalization of national economies, but also enable social networking on a worldwide scale. The synchronous worldwide broadcast of the 9/11 terrorist attacks and the rapid spread of this news (Rogers, 2003: 79ff.) is but one example of worldwide integration based on ICTs. In addition, one can observe an increase of global personal networking, reflected, for example, in global protest activities, often borne by international non-governmental organizations that are becoming more and more important.<sup>1</sup> Despite major advances in ICTs, the notion of a 'global village' nonetheless still seems to be empirically unwarranted because the participation of nation-states in this development is still quite uneven. In particular, it must be mentioned that many countries often try to prevent (unfiltered) participation in global information flows by means of censorship and propaganda (Chomsky, 2003).

However, ICTs increasingly allow people to share information, in order to connect and create an instant common worldwide standard of comparison. ICTs thus speed up the dynamics of market transactions and lead to rapidly accelerating social and economic change (see Figure 1).

Modern ICTs influence communications between individuals, organizations and communities by effectively rendering physical space and distance irrelevant. Thus, although the introduction of technology is not unique in itself, recent ICTs have fundamentally altered the scope (widening reach of networks of social activity and power), intensity (regularized connections), velocity (speeding up of interactions and processes), and impact (local impacts global) of transformations. (Mills and Blossfeld, 2005: 6)

Thus, modern ICTs and economic globalization measures allow individuals, firms and governments to react faster to observed market changes and simultaneously accelerate market transactions (Castells, 2001). This in turn makes long-term developments of globalizing markets inherently harder to predict.

However, ICTs have not only increased communication and exchange in the economic sphere, but have also facilitated the transboundary communication and networking of private individuals. The Internet keeps undermining political or economical attempts at manipulation or censorship.

Moreover, social globalization is also visible in global migration flows, even if these cross-border flows are still relatively small compared to cross-border flows of capital, goods and services. Nonetheless, migration

often generates problems both in the countries of origin as well as in the destination countries. While the origin countries are often confronted with problems resulting from a kind of 'brain drain', target countries are often faced with considerable integration challenges. In this process, it is especially rich countries of the North that become centres of attraction. This development frequently also culminates in the growth of so-called global cities, which turn into global reference parameters for economic, political and social action (Sassen, 2001).<sup>2</sup> The growing number of urban centres, which in a way are often considered as pioneers of globalization, serve as prototypes for future developments. Urban areas are the palladium of progress and thus are able to create cultural connectivity in the global age. For example, Chinese mega-cities such as Shanghai or Beijing shape our view of a modern and globalized China, but they also attract the Chinese rural population who wants to participate in this progress.

### **Cultural Globalization**

Western societies' institutionalized belief in growth and progress, sometimes called the 'logic of expansion' (Schulze, 2003), manifests itself not only in the growth of global mega-cities, but also in the cultural sphere. Western culture is characterized like no other by the belief in growth and progress. Through new ICT channels and mass media, western culture, values and standards are spreading over the whole globe (see Schwinn, 2006: 217). According to Marxists, the central motor of this development is the expansive logic of capital accumulation and commodification that gives not only production but also consumption a new cosmopolitan character in every country (Marx and Engels, 1999: 48). However, it is interesting that Marxists' predictions are similar to the 'convergence thesis' of modernization theorists such as Treiman (1970) or the neoinstitutionalists such as Meyer, Ramirez and Soysal (Meyer et al., 1992). All these social researchers expect that, in the long run, global culture will converge and move in the direction of western cultural standards.

Another important facet of cultural globalization is the spread of western rationalism and universalism. The resulting belief in the importance of scientific proof, research and evidence-based knowledge also constitutes the foundation of mass education as a global value: 'Mass schooling has become a worldwide institution, both as normative principle and as an organizational reality' (Meyer et al., 1992: 128). Of course, the pursuit of education is not new and has always been a universal goal of nation-states. However, in the age of globalization, it has become even more important. International educational achievement studies such as PISA, TIMSS or IGLU as well as the idea of education as a constitutional goal and human right support this view.

Human rights make up another central aspect of cultural globalization. They constitute a canon of globally shared values that are increasingly posited, communicated and demanded (Meyer et al., 1997). Of course, not every state that publicly confesses to the human rights agenda makes it also a prior aim of its policies. There has also been a 'decoupling between formal models and observable practices' that Meyer et al. (1997: 155) ascribe to a lack of economic resources. Nonetheless, human rights violation has become a global subject of discussion and criticism – quite often triggered by the non-governmental organizations referred to earlier.

At first glance, numerous trends seem to support the aforementioned convergence thesis. Particularly in everyday life, an overall cultural homogenization is obvious. McDonald's, Coca Cola, blue jeans, Hollywood but also the Olympic Games or the FIFA World Cup are some of the most prominent examples of a global cultural industry. Several other trends, however, appear to contradict a universal trend of cross-national convergence. Robertson (1994), for example, emphasizes the fact that global cultural trends must always interact with local cultures. The triumphal rise of Asian lean production<sup>3</sup> impressively shows that even the dominant western culture cannot escape such tendencies of hybridization (Raehlmann, 1996). Recent globalization studies also show a strong 'path dependence' in the evolution of institutions and in the organization of life courses of people in different modern societies (Blossfeld et al., 2005; Blossfeld and Hofmeister, 2006; Blossfeld et al., 2006a, 2006b). Thus, even in the age of globalization, institutional arrangements are still characterized by marked national differences.

We can summarize that, despite persistent institutional and life course differences, we expect clear signs of an emerging global culture in the everyday life of individuals. There should be a trend towards shared consumer culture, the spread of western values, such as rationalism and universalism, together with a civil right of education and equal opportunities as well as the political rights of freedom.

### ***Political Globalization***

The preceding paragraphs have made clear that the various dimensions of globalization often closely interact with each other (Alasuutari, 2000). Hence, many theorists have looked for more specific historical events that could serve as 'starting shots' for the new age of globalization. In particular, political scientists have stressed the role of political action in this respect (Beck, 1999; Varwick, 2000). They claim that, in the end, the rapid global social and cultural integration as well as the interdependence of markets would not have been possible without political decisions. For example, the liberation of the London Stock Exchange on 27 October 1986, in which the Thatcher government forced the London Stock Exchange to

drop fixed commissions, has been considered as a so-called 'Big Bang' for the liberalization of financial markets (Fiss and Hirsch, 2005). The fall of the Berlin Wall and the Iron Curtain at the end of the 1980s and early 1990s opened the door to the integration of Eastern Europe and the countries of the former Soviet Union into the world economy. We have also witnessed a series of global political agreements by the International Labour Organization, the World Health Organization, the World Trade Organization, the International Monetary Fund, the United Nations as well as various non-governmental organizations, which intensify the interaction between nation-states or link social groups from various countries (Verdier and Breen, 1999). In other words, one could argue that politicians have changed the terms of current globalization since the late 1980s and 1990s (Varwick, 2000: 138).

