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Convergence and Divergence in Welfare State Development: An Assessment of Education Policy in OECD Countries

Anja P. Jakobi
Janna Teltemann

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Universität Bremen • University of Bremen
Jacobs Universität Bremen • Jacobs University Bremen
Universität Oldenburg • University of Oldenburg

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Universität Bremen
Sonderforschungsbereich 597 / Collaborative Research Center 597
Staatlichkeit im Wandel / Transformations of the State
Postfach 33 04 40
D - 28334 Bremen
Tel.:+ 49 421 218-8720
Fax:+ 49 421 218-8721
Homepage: http://www.staatlichkeit.uni-bremen.de

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ABSTRACT

In this paper, we quantitatively assess education policy change in OECD countries. While research in social policy has shown that convergence in welfare provision can only partially be assessed in OECD countries, it has yet to be assessed to what extent this also concerns the sector of education. By distinguishing educational expenditures, educational governance and educational outputs, we analyze this sector for OECD countries since the 1990s. The paper is structured as follows: We first outline the importance of education and schooling in contemporary social policy. In a second step, we present concepts of convergence and divergence in welfare state development, concluding with assumptions on the state of education policy. In a third step, we present the data and methods used. Afterwards, we track changes in educational expenditures, educational governance and educational outputs. In a concluding section, we compare the findings and outline their significance for research on policy convergence and social policies, as well as for internationalization of education policy. The paper has a mainly empirical aim, contributing to the debate on policy change and convergence in social policy.

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Convergence and Divergence in Welfare State Development: An Assessment of Education Policy in OECD Countries.

INTRODUCTION

In recent years, education has become an important issue in election campaigns and the public debate (Jakobi 2009). As an assumed precondition of success in a global knowledge society, education receives much attention, while training and active labor market policies have been discovered as a further means for a vast array of social problems. In this context, education has moved center stage in social policy, being linked to ‘activating’ or preventive social policies instead of redistributive measures. In the meantime, political science has discussed the impact of globalization on social policy and the growing importance of international politics and the economy on the welfare state. However, findings show that there is neither a universal reduction of welfare spending, nor do other parts of the welfare state – such as pensions or health care – converge across countries (Starke et al. 2008). Thus, countries still demonstrate a large number of differences in welfare provision, so that a ‘race to the bottom’ has not occurred. In this paper, we assess to what extent this is also true for the educational sector, showing in particular how educational expenditures, educational governance and educational outputs have changed within the last decade in OECD countries. As shown, changes in education systems are more often discussed than realized. An overall transformation of the state in education, thus, remains limited and convergence is only partially determined.

This paper is structured as follows: In the following section, we outline the relationship between education and schooling and contemporary social policy. In a further step, we present concepts of convergence and divergence in welfare state development, concluding with assumptions on the state of education policy. Afterwards, we present the data and methods used. We mainly rely on OECD data, as published in the context of the ‘Programme of International Student Assessment’ (PISA) and ‘Education at a Glance’, supplemented by World Bank data. In further steps, we then track changes in educational expenditures, educational governance and educational outputs. In a concluding section, we compare the findings and outline their significance for research on policy convergence and social policies, as well as for internationalization of education policy. The paper has a mainly empirical aim, contributing to the debate on policy convergence in social policy and beyond.

EDUCATION AND THE MODERN WELFARE STATE

In recent years, education has climbed high on policy agendas, accompanied by discussions on the future of national competitiveness. In a knowledge-based society, education is considered crucial to ensure competitiveness and long-term economic success (Rodrigues 2003, Jakobi 2007b). In the meantime, discussions on social policy have repeatedly underlined the need to shift from redistributive measures to ‘activating policies’, enabling individuals to become a productive part of society (e.g. Gilbert and Gilbert 1989, Andersson 2005). By such accounts, education and training have a key role to play in delivering knowledge for future professionals, but also providing opportunities for enduring employability of individuals. In the framework of social policy, the traditional role of education – and in particular the role of initial education – has been the provision of life-chances (Leisering 2003). Governmental failure to provide adequate education can thus cause individual poverty with regard to education (Allmendinger and Leibfried 2003). While security systems, for example unemployment benefits, were mainly related to secure status, redistribute income or provide at least minimal support for those who were ‘unproductive’ as well, education was targeted at enabling a good start and progress throughout the working life. In the 1970s, and in particular due to an ever prolonged period of initial education, initial discussions emerged that questioned this ‘front-end model’, emphasizing the need for continuous training over the whole life span (e.g. OECD 1973).

