13

Global “Cultural Spheres” and the Introduction of Compulsory Schooling Around the World

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1 Introduction

Compulsory education corresponds with the reproduction and change of a country’s culture and drives the process of modernisation. As we know from international comparative cultural research, however, there are different pathways into modernity. The role of education in the reproduction and change of a nation state’s culture might thus differ as well (Weymann 2014).

Culture is of crucial importance for a society’s social and economic order (Rose 2019): “(...) cultural formations are significant because they both constrain and enable historical actors, in much the same way as do network structures themselves” (Emirbayer and Goodwin 1994, 1440). Yet, global cultural differences are still a neglected issue in studies on the development of education systems. In the present study, we regard

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cultures in the world as “cultural spheres” and analyse their importance for the diffusion of education policy. Our concept of “cultural spheres” results from ideas in relational sociology, as well as from our methodological approach of combining a set of nation states’ cultural aspects in a valued two-mode network. We consider recent arguments from anthropology and sociology on the importance of culture and global cultural differences in a global perspective. In the empirical section, we analyse the diffusion of compulsory education by focusing on the effect of a country’s membership in fuzzy clusters defined by cultural characteristics.

Global cultural clusters of countries do not necessarily have rigid, clear-cut boundaries or “fault lines” (Huntington 1996). According to our approach, countries are tied to each other by sharing a multitude of cultural characteristics. In this network, connections between countries increase, the more cultural characteristics they share. We measure “cultural spheres” by standardised indicators and apply network-based methods that account for the fuzzy character of boundaries between these spheres. In addition, we test the impact of cultural spheres as the underlying structural framework for the network diffusion process of compulsory education, controlling for economic development.

2 Culture and Diffusion of Education Systems

A Marxist view on the development and change of societies regards culture as a superstructure, which is determined by productive forces and the organisation of property rights. Class conflict, for instance, results from class consciousness as an outcome of a progressively simplified class structure in capitalist societies (Lockwood 1992, 165). While Max Weber did not deny the importance of economic organisation for the development of societies, he explicitly highlighted the impact of religious orientations towards the world and the afterworld for the evolution of occidental rationalism, economic motives and forms of authority (Weber 1972).

Culture is often defined as a set of norms, symbols, values, and meanings which are part of a shared stock of knowledge in a given society or community (Rose 2019) and are reproduced via intergenerational transmission in families and educational institutions. In addition to this “inner” aspect of culture, which endows the actor with a system of orientation, culture also exists in an objectified state (laws or traditions) that is non-influenceable by a single individual (Parsons and Shils 1951, 58, 66). In liberal-pluralistic societies, interpretations of norms and symbols are flexible and there is no clearly defined “essence” of a culture (Wimmer 2013). On the other hand, properly operating societies need some minimum consensus on values, normative expectations and the meaning of symbols (Parsons and Shils 1951; Rose 2019).

Relational sociology agrees with the view that culture is not an “essence”. Rather than having clear boundaries, elements of cultures are related to each other like fuzzy-set clusters, as we know from social network analysis (Emirbayer 1997, 299; Emirbayer and Goodwin 1994). Surely, culture exists at different levels—in romantic relationships, small groups, but also in nation states or supra-national entities such as the EU. When analysing cultures at a global level, the challenge is thus to allow a sufficiently high level of abstraction, but at the same time to avoid the essentialist trap.

Culture and identity have become increasingly important issues in domestic politics in many Western countries, but also at the global level (Huntington 1996; Fukuyama 2018) as well as in debates on multiculturalism in culturally diverse immigration societies (Murphy 2012). Long before Huntington, cultural typologies were common in the field of business administration, particularly in the wake of Hofstede’s famous study (Hofstede 1984). Already in 1835, Tocqueville cautioned in his *Democracy in America* against simply copying the American political institutions if these institutions do not fit to the morally binding norms, values, customs and practices of citizens (*mores*) of other nations. In Tocqueville’s view, the Protestant culture the British colonisers transferred to the US, Canada, Australia, and New Zealand is very special and for example, South America and Northern Africa are characterised by considerably different *mores* (Basáñez 2016, 33). Tocqueville’s ideas on the cultural foundations of political institutions inspired Weber’s (1972) concept of

the legitimacy of authority. Weber's comparative analysis of the coevolution of religious thinking and political orders paved the way for Eisenstadt's (1986) studies on the multiplicity of world histories. According to Eisenstadt, different cultural spheres emerged in the wake of the breakthrough of ancient civilisations during the Axial Age between 800 and 200 BC, starting with early Israel and Greece, early Imperial China, the Christian late Roman empire and medieval Europe, Hinduism, Buddhism and, later, Islam. The course was set for different development paths into modernity.