However, one may also claim that the key question with regard to political globalization is rather whether or to what extent globalization changes political action as well. Many radical globalization theorists argue that the nation-state has become paralysed, so that national politics are virtually impossible in a global age. Since governments have difficulty raising taxes and have to be careful about running large budget deficits, they are not really able to respond effectively to globalization, which leads to domestic deindustrialization and more social inequality in modern societies (Fligstein, 1998). Governments seem to be trapped and can only run economic policies that promote low inflation and low-tariff barriers, and cut back on protection of workers in the hope of attracting foreign investment to stimulate economic growth (Fligstein, 1998). Though evidence shows that this rhetoric of the 'end of the nation-state' is often exaggerated or even misleading, it directs attention to the necessity of governance beyond the nation-state (Zürn, 1998). A considerable number of political fields can no longer be treated solely within the framework of the nation-state but call for international cooperation. The spectrum of these topics ranges from economic policy (World Bank, IMF, WTO), via health (WHO), migration, whale hunting and environmental protection to military cooperation within UN missions. In view of this growing number of issues that can only be solved on a supranational scale, it is not surprising that inter-, trans- and supranational organizations receive more and more public attention (Deutscher Bundestag, 2002: 49). Participation in these organizations is therefore a sign of globalization.

In practice, however, not all states can equally influence the decision processes of international organizations and often contribute quite differently to the solution of perceived global problems.<sup>4</sup> In addition, certain political areas (such as social policies) appear to be less influenced by transnational processes than others (e.g. economic and financial policies). Despite trends towards supranationalism, the nation-state hence still

continues to act as the central political actor and the end of the nation-state appears not to be in sight yet. Nonetheless, in the age of globalization, nation-states increasingly have to rely on international cooperation in order to adequately meet the globally induced challenges.

### **Indicators of Globalization and Construction of the GlobalIndex**

Globalization 'does not impact all regions, states, organizations or individuals in the same way. There are institutional settings and social structures, historically grown and country-specific, that determine the degree to which people are affected by uncertainty' (Mills and Blossfeld, 2005: 6). As stated earlier, these 'meso' institutions have a certain inertial tendency to persist (Esping-Andersen, 1993; Nelson, 1995) and act as a sort of intervening filter between the general macro forces and the individual effects on actors at the micro level in different countries (DiPrete et al., 1997; Hurrell and Woods, 1995; Mills and Blossfeld, 2005; Regini, 2000). For an analysis of the impact of globalization on individual life courses, it is therefore important to separate the more general country-specific macro forces from the country-specific filtering mechanisms in order to study their joint impact on the individual level (Mayer, 2001).

The following indicators are designed to describe global processes on the macro level only. In doing so, we take into account the pioneering works by Dreher (2006), Kearney/*Foreign Policy Magazine* (2001), the OECD (2005) as well as Lockwood and Redoano (2005). However, we expand these attempts to measure globalization by creating a new sociological index that reflects the phenomenon of globalization in all its four facets.

First, in previous attempts to measure globalization, the economic dimension has often been represented only by a single measure such as financial flows (e.g. OECD, 2005). As demonstrated by Dreher (2007), this is not sufficient because tariff and non-tariff trade barriers, which could hinder a free flow of money, goods and services, simultaneously need to be taken into consideration. Our proposed GlobalIndex, therefore, includes the economic dimension of globalization via indicators that reflect both international cash flows and tariff barriers. It comprises, like the KOF (Swiss Economic Institute) index devised by Dreher (2007), indicators reflecting open and hidden import barriers, capital account restrictions, tariff rates or taxes on international trade.

Second, we have argued that globalization is reflected by the increasing interconnectedness of the world and the spread of new ICTs (see Von Plate, 2003). Our sociological GlobalIndex hence incorporates a dimension of sociotechnological interconnectedness consisting of indicators that measure the global exchange of individuals as well as the exchange of

information around the world. Though this dimension also appears in Dreher's KOF index (see Dreher, 2007), the KOF index neglects central technological features such as the spread of landlines and cell phones. Furthermore, the increasing spread of the English language as the *lingua franca*, which in many respects provides an essential basis for cross-national communication, and the import and export of books or periodicals remains unconsidered in Dreher's work. The CSGR (Centre for the Study of Globalization and Regionalization) Globalization Index (Lockwood and Redoano, 2005) considers these indicators, but falls short of adequately incorporating landlines and cell phones. The GlobalIndex combines both perspectives, by simultaneously considering landlines and cell phones as well as the export and import of books and periodicals as proxy indicators of sociotechnological globalization.

Third, the cultural dimension of globalization has so far received only marginal attention in the measurement of globalization. Dreher's earlier version of the KOF index made an attempt to include culture by incorporating an indicator of the spread of an American way of life: the number of McDonald's franchises in a country (see Dreher, 2007). In a recent modification of his initial index, Dreher additionally considers the number of IKEA franchises in a country. Despite this improvement, Dreher's index only grasps the culture of everyday life (Schwinn, 2006) and therefore to some extent the western logic of expansion (Schulze, 2003), but still neglects the cross-national convergence of norms and values (e.g. human rights).

As has been noted by several globalization scholars (Beck, 1999; Heidenreich, 2003; Meyer et al., 1992; Sassen, 2001), one additionally needs to include indicators such as the right to education, its importance as a factor of production, the spread of human rights, gender equality, the increase in urbanization and the increasing tertiarization as globally shared values and standards, and therefore as crucial aspects of cultural globalization. Based on these considerations, we integrate all these variables into a separate dimension of cultural globalization.

Finally, our index includes a separate political dimension reflecting the increasing political interconnectedness of nations. The introduction or abolition of trade barriers, for example, is a political action. Likewise, national regulations on cross-national migration reflect a policy favouring or opposing immigration. Furthermore, in the EU, economic and social life often appears to be influenced strongly by EU laws and regulations. A possible difficulty in the construction of a political dimension is that many aspects of the political sphere extend into the other dimensions of globalization. Political variables, therefore, only partially reflect the extent of political globalization. In order to capture the political dimension as appropriately as possible, we follow Dreher's approach by including 'embassies in the country', 'membership in international organizations'

and the absolute number of 'UN Security Missions joined' as additional indicators of political globalization.

Based on the four dimensions and their indicators, we construct an overall index of globalization that aims to cover the development of globalization in 97 different countries for the historical period from 1970 to 2002. One of the most eminent challenges when creating an index for such a great number of countries over more than three decades is the occurrence of data gaps. The plethora of variables, countries and years, as well as occasional incompleteness of available data result in a large number of missing values for some of the countries considered. Likewise, the availability of data for different time points varies greatly, which particularly affects indicators of the political dimension. Since the index of a country cannot be calculated at a given time point if a variable is missing, strategies have to be developed to deal with this problem. In cases of missing data with respect to a given variable, we estimate the missing values by linear interpolation between available data of two adjacent time points. We excluded countries if there were more than four variables missing for the entire period and where up to a third of the variables within the respective subdimension were missing.<sup>5</sup> For the remaining countries, missing values were imputed by estimating values from regression imputation over all other variables and all years. Another three countries had to be excluded from the calculation of the index due to bad imputation results. The result of these procedures was a database for 97 countries.