These early international discussions on recurrent education, however, lacked substantial impact and it was not until the 1990s that other models of educational provision were debated intensively, thus also leading to a gradual shift in the role of education among other social policies (see Jakobi 2009 for the following). For example, different international organizations emphasized the growing need for education in the context of labor market policy and the economy: The 1993 White Paper ‘Growth, Competitiveness, Employment’ (EU Commission 1993) already emphasized the critical issue of employability and the need for training. The 1995 White Paper also underlined the need for further training and outlined the launch of a European Year of Lifelong Learning (EU Commission 1995:4). This event, held in 1996, was the first major event concerning the explicit promotion of lifelong learning in the EU. At the end of the European Year, the Council adopted comprehensive conclusions on a strategy for lifelong learning in diverse areas of education, from pre-school to accreditation and teachers (European Council 1996). Central aims of the European lifelong learning policy were employability and active citizenship (EU Commission 2000:5). Therefore, since the 1997 Luxembourg European Council and its emphasis on employability, lifelong learning has become ‘a horizontal objective of the European employment strategy’ (European Council 2002:1). This development reached a peak with the 2000 Lisbon

summit and the establishment of the Lisbon strategy with education as a key issue. As a precondition to become the most competitive, knowledge-based economy in the world, education further climbed on the EU agenda. Moreover, the Lisbon meeting established the Open Method of Coordination as a means of promoting coherent policies throughout Europe. Education, thus, had been identified as a key means for future European economic and labor market policies. A similar development can be assessed in the OECD context: The 1994 ‘OECD Jobs Study’ had already emphasized the need for further qualifying the labor force (OECD 1995:15). The results of the ‘Adult Literacy Survey’ had further illustrated a partly serious lack of competencies among adults, which underlined the importance of further qualification (OECD 1996:237-8). The OECD’s 1996 ministerial meeting was concerned with ‘Lifelong Learning for All’ (OECD 1996:21). The meeting outlined strategies on how to facilitate lifelong learning on the individual level. Drawing on the established indicators program, from 2000 on, the OECD established PISA, which tests competencies in reading literacy, mathematics and science of 15-year olds in the OECD world and beyond (Jakobi and Martens 2007, Martens 2007). The results partly led to harsh reactions and discussions on the extent to which the school system is able to educate the younger generation for occupations in a knowledge-intensive and competitive world economy.

This short introduction to current education policy shows that education is seen today as an important factor for future national competitiveness and individual employability. However, the several parts of the educational system differ in what is expected from them: pre-primary education is often conceptualized as the preparation for schooling, serving early integration in learning activities but also in society. Higher education is conceptualized as the most qualifying training for knowledge-intense occupations. Further education and training is thought to guarantee lifelong learning activities for those already in the workforce. Schooling, thus primary and secondary education, is a special part of the education system, since it represents the stage in which the state most drastically interferes. In most countries worldwide, schooling is compulsory and curricula are set by governmental actors, who define common and obligatory knowledge for the young citizens.

It is against this background that comparative school assessments such as PISA have gained importance: By testing the knowledge of pupils at the end of compulsory schooling, they compare the amount and the applicability of knowledge that was gained in school. Results thus relate directly to the outcome of a mostly publicly financed social sector which is expected to be highly productive. Accordingly, countries are put under pressure to provide an efficient education system, and the growing importance of education in most OECD countries mirrors these expectations (Jakobi 2009). However, it is unclear whether countries have indeed reformed education, or whether international

comparisons and the talk of the knowledge-society remained without effect. In this paper, we analyze whether changes can be assessed empirically. Following from the importance that education has, one could, for example, expect rising expenditures, in particular in relation to other welfare expenditures. Given that international benchmarks and good practices exist, one can also expect countries to increasingly align themselves with them. These factors would cause policy convergence over time, i.e. the tendency to establish similar policies. However, given that education systems are part of national social policy and that their development is likely to show a high degree of path dependency, countries can maintain differences even when political rhetoric becomes increasingly similar across countries. Policy research as well as – more specifically – welfare state research discussed these developments policy convergence or divergence (see e.g. Starke et al. 2008, Pierson 2001).