Recent studies based on the World Values Survey reveal cultural differences between countries with respect to values and personality traits (Schulz et al. 2019). Western people tend more towards individualism and independence, to impersonal prosociality (e.g. trust in strangers), and less towards obedience and conformity (Hofstede 1984). In a global comparative perspective, Westerners are WEIRD people (western, educated, industrialised, resourceful, democratic) and seem to be rather the exception than the rule (Schulz et al. 2019). Westerners became WEIRD in the long run, because the Catholic Church imposed restrictive marriage policies directed against cousin marriages, thereby undermining historically prevailing clan structures. Indeed, length of exposure to the Western Church around the world correlates positively with indicators of the WEIRD culture (Schulz et al. 2019).

Introducing compulsory education is a useful policy to create literate citizens governed by the rule of law and formal bureaucracies (Weymann 2014). At the same time, however, compulsory education is to some degree also an individualiser and equaliser. The early adoption of compulsory education might thus correspond with the Western model of rational, bureaucratic order. In other words, the timing of adoption of compulsory education might depend on the respective civilisation or cultural sphere. There are numerous examples of how "cultural spheres" might have influenced the adoption of compulsory education.

In the mid-seventeenth century, a few years after the city of Boston was founded, the Massachusetts Bay Company, which was responsible for colonial administration, enacted a law for the financing of primary schools by means of local taxes (Brock and Alexiadou 2013; Rickenbacker 1999). This constitutes the first case of a colony creating the precursor to

state-financed education systems and showed that innovations developed in the colonies can also affect the colonial powers. With the Education Act of 1870, the British government turned minimum education until the age of ten into a public matter and took over the innovation of financing education by means of local taxes.

Prussia introduced compulsory education in order to ideologically consolidate the hierarchical structure of its society as well as to optimise the principle of order and obedience in the military. Further southeast, compulsory education was a means to build a coherent Ottoman culture and populace (Cicek 2012) in the Ottoman Empire when it was introduced in 1869. Instead of socially and culturally integrating the Empire, however, the legislation even “(...) helped the minorities to develop their own national education system” (Cicek 2012, 227).

Nevertheless, some nation states resisted the wave of compulsory education for a long time: After almost thirty years without any law in Singapore, the government supported ten years of compulsory education. However, home-schooling parents and especially the Malay/Muslim community attending mostly madrasah schools exerted pressure on the instigated committee to limit compulsory schooling to a minimum of six years, which was then, in the end, the duration of compulsory education introduced in 2003 (Tan 2010).

Sociological neo-institutionalism (Meyer et al. 1997) agrees that humans live in, and strongly depend on, self-created social and cultural environments (Henrich 2016). In the globalised world society, individuals and organisations are interested in common institutionalised standards when they interact across different national institutions. Due to the activities of international organisations, but also because of organisational efficiency (Weber 1972), the modern Western-type bureaucracy tends to spread around the world (Meyer et al. 1997). By converging to the Western standard, organisational forms become more and more similar, indicated for example, by the global diffusion of compulsory education. The implementation of institutions like formalised education serves just as much a political as a humanitarian purpose (Steiner-Khamisi 2013). The legitimisation of countries through the implementation of these institutions fosters their diffusion from Western “big league” countries to the Global South (Meyer et al. 1997). However, not only the compulsory

nature of schooling but also certain institutional structures thereof have spread around the globe: Ideals of education as a human right, basic organisational structures such as the organisation of schooling through ministries of education and statistical data collection and lastly the classroom principle as well as content and instructional forms all diffused over time from a Western origin outward (Anderson-Levitt 2007).

Is there indeed a global spread of Western culture and rational forms of social organisation world, so that, in the long run, different global cultures converge towards the Western rational and bureaucratic model? Or do we observe cultural diffusion within cultural spheres, rather than between them, because these spheres are separated from each other by (fuzzy) barriers?