Furthermore, the commensurability of indicators needs to be taken into account when integrating 31 variables into a single index. Due to different units and scaling, the raw data of the variables are not directly comparable with each other, but need to be converted into a unified form, e.g. a scale ranging from 0 to 100 (Dreher, 2007), or from 0 to 10. Caselli (2005: 4) suggests the following formula for a such a transformation (known as 'panel-normalization'):

$$V_{standardized} = 10 \cdot \frac{V_i - V_{min}}{V_{max} - V_{min}}$$

$V_{max}$  and  $V_{min}$  are maximal and minimal values within the complete data series, whereas  $V_i$  refers to the actual value of a variable. The above transformation results in values on a scale from 0 to 10 (see Dreher, 2006; Gwartney and Lawson, 2006). However, it only applies if the values of a variable correlate positively with globalization. For variables where the opposite is the case, such as 'taxes on international trade' and the 'Freedom House index', we readjust the formula accordingly into:

$$V_{\text{standardized}} = 10 \cdot \frac{V_{\text{max}} - V_i}{V_{\text{max}} - V_{\text{min}}}$$

This procedure ensures a unified standardization<sup>6</sup> of all variables prior to the index calculations, and ensures that high index values reflect a high level of globalization.

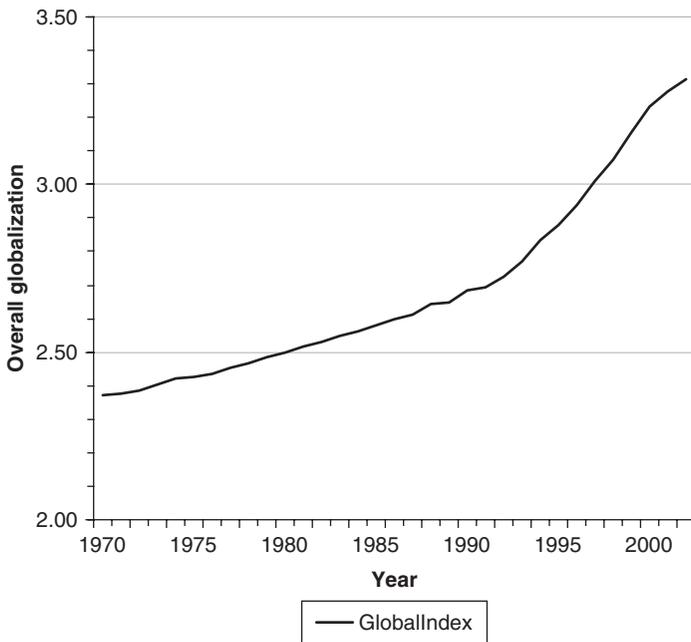
The last step in the calculation of the index is the assignment of proper weights to individual variables and subindices. The use of arbitrary weights as done by Kearney/*Foreign Policy Magazine* (2001) carries the risk of either over- or underestimating the influence of individual variables (Lockwood, 2001). We therefore follow the alternative methodology employed by both Dreher (2006) and Lockwood (2001) using principal component analysis to determine the actual contribution of variables to the overall index. This procedure results in an index that allots comparable influence to all variables and neither over-, nor underestimates individual indicators.<sup>7</sup> In contrast to the approach of Kearney/*Foreign Policy Magazine* (2001), this method derives the weights of individual variables in the total index not from a subjective and arbitrary decision of the researcher, but determines them relying on the data structure itself.

### **Application of the GlobalIndex**

In this section, we demonstrate the usefulness of the GlobalIndex. First, we describe the development of globalization on a worldwide scale as well as for different country contexts. Second, we include the GlobalIndex into two micro-level longitudinal analyses of labour market transitions during individuals' early career stage in Germany and the UK.

#### **A Description of the Globalization Process**

Using the GlobalIndex, we first give an overview of the overall development of globalization across all 97 countries during the last three decades.<sup>8</sup> Figure 2 shows that globalization has been almost continuously on the rise since the mid-1970s, with clear signs of an acceleration since the early 1990s. This distinct change in the slope of the curve at the beginning of the 1990s indicates that something important happened between the late 1980s and the early 1990s. This change in the slope coincides with the accelerated economic globalization since the fall of the Iron Curtain and the extensive integration of Asian countries such as India and China into the world market as well as with the rapid diffusion of the Internet since the early 1990s. However, the extent of globalization and its development over time show significant variations among regions, too. Based on the country-specific intensity of globalization



**Figure 2** *Average Globalization All Over the World*

change, Figure A1 in the Appendix divides the nations into three regional groups: (1) the so-called 'global players' (including mostly North America, Europe and Oceania), (2) the 'catching-up regions' (such as many countries in Asia, Latin America or the Caribbean) and (3) the 'globalization laggards' (for example Africa).

The 'global players' and the 'catching-up regions' make up the most globalized regions of the world. Among the 'global players', the core states of the EU fell behind in terms of globalization after the fall of the Iron Curtain. Nevertheless, during the last two decades, the EU almost closed the 'globalization gap' with Oceania and North America<sup>9</sup> again. In Latin America and the Caribbean as well as in Asia, the degree of globalization has risen continuously since the mid-1980s, most considerably in the dimensions of sociotechnological interconnectedness and economic globalization (see Figures A2–A4 in the Appendix). These countries thus constitute the group of 'catching-up regions'. Finally, in contrast to these countries is the African continent, which has been lagging behind continuously with regard to the nation-specific degree of globalization and hence can be described as a 'globalization laggard'.

The two more globalized regions (the 'global players' and the 'catching-up' regions) can be further divided into different transnational trade markets. Figure A5 in the Appendix distinguishes the NAFTA states, both EU regions (i.e. the 15 core states of the EU and the 12 accession countries – in the following called EU 15 and EU 12 respectively), and the Asian 'tiger states'. It is evident that the states of the NAFTA and the EU 15 are in the vanguard. The latter group of countries in particular has experienced significant increases over the past decade and thus has taken the leading position in the process of globalization. While the 'tiger states' have been lagging behind for a long time, they have been able to reduce the distance with the EU accession countries continuously over the past five years, particularly due to major increases in the areas of economic and political globalization (see Figures A6–A8 in the Appendix). The largest and most substantial increases in sociotechnological interconnectedness can be found in the NAFTA and the EU 15 countries, where information and communication networks have grown enormously. Both the EU accession states and the 'tiger states' have experienced a similar increase in this dimension since the mid-1990s. However, they still range well below the level of the NAFTA and the EU 15. An analysis of the cultural dimension reveals the opposite pattern: here, higher increases are found in both the 'tiger states' as well as in the EU accession countries (see Figures A7 and A8 in the Appendix).

Finally, we group the 'global players' with regard to their national institutions that mediate the overall influence of globalization in a nation-specific way. Recent sociological literature uses five different types of welfare regimes for these countries, as displayed in Figure A9: the 'social-democratic' states of Scandinavia, the 'liberal' Anglo-Saxon countries, the 'conservative' countries of Central Europe, the 'family-centred' Southern European nations and the 'post-Communist' countries of the former Eastern bloc. With regard to globalization, these five welfare regimes divide up into two major groups: the liberal, social-democratic and conservative welfare states display a significantly higher level of globalization than the Southern European and post-Communist nations. The social-democratic countries constitute the most globalized welfare states due to strong increases in all dimensions of globalization since around 1990. In contrast, post-Communist countries appear today to be those with the lowest level of globalization, despite a marked increase in both the economic and political dimensions (see Figures A10–A12 in the Appendix). Trends in recent years, however, suggest that divergence in the degree of globalization is likely to persist over the coming years.