CONVERGENCE AND DIVERGENCE IN SOCIAL POLICY AND EDUCATION

Given discussions on globalization and its impact on welfare state development, research on social policy has faced many debates on expected welfare state transformation. Starke et al. (2008) sum up this discussion by outlining two venues of expected change: Countries can be expected to converge in their welfare development, which means that they become more similar over time due to the confrontation with similar problems, due to transnational communication, or a ‘race to the bottom’ (compare Holzinger et al. 2007). However, drawing on Pierson (2001) and his idea of a strong path dependency of welfare states, policy reforms are unlikely to result in convergence, but remain distinct. Moreover, the political system of a country has a major part to play in determining policy responses to given problems, so that similar problems can nonetheless provoke very different political answers. By comparing different social policy fields, Starke et al. found both convergent and divergent trends in social policy, whereas slight convergence generally prevailed, while some sectors – such as decommodification – did not change.

However, their findings only relate to some sectors, for example unemployment benefits or social expenditures in general, and not to education policy. This yet represents a typical situation in welfare state research: Although education is a universally and long established part of national social policy, debates in social policy often exclude education, or at least do not include it. This is even more astonishing since the relationship between education and work has been discussed for a long time – centered on the extent to which education is conceptualized as a preparation for the labor market or as a matter of individual development (Entwistle, 1996:186). Nonetheless, path-breaking work such as Esping-Anderson’s *Three Worlds of Welfare Capitalism* did not include education in the idea of welfare regimes and their degree of decommodification

(Esping-Andersen 1990). And still, recent books on social policy emphasize the lack of education in the standard account to the field (Hill 2006, Opielka 2004, 2006). In this paper, we link our interest in changing education policy and provision to questions of policy convergence and divergence in social policy. We assume that, even if education is still a more ‘exotic’ part of the welfare state to most social policy researchers, questions on convergence and divergence, on the common problems to which countries are exposed, on transnational communication and on other issues equally affect the provision of education.

As in other fields of social policy, education systems could be expected to converge across countries for several reasons: Based on the scheme of Holzinger et al. (2007), we can identify five causal mechanisms for policy convergence: First, states can be confronted with problem pressure and establish a similar policy independently to solve this problem. For education, this could mean that countries are confronted with similar problems and the independent adjustment of policies results in convergence. Second, imposition might be involved, as in the case of international regulations. In education, this could be linked to regulations in the frame of the GATS or also to World Bank policies (Verger 2008, Rose 2003). However, neither the GATS has had a large impact on national education systems in OECD countries, nor do World Bank policies usually broadly affect them, so that imposition is less likely to be relevant here. Third, harmonization, for example through EU regulations can be a further cause for convergence. However, the EU is traditionally weak in education policy, as only minor parts, such as vocational education, have been subject of European concern (Jakobi and Rusconi 2008). With the rise of the Bologna process and the Open Method of Coordination (De Ruiter 2009, Balzer and Rusconi 2007), this has partly changed, but not in a way comparable to other policy fields. A fourth reason for convergence is international competition, resulting in a race for regulations that support financial investments. The idea of a ‘race to the bottom’ in social standards has essentially been influenced by this. In education, markets have only recently developed and international competition is not yet well-developed. However, the establishment of a European BA/MA structure comparable to the US higher education system could be linked to assumed competition for highly skilled and fee-paying students. The fifth cause of convergence is transnational communication and policy learning. Countries exchange with one another with regard to political problems and best practices, and it is likely that good ideas are also implemented subsequently in other countries. In education, PISA studies provide examples for good practices, and OECD forums or the Bologna meetings can further stimulate communication and learning.