If the theory of neo-institutionalism was right, the entire world would become WEIRD in the long run. We would expect no substantial effect of “cultural spheres” concerning the spread of compulsory education when we take state economic development into account. If “cultural spheres” were relevant in shaping diffusion patterns, however, we would find in our empirical study at least a moderate effect of cultural clusters on the diffusion of education policy.

3 Data and Methods

In the empirical part of our study, we analyse the worldwide diffusion of compulsory education from 1880 to 2010. To this end we collected a comprehensive dataset on cultural characteristics of $N = 164$ countries, including indicators of political liberties, the rule of law, gender roles, dominant religion, language groups, government ideology, classification of civilisation, and colonial past (Besche-Truthe et al. 2020). In the case of continuous measurements, for example, the index of gender relations, we generated quartiles. We organised the data as a valued two-mode network. Two countries are connected when they share a characteristic, for example, the same level of political liberties. Countries can have multiple relations to each other, for example, when they share the language group “Atlantic-Congo” in addition to the same dominant religion. A projection of the two-mode network on the vertex-set of countries results in a

valued network of countries, connected by their proximity in terms of cultural characteristics. The higher the cultural proximity between two countries, the higher the number of ties between them. Rather than homogenous clusters and clear-cut “fault lines” this method yields a network of “cultural spheres” with fuzzy boundaries and relations of varying intensity between countries. Since many of our binary cultural indicators are time-varying, the network is time-varying as well. Metaphorically speaking, the network is the underlying dynamic “pipe structure” for the diffusion process, and the number of ties in a dyad indicates the “pipe diameter”. We hypothesise that the higher the pipe diameter, the higher the “cultural exposure” of country A to country B, and vice versa. We also expect that with increasing “pipe diameter” the likelihood of “contagion” and adoption of similar policies should increase, given that this specific policy has not yet been adopted.

To test this, we use a discrete-time logistic hazard model. Our dependent variable is the absorbing destination state of the introduction of compulsory schooling (*no compulsory schooling* = 0, and *introduction of compulsory schooling* = 1). Once a country has introduced compulsory schooling it drops out of the risk set. Introductions before the window of observation begins (before 1880) are excluded from the risk set but contribute to other countries’ exposure. Introductions after 2010 are right-censored. We take our “cultural spheres” network as the underlying structure for calculating exposure to countries which already have implemented compulsory schooling. We apply the R package *netdiffuseR* (Vega et al. 2016) and calculate exposure by taking the ratio of weighted connections with countries that have adopted compulsory schooling and those that have not. If a country is only connected to those that have adopted compulsory schooling, exposure is 1; if none have adopted, exposure is 0. To be precise, we calculate the exposure weighted by the tie strength and lagged by one year, in other words, the exposure one year before we observe a possible introduction.

We hypothesise exposure to be a relevant driving force behind the introduction of compulsory schooling. However, the introduction of compulsory schooling might also depend on a country’s level of economic development. The process might be time dependent, at least it might show time dependency as a result of unobserved heterogeneity. We thus

control for time as a piecewise constant step function. As a control variable, we introduce GDP per capita (in 10,000 USD) and levels of democratisation (Bolt et al. 2018; Lührmann et al. 2018).

4 Results

The world maps in Fig. 13.1 show the introduction of compulsory education around the world as snapshots for the years 1850, 1900, 1950 and 2010. The global diffusion process started in a few countries in Northern and Central Europe spreads then to the Americas and Australia. By 1900, Japan and the Philippines have adopted compulsory schooling. By 1950, it becomes apparent that countries in sub-Saharan Africa have not yet introduced compulsory schooling, but by then China and Russia had adopted the policy. By 2010, only twenty out of the observed 165 states had not introduced compulsory schooling.

Overall, Fig. 13.1 shows a diffusion pattern of compulsory schooling which supports Meyer et al.'s (1997) argument of a spread of Western

Fig. 13.1 Diffusion of compulsory education around the world, 1850–2010

institutions across the globe. Compulsory schooling as an institutional concept originates in Western Europe. Diffusion follows the path of colonialism, especially in the English-speaking realm. This diffusion not only signifies the diffusion of institutionalised socialisation of the population, but also the diffusion of the interdependence of education, democracy and capitalism, of socialisation and the market. Alphabetisation through standardised education fosters a culturally homogenised civil society, and, at the same time, ensures the survival of state power by emphasising the importance of education for individuals’ participation in the labour market and identification with the state.