### ***Does Globalization Impact Individual Life Courses?***

After this descriptive overview, we now turn to an example of how the GlobalIndex can be used as an explanatory variable in the analyses of

individual-level changes in modern societies. For these purposes, we build on work of the 'GLOBALIFE Project' (Blossfeld and Hofmeister, 2006; Blossfeld et al., 2005, 2006a, 2006b) and the 'flexCAREER Project' (Blossfeld et al., forthcoming), which examine labour market entry processes of young adults under globalization and increasing flexibility demands in several modern welfare states. In the following, we concentrate on the changes in the transition from the educational system to the first job and the risk of becoming unemployed once these young people have entered the labour market. Controlling for individual-level heterogeneity, we investigate whether and to what extent trends in these two major labour market transitions can be traced back to the impact of globalization in different nation-states. Following Blossfeld et al. (2005), we expect that young people who are labour market 'outsiders' will be exposed to rising flexibility demands under globalization and have hence experienced increased employment insecurity. The magnitude of this rise in insecurity is, however, expected to vary according to different national contexts.

In order to illustrate both the influence of globalization in various nation-specific contexts, we concentrate on two countries of 'opposing' welfare regimes: the UK and Germany. In particular, since the 'Thatcher Era', the UK represents a typical 'liberal' welfare state with severe labour market deregulation, low employment protection (hire and fire) and comparatively little and largely means-tested financial support. The labour market in the UK is characterized by open, decentralized and dualistic employment relationships and based on free market forces and competition. Germany, in contrast, is a 'conservative' welfare state characterized by strong employment protection, the dominance of a regulated 'standard employment contract' and high but employment-based welfare provision. Due to strong labour unions, closed employment relationships and centralized procedures for negotiating wages are predominant in Germany. As a result, we find an insider-outsider labour market in Germany in which established and qualified employees are well protected, while the outsiders of the labour market, for example young people, tend to be exposed to labour market risks disproportionately. Indeed, empirical studies show that, even today, mid-career men enjoy high employment stability in Germany (see Kurz et al., 2006).

Although both countries are exposed to similar globalization pressures, we expect that the domestic differences of welfare-/employment-specific contexts mediate the influences of globalization in unique ways resulting in different trajectories in the early careers of young labour market entrants. Nation-specific institutions are hence expected to act as 'institutional filters' of globalization (Mills and Blossfeld, 2003) that influence how far globalization translates into employment insecurity on the individual level of youth. For Great Britain, we expect that

globalization has a positive effect on young people's transition rate of entry into the labour market. Both the high degree of labour market flexibility as well as low levels of regulation allow young labour market entrants a flexible adaptation to new globalization-induced labour market demands, resulting in a comparatively 'smooth' and early labour market entry (Schmelzer, 2005). At the same time, we expect that globalization increases turnover in the UK labour market. The risk of becoming unemployed in the flexible labour market system of the UK can therefore be expected to rise under globalization.

For Germany, we expect that the comparatively high level of governmental employment protection tends to shelter those who are already established in the labour market (the so-called 'insiders'), so that employment flexibility is channelled to those at the 'margins' of the labour market (i.e. young labour market entrants and/or women with no secure or continuous labour market attachment). Under globalization, it can therefore be expected that young people have increasing difficulties to establish themselves in the labour market and that the time span to finding a 'real' first job has increased for young labour market entrants. As for the UK, we expect that under globalization, the risk of becoming unemployed after entering the first job has risen for young labour market entrants, too.

**Labour Market Entry and Early Careers in Germany.** We turn first to results from a multivariate analysis of early career transitions under globalization in Germany. In doing so, we build on previous work by Kurz (2005) as well as by Buchholz and Kurz (2005) and extend their analyses to an explicit consideration of globalization as a factor influencing the development of young people's labour market chances. Kurz (2005) as well as Buchholz and Kurz (2005) used monthly data from the German Socio Economic Panel (GSOEP) to reconstruct the employment history of male and female respondents who left the educational system between 1984 and 2001. Their starting sample comprises 3207 individuals (1798 West Germans, 639 East Germans and 770 migrants). The entry into the labour market and the risk of becoming unemployed after the first job were analysed by using piecewise constant exponential event history models (for more details on data and methods, see Buchholz and Kurz, 2005).

In order to analyse the influence of globalization on early career transitions in Germany, we introduce the national GlobalIndex for Germany in the models. To control for basic sociodemographic influences, we additionally introduce the sample affiliation (West German, East German, migrants) and the sex as covariates. Finally, the annual average rate of unemployment for East and West Germany is included as a time-dependent covariate in

the models analysing the time until first employment to control for business cycle effects.

Table 1 presents the results for the time period until first employment after having left the educational system. The results show that the likelihood of entering employment is clearly highest in the first three months after leaving education. In subsequent months, the chance of entering a first job decreases significantly, and becomes very low after two years (model 1). Including sex and the sample affiliation as control variables (model 2) leads to moderate changes in the coefficients, but leaves the general picture of initially high and subsequently decreasing labour market entry chances unaltered. Women as well as migrants are disadvantaged at labour market entry (for a more detailed interpretation, see Buchholz and Kurz, 2005). Finally, East Germans appear to have worse chances for labour market entry than

**Table 1** *Time until First Employment after Leaving the Educational System (Germany)*

	Model 1	Model 2	Model 3	Model 4
<i>Time since leaving the educational system</i>				
Up to 3 months	-0.76***	-0.56***	-0.23**	1.11***
3–6 months	-2.52***	-2.28***	-1.94***	-0.60
6–9 months	-2.76***	-2.51***	-2.16***	-0.82*
9–12 months	-3.01***	-2.75***	-2.40***	-1.06**
12–24 months	-3.33***	-3.05***	-2.70***	-1.36***
24 plus months	-4.30***	-3.97***	-3.62***	-2.26***
<i>Sex</i>				
Male (ref.)				
Female		-0.17***	-0.16***	-0.17***
<i>Sample</i>				
West German (ref.)				
Migrant		-0.29***	-0.29***	-0.30***
East German		-0.28***	0.01	-0.05
Unemployment rate			-0.04***	-0.03**
GlobalIndex (Germany)				-0.36***
Number of individuals				3207
Number of events				2799
Log likelihood (final estimates)	-4730.47	-4692.32	-4685.03	-4680.27

Source: Calculations by Sandra Buchholz and Karin Kurz based on GSOEP (1984–2002).

Notes: Piecewise constant exponential models; \*\*\* effect significant at  $p < .001$ ; \*\* effect significant at  $p < .01$ ; \* effect significant at  $p < .05$ .

West Germans. This effect, however, disappears when additionally controlling for the average rate of unemployment in the two parts of Germany (model 3), suggesting that the lagged entry into employment is not a product of regional differences as such, but is largely determined by the different prevalence of (high) unemployment in East and West Germany.

Model 4 finally introduces the GlobalIndex for Germany as an additional explanatory variable. The GlobalIndex turns out to have the expected significant and negative effect on the labour market entry chances of young people who had left the educational system. Thus, young adults experienced a strengthening of their outsider position on the German labour market in times of increasing globalization. It is important to note that the globalization effect remains significant even if unemployment is controlled for. This confirms that the GlobalIndex captures the phenomenon of globalization much more broadly than would be summarized only by narrow economic measures like the unemployment rate.