However, education is still much influenced by the national history and the role that education has therein. In higher education, for example, several models of university

governance exist, ranging from a the Humboldt model to more state centered and market models (see e.g. Dobbins 2009). We can thus expect intervening factors such as past developments, the different extent of problem pressure and the like to result in persisting divergence of national education systems. Holzinger et al. (2007) list geographical proximity, cultural, social and political similarities as factors that can enhance convergence. Also the type of policy, the problems linked to it or the grade of specificity that a disseminated policy has may also have an influence

In the following sections, we analyze the degree of change and convergence that national education systems have demonstrated in the last decade. Debates on education have increased sharply since it has become part of international comparisons and strategies linked to sustainable economic growth in the knowledge-based society. We are particularly interested in three dimensions of possible change:

(a) Educational Expenditures: Questions that arise in this context are: how expenditures for education have developed in the context of welfare state expenditures and whether we can observe a rise towards a common level of educational expenditures. Further, given that welfare financing has increasingly been put under pressure, the question arises whether private funding of education has grown across countries.

(b) Educational Governance: Questions that emerge in this context are: whether welfare state provision has experienced a transformation of the state and its governance. In other welfare fields, the state has increasingly retrenched towards the regulation of social sectors, but it is unclear to what extent this also relates to education. The relationship between the state and educational provision is thus of central interest here.

(c) Educational Outputs: Given that education is under high scrutiny by the public and that it is assumed to be a significant factor for further economic development, the question arises whether the outputs of the education systems can actually match these high expectations. Thus, questions that are important in this context are whether learning conditions have become better or if the population’s level of educational attainment has increased over the years.

These fields represent analytical distinctions based on basic questions in policy analysis. They are not clear cut, so that education governance also represents the outcome of earlier policy decisions. However, these categories allow us to analyze three important relations between the state and the education system, namely the resources invested in education, the way it is administered and the results education policy produces. Tracking changes in the three fields thus provides a detailed picture of the current state of the art in this welfare sector, and could shed light on which fields are more or less likely to converge.

DATA AND METHODS

Comparative data on education has faced many changes in the last decades, which causes some problems for research and also shows how political this data construction is. Until the late 1990s, UNESCO and its statistical yearbook used to provide data on education systems world-wide, but this ‘monopoly’ has been weakened by more outcome-oriented and policy-relevant indicators of the World Bank and the OECD since then (Cusso and D'Amico 2005, Jakobi 2007a). Besides having more providers of educational data, a further consequence was that the emphasis of UNESCO data and its indicators were changed in 1998, so that, in general, longer time series analyses relying on UNESCO data can only be done with great caution today. In addition, our indicators are not available for the time before this. In the meantime, data-based programs such as PISA have many new indicators in tow, so that today much more comparative education data is available than ten or twenty-years ago, but most of it unfortunately only covers the last ten years or less.

The main providers of these international education statistics today are the OECD, the UNESCO and the World Bank. In practice, it is difficult to distinguish their different roles, since some data is shared (for example by the World Education Indicators) but available via different online queries or publications that focus on specific sets of countries or indicators. Accessing data from different sources might thus result in exactly the same figures, so that there is less variety in indicators than one could assume when three major organizations collect and publish data. Another dataset, the UNESCO/OECD/EUROSTAT (UOE) database on education statistics is compiled on the basis of national administrative sources or reported by Ministries of Education or National Statistical offices.[1] It follows international standards, definitions and classifications of educational systems and therefore allows for comparisons. The collected annual data cover the outputs of educational institutions, policy levers that shape educational outputs, human and financial resources invested in education, structural characteristics of education systems as well as economic and social outcomes of education. Comparably, the World Development Indicators (WDI) publication is the World Bank's premier annual compilation of data about development. The 2008 WDI includes more than 800 indicators, among them 85 indicators on Education.[2]

The diversity of data sources and the considerable number of indicators raise the impression of a considerable good data base. However, a deeper look at selected indicators reveals that missing data is a huge problem with regard to education statistics. Even in

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1 Data can be accessed via www.oecd.org/education/database.