The initial hegemony of Western state formation can be visualised through the pattern of diffusion of compulsory schooling, originating in Europe, slowly covering the globe. The hegemony of the Western education states has since then run its course (Weymann 2014).

Table 13.1 shows four discrete-time logistic hazard models of network diffusion. Since we excluded countries that have adopted compulsory education before 1880, the analysis is based on $N = 153$ countries. We control for GDP per capita and levels of democratisation. Moreover, we control for time dependence using a piecewise function by dividing the

Table 13.1 Diffusion of compulsory education—cultural spheres network, discrete-time logistic hazard model of network diffusion, $N = 153$ countries

	Introduction of compulsory schooling			
	(1)	(2)	(3)	(4)
Rate t (0–24)	0.001***	0.001***	0.001***	0.001***
Rate t (25–49)	0.003***	0.003***	0.003***	0.003***
Rate t (50–74)	0.001***	0.001***	0.001***	0.001***
Rate t (75–99)	0.001***	0.001***	0.001***	0.002***
Rate t (100–130)	0.001***	0.001***	0.001***	0.001***
Cultural spheres netw.: w. exposure (lag 1 year)	135.441***	133.678***	180.853***	74.594***
GDP per capita/10000 USD	–	1.034	1.028	–
Democratisation	1.054	1.055	–	
Observations	8798	8798	8798	10098
Log likelihood	–558.696	–558.585	–559.115	–586.536
Akaike Inf. Crit.	1131.393	1133.171	1132.23	1185.071

Source: CRC 1342, Project A05, WeSIS data base

Note: + $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

process time in approximately twenty-five-year intervals. While GDP and levels of democratisation do not show any significant effects on the adoption rate, there is a strong and robust effect of exposure in the network of cultural spheres. The higher the (weighted) share of countries that have already adopted compulsory education, and to which the focal country is tied, the stronger the propensity to adopt compulsory education in the subsequent period, given that the focal country has not yet adopted. This result of the macro-quantitative network diffusion model is an empirical test of whether the short showcase narratives presented above represent the overall pattern of diffusion within cultural spheres. The cultural spheres network is indeed a crucial underlying structure for the diffusion of compulsory education. However, such large hazard ratios, which we see in Table 13.1, can indicate endogeneity—which is not the case here. We also find similarly strong effects of spatial proximity (not shown here), which is, unsurprisingly, confounded with the cultural spheres. Rather, the diffusion process follows quite strictly the relational structure given by the weighted exposure in the cultural spheres network, that is, cultural proximity of countries.

5 Conclusion

In line with studies from evolutionary and cultural anthropology, we argued that cultures differ at the global level for example in terms of individualism, impersonal trust and autonomy—which are personality traits of modern, WEIRD individuals. Consequently, today's WEIRD culture relies on properly operating and legitimate state institutions, which are the modern form of social order, in contrast to pre-modern clan societies. There is a multitude of cultural indicators such as dominant religion, gender role orientations, political liberties and language groups, which co-vary with these traits. Culture in terms of literacy and basic education is a prerequisite of the modern state (Weymann 2014). Standardised public education often increased the WEIRDness in the population and it is not surprising that the propensity to establish such educational programmes differed considerably over history between nation states.

The global diffusion of compulsory education started in the late eighteenth century in Central and Northern Europe. It is almost complete today, as expected by the proponents of neo-institutionalism (Meyer et al. 1997). Public education systems organise the reproduction of culture and often provide efficient governability of the literalised population by legitimising state activity. These theoretical considerations motivated our hypothesis that the global diffusion of education policy, in this case the introduction of compulsory education, depends on “cultural spheres”. We developed this concept as a response to classifications of cultures that ignore their fuzzy-set nature and their overlapping boundaries. Valued two-mode network analysis connects countries via shared cultural characteristics, which is a highly promising approach to measure and analyse culture. Countries resemble each other to varying degrees, depending on the number of shared cultural characteristics. In our analysis, we proved that an increasing share of ties in the “cultural spheres” network to countries which already had adopted compulsory education increases contagion and the rate of adoption. Shared cultural characteristics increase the likelihood of diffusion of this basic educational institutional policy, which means that cultural spheres strongly mediate the global diffusion of rational state organisation.

Future research should enhance our theoretical and empirical approach, for example, by simultaneously including different kinds of networks, for instance networks of transnational trade, or two-mode networks of membership in international organisations active in the field of education.

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