**Table 2** Unemployment Risk after Having Entered First Employment (Germany)

	Model 1	Model 2	Model 3
<i>Time since entering first employment</i>			
Up to 6 months	-4.49***	-4.71***	-6.33***
6-24 months	-5.03***	-5.24***	-6.86***
24-36 months	-5.66***	-5.86***	-7.49***
36 plus months	-6.30***	-6.46***	-8.13***
<i>Sex</i>			
Male (ref.)			
Female		-0.09	-0.09
<i>Sample</i>			
West German (ref.)			
Migrant		0.35***	0.35***
East German		0.74***	0.68***
GlobalIndex (Germany)			0.40**
Number of individuals			3008
Number of events			612
Log likelihood (final estimates)	-2206.36	-2179.41	-2177.31

Source: Calculations by Sandra Buchholz and Karin Kurz based on GSOEP (1984-2002).

Notes: Piecewise constant exponential models; \*\*\* effect significant at  $p < .001$ ; \*\* effect significant at  $p < .01$ ; \* effect significant at  $p < .05$ .

Table 2 complements the analysis of labour market entry by an event history analysis of the risk of a young person becoming unemployed after having entered first employment. Model 1 shows that the risk of becoming unemployed declines with increasing employment experience. Model 2 shows that with regard to the unemployment risk, women do not differ significantly from men (see model 2 in Table 1). Migrants, however, are again disadvantaged: they have a significantly higher unemployment risk than West Germans, mostly a consequence of their overall lower qualification level (see Buchholz and Kurz, 2005). Introducing the GlobalIndex in the third model of Table 2 again reveals the hypothesized effect that globalization leads to an increasing insider-outsider segmentation in the German labour market. An increase in globalization leads to a rise in young people's unemployment risks and reduces their chances to become established on the labour market.

**Labour Market Entry and Early Careers in the UK.** We now turn to the analyses of the same labour market transitions in the liberal welfare regime of the UK. Our study is based on the work of Schmelzer (2005), who reconstructed labour market entries and early careers of young British adults using the British Household Panel Survey (BHPS). This multipurpose panel has been conducted annually since September 1991. Additional retrospective data allow us to trace back labour market entry and early career processes until the year 1985 (Halpin, 2000) to make the research window comparable with the German research window. As for Germany, piecewise constant exponential models were calculated for both the transition from education to first employment and the risk of unemployment after having entered first employment. Again, we use the nation-specific GlobalIndex for the UK. Additionally, we include region (Scotland as well as north, south and middle of Britain), sex and the average yearly rate of youth unemployment as control variables.

Table 3 first presents results for the transition from education into first employment. As for Germany, the rate of entry into the first job is highest in the first three months after leaving the educational system, and decreases thereafter (see model 1). When controlling for sex and region, it turns out that there are no significant differences between men and women entering the labour market. In contrast to Germany, women do not have longer search periods for the first job in the UK. A possible explanation for this result could be that, in liberal regimes especially, women are more likely to start in part-time jobs for which the job search period is shorter than for full-time jobs (Schmelzer, 2005).

**Table 3** Time until First Employment after Leaving the Educational System (UK)

	Model 1	Model 2	Model 3	Model 4
<i>Time since leaving the educational system</i>				
Up to 3 months	-1.25***	-1.25***	-0.88***	-2.51***
3–6 months	-2.41***	-2.41***	-2.03***	-3.64***
6–9 months	-3.33***	-3.33***	-2.95***	
9–15 months	-2.81***	-2.81***	-2.42***	-4.05***
15 plus months	-3.29***	-3.29***	-2.87***	-4.48***
<i>Sex</i>				
Male (ref.)				
Female		0.02	0.03	0.02
<i>Region</i>				
Middle (ref.)				
North		-0.06	0.07	0.04
South		0.02	-0.00	0.00
Scotland		-0.02	0.18*	0.13
Unemployment rate (youth)			-0.01***	-0.01***
GlobalIndex (UK)				0.34***
Number of individuals				1972
Number of events				1724
Log likelihood (final estimates)	-5600	-5590	-5550	-5420

Source: Calculations by Paul Schmelzer based on BHPS (1991–2004).

Notes: Piecewise constant exponential models; \*\*\* effect significant at  $p < .001$ ; \*\* effect significant at  $p < .01$ ; \* effect significant at  $p < .05$ .

The effect for region turns out to be not significant. However, when controlling for the unemployment rate (see model 3), the labour market entry chances are better in Scotland (compared to the middle region). As could be expected, high youth unemployment leads to lower chances of finding a first job after completing education. In contrast to the results for Germany, globalization turns out to have a significant positive effect on the job search process in the UK. With increasing globalization, the labour market entry chances of educational system leavers improve. As hypothesized, globalization thus creates better opportunities for young adults in the highly flexible British labour market, while youth are disproportionately disadvantaged through the process of globalization in the German insider–outsider labour market.

However, although low employment protection and flexible labour market structures facilitate the entry into first employment in the UK, they also

**Table 4** *Unemployment Risk after Having Entered First Employment (UK)*

	Model 1	Model 2	Model 3
<i>Time since entering first employment</i>			
Up to 3 months	-4.11***	-3.93***	-8.23**
3–6 months	-4.38***	-4.19***	-8.52***
6–9 months	-4.67***	-4.49***	-8.79***
9–15 months	-4.75***	-4.57***	-8.85***
15 plus months	-5.40***	-5.22***	-9.52***
<i>Sex</i>			
Male (ref.)			
Female		-0.33***	-0.30***
<i>Region</i>			
Middle (ref.)			
North		-0.00	-0.01
South		-0.06	-0.08
Scotland		-0.12	-0.10
GlobalIndex (UK)			0.96***
Number of individuals			2627
Number of events			573
Log likelihood (final estimates)	-2649.11	-2638.36	-2589.54

*Source:* Calculations by Paul Schmelzer based on BHPS (1991–2004).

*Notes:* Piecewise constant exponential models; \*\*\* effect significant at  $p < .001$ ; \*\* effect significant at  $p < .01$ ; \* effect significant at  $p < .05$ .

make employment in the early career more unstable. Table 4 presents results from an analysis of the risk of becoming unemployed for young British adults after having entered their first job. Model 1 shows that the risk of becoming unemployed is by far highest in the first three months of employment and decreases thereafter. The fact that women are more likely to start in service jobs, associated with less job security than jobs in other industries, and that they are often employed in part-time jobs consequently decreases their risk of becoming unemployed (models 2 and 3; for more details, see Schmelzer, 2005). Model 3 reveals that the influence of globalization on the risk of becoming unemployed in Britain is significant and positive. While flexible labour market structures in the UK obviously foster young adults' entry into first employment, they appear also to increase labour market insecurities once employed.

## **Conclusion**

The aim of this article has been to develop a sociological globalization measure in order to incorporate the phenomenon of globalization into individual-level statistical models. The proposed new GlobalIndex builds on existing attempts to measure globalization (see Dreher, 2006; Kearney/*Foreign Policy Magazine*, 2001; Lockwood and Redoano, 2005; OECD, 2005), but extends this work by additional non-economic dimensions and indicators. In particular, we argued that due to the vast increases in technological changes, a detailed measure of sociotechnological interconnectedness needs to be considered as a central dimension of globalization. In addition, we suggested that, from a sociological perspective, a cultural measure of globalization would need to go beyond the measurement of consumption styles of everyday life to which earlier indices were restricted. Finally, we argued that even in the analysis of economic globalization, one needs to broaden the analytical perspective beyond the analysis of trade flows, and should additionally consider trade barriers and tariff agreements.