2 Data can be accessed via http://go.worldbank.org/U0FSM7AQ40. Our data includes the most recent indicators, which are from 2006 only.

the context of OECD countries, usually a geographical area on which much data can be found, missing values are thus regularly part of statistical work on education. Additionally, some fields linked to educational provision are obviously more elaborated than others: For example, indicators on financing education are rather comprehensive, while the educational profession – thus data related to teachers – is less elaborated. Another problem related to PISA data is the low number of measurement points for time series analyses. Since the assessment has been conducted three times until today, there is only data on 2000, 2003 and 2006. Nevertheless, given the high importance and quality of some PISA-related indicators, we also conducted analyses based on these three years only. Given these different constraints, we generally restricted our analyses to a set of indicators that covered as many OECD countries as possible, but that also only has few missing values throughout the years investigated. We partially made imputations for missing values or excluded extreme outliers that obviously were statistical artifacts. The annex contains a detailed list of all indicators, sources and operations.

As outlined in the theoretical part, we use this data to assess policy convergence, the establishment of similar policies over time across units of analysis – in this case, countries. Measuring policy convergence in general requires time series that cover a preferably long time period, since policy change and thus resulting policy convergence usually takes place incrementally. Particularly the assessment of ideas and persuasion as part of the policy-making process requires a long-term perspective. As a consequence, implementation studies tend to assess consequences of policy change only after ten years or more (Héritier 1993:17-18). Heichel and Sommerer also implicitly assume ten years to a short time for assessments of convergence (2007:113). The assessment of change is thus necessarily bound to an adequate time of observation.

This fact may constitute a problem linked to our data, but also to our subject of inquiry: Available data only covers the last ten years at maximum. On the one hand, we can thus provide only a snapshot of ongoing convergence processes, if at all. On the other hand, finding convergence already in this shorter period would provide an impressive picture of international change in this sector of social policy. Moreover, with regard to the subject of inquiry, we face the fact that internationalization processes – one source of policy convergence – as well as the rise of education on political agendas – thus problem pressure – is a rather recent development, having taken place in the course of the 1990s. Longer time series would, thus, not necessarily be useful given the theoretically assumed divergence in most of the period covered then. Additionally, it is a consequence of this growing importance that educational indicators exist at all. Thus, despite the difficulties linked to a short time period in change-related research, we consider the available data to be adequate for our aim.

To assess convergence, we follow the approach outlined in Heichel and Sommerer (2007:117-22), mainly focusing on σ-convergence (sigma-convergence). Measurements of convergence are most often based on comparisons of the variation of policies at different points in time, using statistical measures of dispersion as the range, the standard deviation or the standardized coefficient of variation that represents the ratio of the standard deviation to the mean. In particular the latter indicates convergent or divergent developments: While standard deviation and range are dependent on the scaling of the absolute values and vary with their size – which means that e.g. growth denoted by a higher mean value induces a higher standard deviation – the coefficient of variation can remain constant or decrease in such cases if the increase of the standard deviation is relatively lower due to increasing homogeneity. We thus measure the variation of values, and if its measures are declining over time, we assume σ-convergence. We chose a mainly descriptive approach since data availability in our case is rather limited.

Nonetheless, we applied Levene's robust test for the equality of variances to verify if the observed differences in variances are significant. The Levene test calculates the absolute value of each observation's difference from its group mean and then performs an analysis of variation on these absolute deviations (see Glaser 1983, Loh 1987). More precisely, we applied Levene's robust test statistic with the mean value to measure the spread within the groups. For this, we structured our data as long-format to be able to use the variable "year" as grouping variable. Thus, every year has been included in the analyses and not only the first and last year of the respective considered time period. In this case, a significant result will be reported when there is a significant difference between any two years of the respective time-period.

However, the power of Levene's test depends on the sample size. In small samples as in our case, large differences between variations may remain undetected leading to underestimated significance (see Field 2007:443). Therefore, we additionally applied the non-parametric sign test, which is less demanding as regards the quality of the data (see Siegel and Castellan 1988: 81-83). We did this by comparing the first and last year of measurement and allocated either a positive or a negative sign to each observed change and afterwards applied the test statistic to prove if the observed changes are significant or by chance. Since we applied this procedure only with the first and last year, in some cases, the sign test is not significant although Levene's test did report significant results. The sign test thus tests if a significant number of countries showed any change in a common direction; it does not account for the size of the observed changes.