Based on advanced statistical techniques, we developed an index of globalization for 97 countries for the time between 1970 and 2002 and demonstrated its empirical usefulness in both descriptive as well as explanatory analyses. We showed that globalization has been on the rise, but that its development varies significantly between continents and countries. Nonetheless, in certain areas, such as in parts of cultural globalization, an increasing convergence could be detected.

Using the example of young adults' labour market chances in Germany and the UK, we demonstrated how the GlobalIndex can be connected with micro data in the framework of event history models. Our findings showed that globalization has significantly affected the employment lives of individuals in modern societies. But they also highlighted that country-specific and historically grown institutional and social structures are filtering the extent of insecurities resulting from globalization to varying degrees. Hence, the different welfare state institutions continue to exert a lasting influence on individuals' life courses even in the age of globalization.

Measuring globalization is a complex, but promising endeavour. We believe that our GlobalIndex can serve as an appropriate starting point for a sociologically satisfying measurement of globalization. People who are interested in using the GlobalIndex can download it from [www.transeurope-project.org/globalindex](http://www.transeurope-project.org/globalindex).

## Appendix

**Table A1** *Variables and Weights of the GlobalIndex 2002*

Indices and variables	Overall		
<i>a. Economic globalization</i>	31%		
1. Data on financial flows	50%		
Trade (% of GDP)		24%	4%
Foreign direct investment (% of GDP)		29%	4%
Portfolio investment (% of GDP)		16%	2%
Income payments to foreign Nationals (% of GDP)		31%	5%
2. Data on restrictions	50%		
Hidden import barriers		23%	4%
Mean tariff rate		28%	4%
Taxes on international trade (% of current revenue)		26%	4%
Capital account restrictions		23%	4%
<i>b. Sociotechnical interconnectedness</i>	31%		
1. Data on personal contact	50%		
Outgoing telephone traffic		22%	3%
Transfers (% of GDP)		29%	4%
International tourism		33%	5%
Foreign population (% of total population)		16%	2%
2. Data on information flows	50%		
Internet hosts (per capita)		12%	2%
Internet users (per capita)		12%	2%
Cable television (per 1000 people)		7%	1%
Daily newspapers (per 1000 people)		9%	1%
Radios (per 1000 people)		13%	2%
International trade in books and pamphlets (in US\$ per capita)		18%	3%
International trade in newspapers and periodicals (in US\$ per capita)		18%	3%
Fixed line and mobile phone subscribers (per 1000 people)		11%	2%
<i>c. Cultural globalization</i>	31%		
1. Logic of expansion	50%		
Urban population (% of total population)		37%	6%
High-technology exports (% of manufactured exports)		27%	4%

*(continued)*

Table A1 (Continued)

Indices and variables		Overall
Total gross domestic expenditure on R&D (GERD) (as percentage of gross domestic product [GDP])	36%	6%
2. Values and Standards	50%	
Freedom House index (civil liberties/political rights)	11%	2%
School enrolment, primary (% net)	28%	4%
School enrolment, primary, female (% net)	28%	4%
Public spending on education, total (% of GDP)	16%	2%
Number of McDonald's restaurants (per 100,000 people)	17%	3%
d. Political globalization	7%	
Embassies in country	36%	3%
Membership in international organizations	36%	3%
Participation in UN Security Council missions	29%	2%

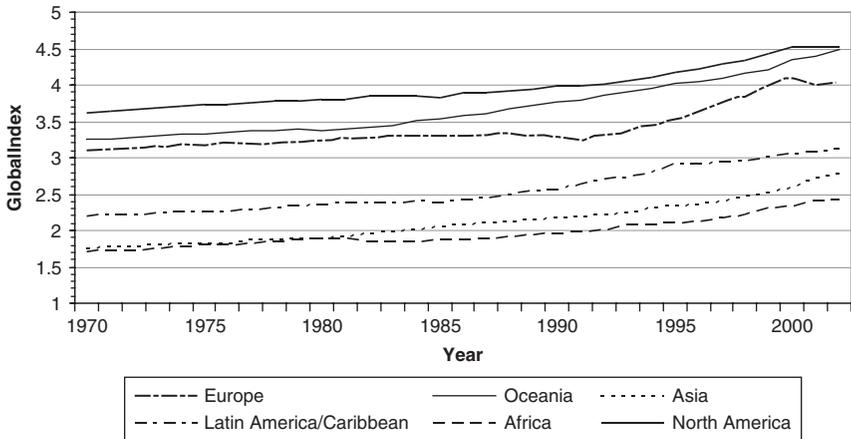
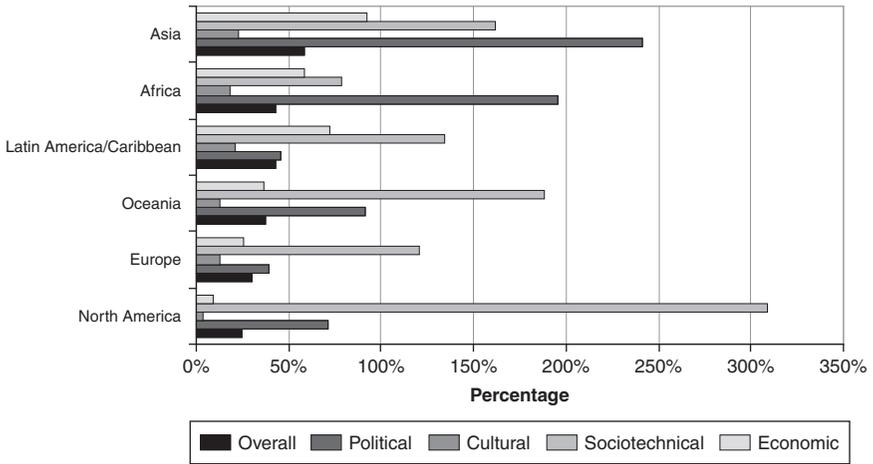
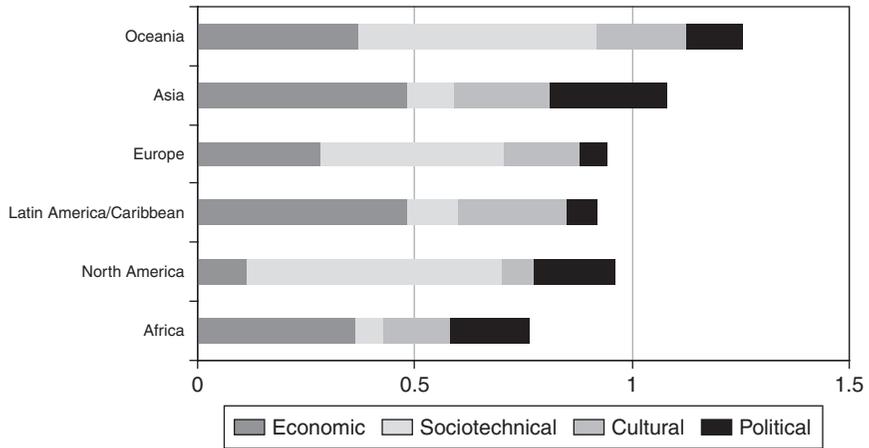


Figure A1 GlobalIndex in Different Regions of the World



**Figure A2** *GlobalIndex – Relative Growth (regarding to the first valid value), World Regions*



**Figure A3** *GlobalIndex – Absolute Growth (regarding to the first valid value), World Regions*

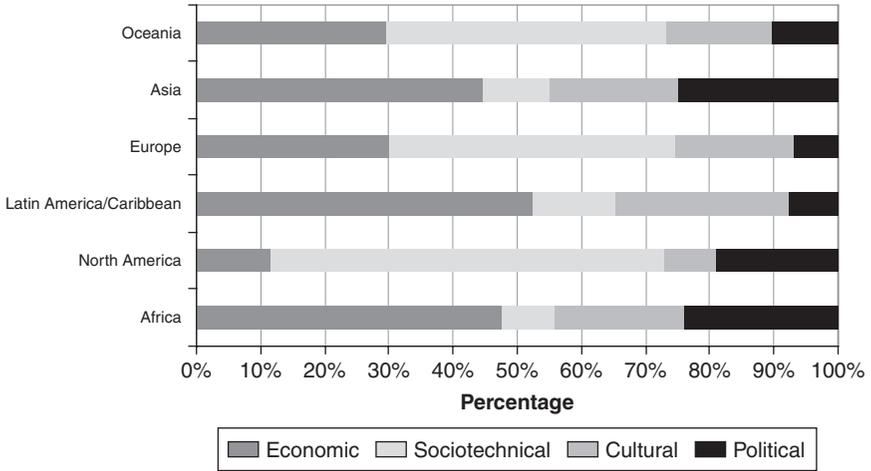


Figure A4 GlobalIndex – Percentage of Overall Growth, World Regions

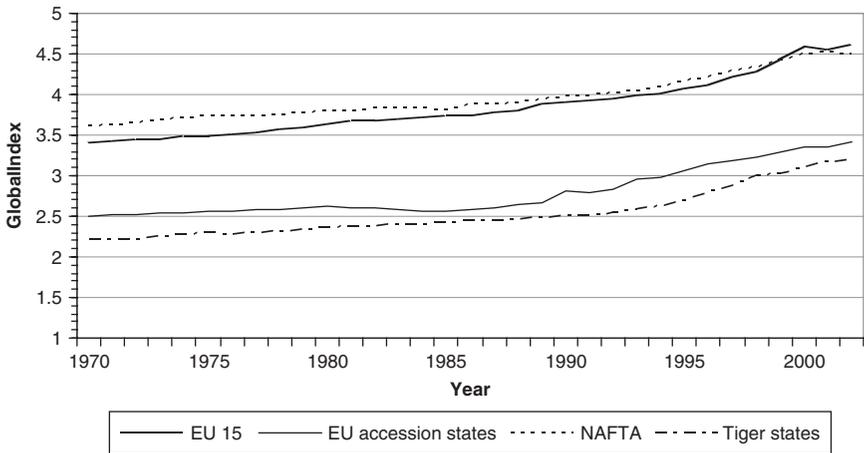
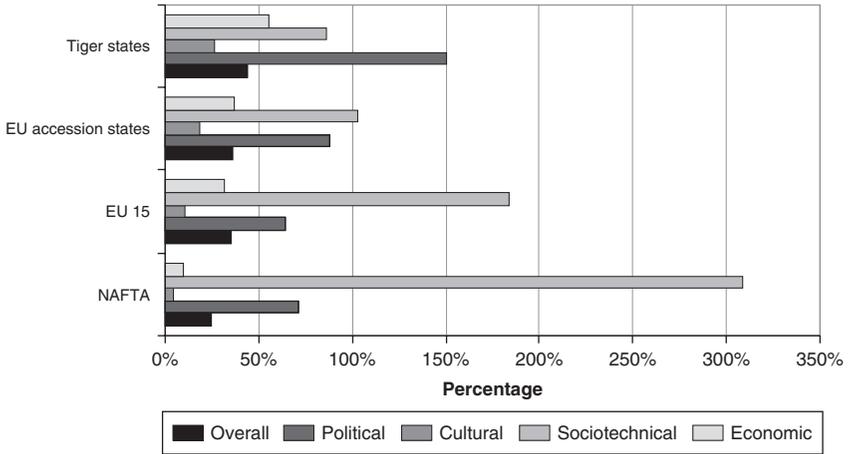
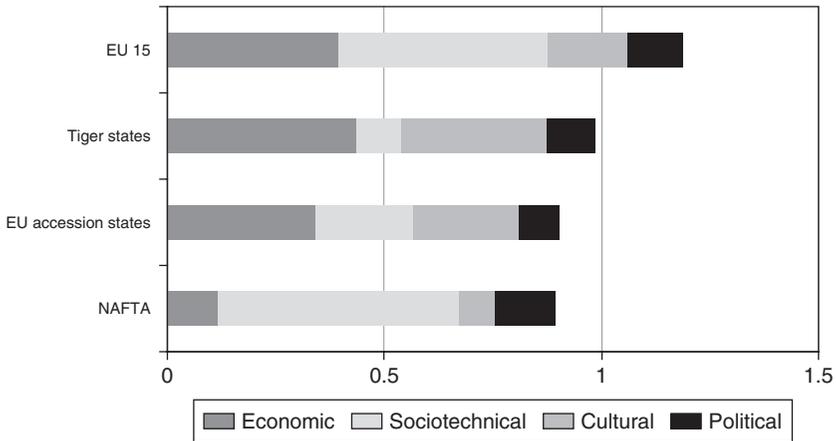