A second statistical concept of convergence is the idea of β-convergence (beta-convergence), a measure to assess a process of 'catching up'. β-convergence is a necessary condition for the emergence of σ-convergence. The underlying hypothesis is that countries with a higher starting level show lower growth rates (if an indicator is as-

sumed to grow over time). Thus the statistical proof of β-convergence is a negative relationship between the starting value and its subsequent growth rate: the higher the starting value is, the lower the increase is assumed to be. The same relation holds for indicators that are assumed to decline over time. The lower a country's level already is, the lower the decline will be, thus the higher the starting value is, the lower the growth rate will be. Like Starke et al. (2008), we use a simple pair wise correlation (Pearson's r) between the starting value and the subsequent growth rate and test, if it is significant to prove the existence of β-convergence. In both tests, the level of significance was set at .05, and the number of countries was held constant over the respective time period to avoid divergence due to a changing sample size.

In principal, we can thus use three measures of dispersion and two tests of significance to assess convergence, which differ in what exactly they measure and which changes they consider to be statistically significant: The range gives us the corridor in which the values are spread, the standard deviation the density of the dispersion[3] and the coefficient of variation the relation of the standard deviation and the mean value. We rely on the latter, scale-independent measure to indicate convergence or divergence, but give the other measures for information in tables. Nonetheless, even if we can determine convergence with the coefficient of variation, this does not necessarily signify a significant change. Thus we also use the sign test to show whether changes are statistically significant. Of all analyses presented here, this is only the case for enrolment in preprimary education and tertiary graduates in technical fields. The more elaborated test of significance is the Levene-test; however, given the slight changes and the low number of cases we determine significance only with regard to the ratio of public and private spending in tertiary education. In effect, we therefore mainly rely on the coefficient of variation as an indicator and interpret our findings accordingly.

We analyze the data distinguishing three dimensions of education policy: educational expenditures, educational governance and educational outputs. While these dimensions provide a comprehensive picture of the education sector, they are not necessarily clear-cut: For example, the financing of teachers concerns both the financing of education as well as the conditions for the profession. However, as the following analysis shows, the categories represent useful guidelines for the inquiry, in particular since they are related to a different emphasis in the current political discussion. We mainly focus on secondary education, since this represents a stage where schooling is usually still compulsory

[3] If a normal distribution can be assumed, 68 per cent of all cases have a value that lies within the range of the mean value plus or minus one standard deviation, and 95 per cent of all cases will score within the range of the mean plus or minus two standard deviations. The absolute range is thus in general about four times as high as the standard deviation if there are no extreme outliers.

– thus welfare state-induced – and for which many data are available. Partly, due to data restriction or for comparing different sectors of the education system, we also included data on primary and tertiary education.

CHANGES IN EDUCATIONAL EXPENDITURES

International studies have frequently listed the different levels of educational expenditures across countries. As investments in the future, educational expenditures are seen as a necessity to secure economic growth in a knowledge-based society. In the same time, expenditures represent ‘hard facts’ in politics, and they clearly show whether or not the rhetorical emphasis on education actually has any consequence in budgeting. Expenditures are also dependent on the amount of school-aged children, but Schmidt also showed how factors as federalism, competing social security systems or party politics also influence them (Schmidt 2003).

Depending on the education and welfare system, for example on existing fees, educational expenditures vary in the share of private and public investments. Although not being fee-based, German private educational spending is rather high: They also include the dual system of vocational education, where a large part of educational investment stems from the economy (Schmidt 2003:7). To compare educational expenditures and to examine possible processes of converge, we analyzed four different indicators: The expenditure per student as GDP per capita (linked to secondary education), the total public spending on education (as percent of GDP), and the ratio of public and private expenditures.

Expenditure per student

Expenditures per student signify the financial importance that education has in comparison to other expenditures, independently of whether the financing stems from private or public sources. Our indicator measures the current public spending on secondary education divided by the total number of students by level, as a percentage of GDP per capita. Public expenditure (current and capital) includes government spending on public and private educational institutions, education administration as well as subsidies for private entities.

Table 1 shows that, on average, about one quarter of GDP per capita is spent on secondary education. To give an example, the GDP per capita in Sweden accounted for 32 298 US Dollars in 2005. Of this, Sweden spent 33.45 per cent on education per student. In nominal terms this about 11,000 US Dollars spent for every student in Sweden in 2005. Over the years, spending on education has risen; there is a slightly increasing trend. However, the mean value in 2005 is lower than in 2004, so that this trend might

be stopped. The lowest value can be found in the Slovak Republic with 15 per cent in 2005, the highest by contrast in Portugal with 35 per cent. We observe a comparably high increase in Portugal and Sweden, whereas Denmark, the Slovak Republic and the United Kingdom reduced their spending.

Table 1: Public Expenditure per Student as a Percentage of GDP per Capita, Mean Values 1999-2005

Year	Mean	Coefficient of Variation	Standard Deviation	Range
1999	23.64	0.25	5.82	23.89
2000	23.53	0.23	5.45	24.41
2001	24.01	0.21	5.10	20.06
2002	24.37	0.22	5.38	21.62
2003	25.23	0.21	5.38	20.60
2004	25.63	0.23	6.01	20.80
2005	24.96	0.24	5.96	20.67

However, while countries thus generally seem to spend more on education, we cannot find a clear trend with regard to homogeneity or dispersion; thus a large variation still exists. The standard deviation rose over the seven years analyzed here, whereas the standardized coefficient of variation decreased over three years, but seems to increase again since 2003. Since 2002 the range has decreased. We cannot assume convergence with respect to this important indicator. The correlation between the starting value and the overall growth rate amounts for -0.33 and is not significant either. Thus we cannot assume β-convergence either. Education spending continues to remains rather distinct across countries.

Total public spending on education

A second important indicator in this respect is the total public spending on education as a percentage of GDP. Public spending here consists of current and capital public expenditure on education and includes government spending on public and private educational institutions, education administration as well as subsidies for private entities (students or households). This indicator thus tells us whether or not financing education has become a higher governmental priority.

On average, 5 per cent of the gross domestic product is spent on education (see table 2). In 2005, the figures varied between 3.5 per cent in Japan and 8.3 per cent in Iceland. Overall, spending increased during 1998 and 2005 from an average 5.23 per cent of GDP to 5.45 percent. The highest increase can be found in Greece and Mexico. Seven of 18 countries reduced their spending between 1998 and 2005. At the same time, the measures of dispersion indicate more homogeneity across countries. They thus have

become more similar in terms of the level of spending: The standard deviation, the coefficient of variation and the range decreased during 1998 and 2005, thereby suggesting σ-convergence. With regard to our test for β-convergence, the correlation between the starting value and the overall growth rate is relatively strong and significant with a value of -0.55, which means that countries with lower spending in 1998 had a higher growth rate during 1998 and 2004 than countries that already showed high expenditures in 1998. Thus, we can say that public spending on education has converged, even if statistical significance can only be found for the β-dimension of convergence.

Table 2: Total Public Spending on Education as % of GDP, Mean Values 1998-2005

Year	Mean	Coefficient of Variation	Standard Deviation	Range
1998	5.23	0.26	1.38	4.91
1999	5.18	0.25	1.28	4.60
2000	5.20	0.23	1.21	4.62
2001	5.32	0.23	1.22	4.80
2002	5.44	0.24	1.30	4.79
2003	5.55	0.23	1.25	4.57
2004	5.50	0.22	1.22	4.76
2005	5.45	0.21	1.15	4.73

Ratio of public and private expenditures in education

Even if public spending grows, these figures do not tell whether private spending is even growing faster, rendering education a welfare good that is increasingly privatized. Our indicator to assess this relation is the ratio of government direct educational expenditures at all levels (local, regional or central) divided by the sum of all private educational expenditures (households, firms, international agencies) for all educational programs in primary and secondary education.[4] Thus, the value increases the more government expenditures exceed private expenditures.

Figures reported in table 3 indicate that, on average, government expenditures on primary and secondary education are 15.3 times higher than private expenditures in this area (2005). There is a significant variation as the range indicates. The ratio varies from 3.3 in Korea to 47.2 in Denmark. The trend between 1997 and 2005 is unclear; accordingly the heterogeneity across the 25 OECD countries analyzed here remained more or less stable. Our statistical tests for convergence thus do not report any significant coefficients.