Figure A5 GlobalIndex in Different Economic Regions



**Figure A6** *GlobalIndex – Relative Growth (regarding to the first valid value), Economic Regions*



**Figure A7** *GlobalIndex – Absolute Growth (regarding to the first valid value), Economic Regions*

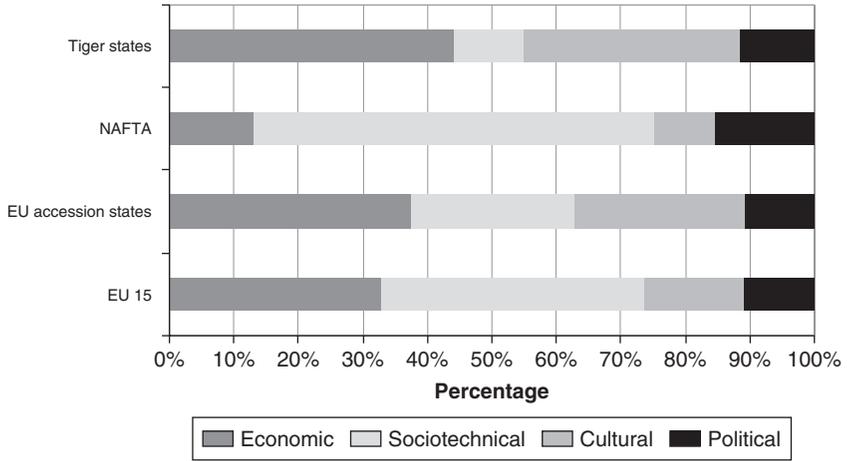


Figure A8 GlobalIndex, Percentage of Overall Growth Economic Regions

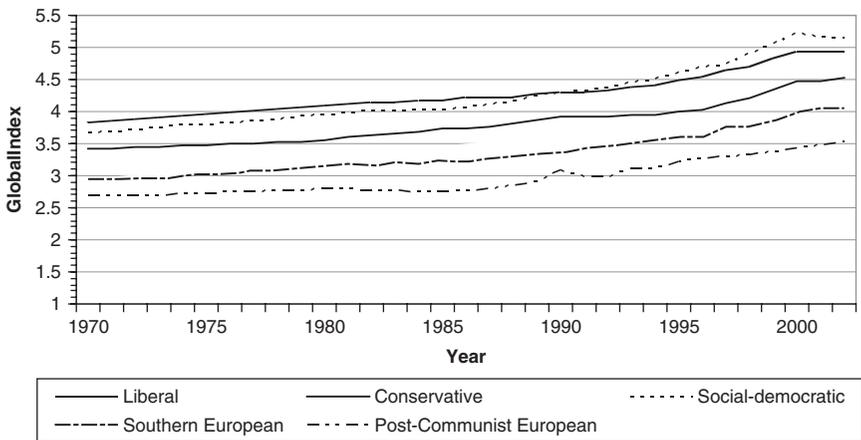
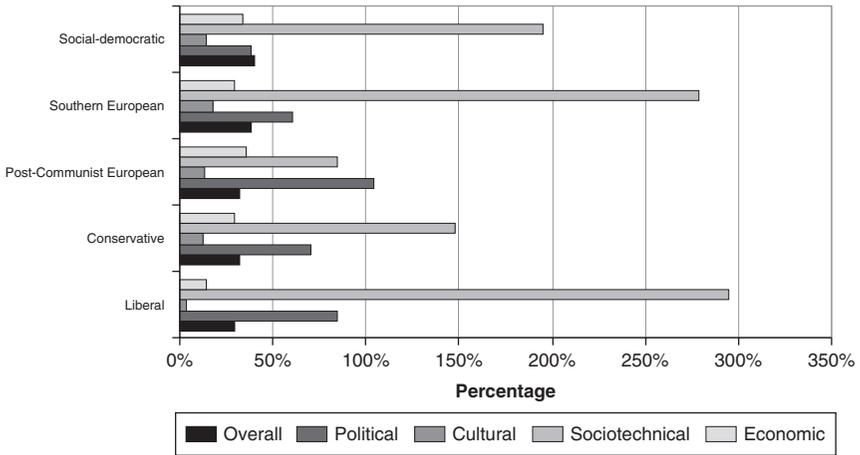
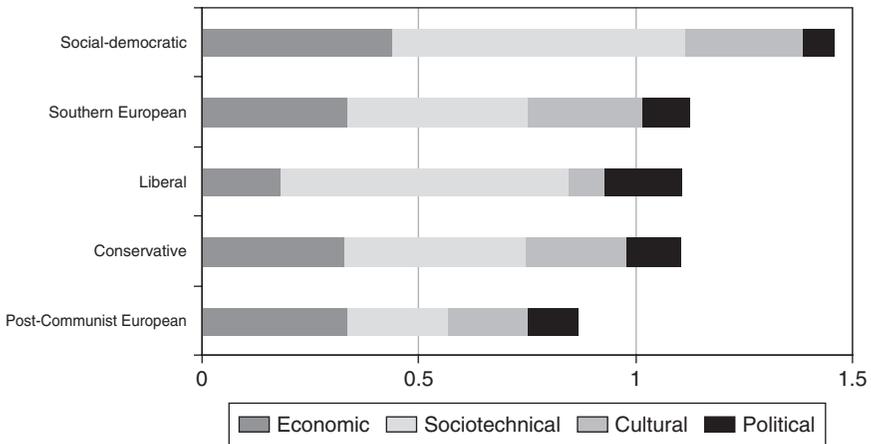


Figure A9 GlobalIndex in Different Welfare Regimes



**Figure A10** *GlobalIndex – Relative Growth (regarding to the first valid value), Welfare Regimes*



**Figure A11** *GlobalIndex – Absolute Growth (regarding to the first valid value), Welfare Regimes*

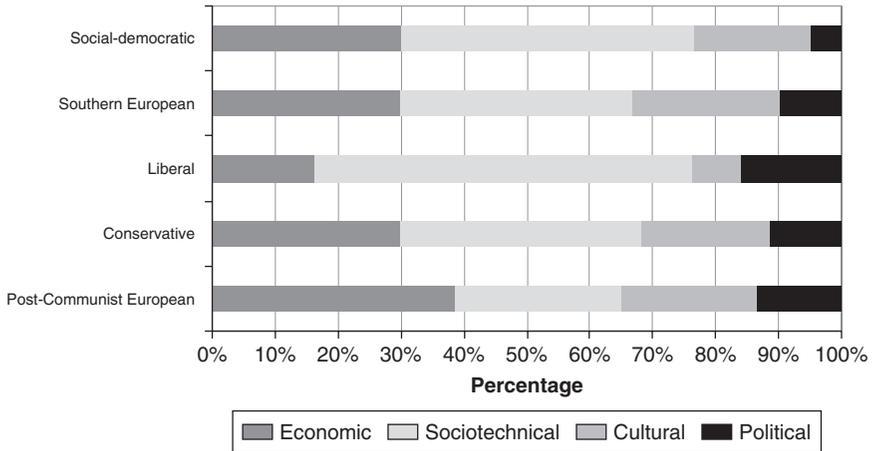


Figure A12 GlobalIndex, Percentage of Overall Growth, Welfare Regimes

## Notes

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We thank Heather Hofmeister (RWTH Aachen University, Germany) for valuable comments.

1. Examples of this flare-up of a 'global civil society' are, for example, the global demonstrations against the sinking of the Brent Spar oil platform, the Iraq War, or the demonstrations of solidarity with the US after 9/11 (Beck, 1999, 2002).
2. On the other hand, developing countries may also benefit from the connection to a global information society, the growth of international tourism, and cash transfers sent home to the 'poor south' to support family members by those working in the 'rich north' (see, for example, Ehrenreich and Hochschild, 2002).
3. Lean production is a style of producing goods by simplifying and speeding up the whole work process. It was first applied in Japanese firms.
4. In the WTO, for example, one can observe an imbalance of power between the industrial and developing countries despite the 'one country, one vote principle' (Deutscher Bundestag, 2002).
5. Maximum of entire data series lacking per sub-dimension (see Appendix): dimension a1 (data on financial flows); a2 (data on restrictions); b1 (data on personal contact); c1 (logic of expansion): one missing variable allowed; c2 (values and standards): two missing variables allowed; b2 (data on information flows): three missing variables allowed.

6. The KOF index, for example, was standardized with a new method in its last version. In our opinion, percentile standardization falsifies an index by smoothing outliers, and thus neglects divergence in the globalization process.
7. For a description of variables and weights, see Table A1 in the Appendix.
8. The population size of the countries has been taken into account to get comparable values across countries and to avoid underestimation and overestimation.
9. This development can, among others, be attributed to the integration of Eastern European states in the course of EU expansion.

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