[4] Data on this indicator is not provided separately for primary and secondary education.

Table 3: Ratio of Public and Private Spending on Primary and Secondary Education, Mean Values 1997-2005

Year	Mean	Coefficient of Variation	Standard Deviation	Range
1997	13.41	11.71	11.71	45.83
1998	12.96	10.95	10.95	43.88
1999	13.42	10.28	10.28	39.87
2000	14.13	9.76	9.76	41.27
2001	14.56	10.57	10.57	45.11
2002	16.08	11.88	11.88	44.45
2003	17.49	14.55	14.55	54.28
2004	15.58	12.54	12.54	42.29
2005	15.33	11.43	11.43	43.66

Given the – theoretically – strong welfare component of primary and secondary education, this divergence is astonishing and signifies large existent and continuing differences in the public provision of education. We compare these figures with similar values on tertiary education, an educational stage that is most often assumed to provide mainly private benefits – compared to primary and secondary education where public benefits of a well-educated population prevail. Private engagement in tertiary education is thus much more common than in compulsory education. Again, the ratio represents the relation of government expenditures to private expenditures.

Table 4: Ratio of Public and Private Spending on Tertiary Education, Mean Values 1998-2005

Year	Mean	Coefficient of Variation	Standard Deviation	Range
1998	12.19	1.77	21.62	91.07
1999	11.06	1.76	19.48	80.40
2000	7.97	1.33	10.58	40.60
2001	7.55	1.37	10.33	44.81
2002	7.59	1.38	10.49	46.17
2003	5.59	1.17	6.54	28.95
2004	5.53	1.20	6.65	29.12
2005	5.18	1.27	6.60	29.05

Table 4 shows that the mean values are lower than the figures for primary and secondary education, which signifies the higher private financial engagement on this educational stage. Values show a remarkable decrease since the year 2000: The mean value in 2005 accounts for less than one half of the 1998 mean. In 2000 the ratio varied from 0.2 in Korea to 91 in Austria. In 2005 Korea was still the most privatized country with a

ratio of 0.32, Denmark by contrast the country with the highest ratio (29.3). The most remarkable change features Austria, here the ratio only accounted for 13.1 in 2005, thus for about one seventh of the value in 1998.[5] Iceland and Portugal also show considerable tendencies of privatization. Ireland by contrast is a country, in which private engagement in tertiary education decreased. The measures of dispersion decreased widely. The sign test does not indicate a significant change of the mean values between 1998 and 2005, which means that the number of countries that reduced the ratio is not significantly higher than the number of countries that increased the ratio. However, Levene's robust test for the equality of variances between groups is significant, showing statistically significant σ-convergence in this case.

In sum, we can thus say that education financing is partly subject to convergence, and particularly in the sectors that are not closely linked to the welfare function of the nation state: While in primary and secondary education, education financing differs across countries, tertiary education financing is clearly converging. It thus seems that the sectors that are closely linked to the welfare sector are rather divergent in their development. This observation is also supported when analyzing the linkage of welfare state expenditures and educational expenditures: In fact, the correlation between the total spending on education as a percentage of GDP and Social Expenditures (e.g. for health, unemployment and housing) as a percentage of GDP is positive and moderately strong, but has decreased considerably since 2000 (see table A-1 in Annex). This means that countries with high expenditures on education also used to spend much on general social expenditures, but this relation seems to become weaker. A lack of welfare state convergence is thus likely to impact on education policy, too, but this might change in the future if the linkage of both fields continues to become weaker.

CHANGES IN EDUCATION GOVERNANCE

While education financing represents the relative importance of education compared to other expenditures, educational governance represents the relation between the state and this sector. The education system might be organized in a hierarchical way, representing a strong steering capacity of government; it can mainly rely on market mechanisms and private providers, or – most realistically – it can be organized by a combination of theses approaches. We assess the dimension of educational governance by three indicators: the instruction time, the autonomy of schools and the share of private institutions.

[5] The drastic change in Austria is most likely to result from the country-wide introduction of tuition fees for higher education in 2000. In 2008, they were again abolished by a parliamentary majority (see e.g. http://www.spiegel.de/unispiegel/studium/0,1518,580481,00.html).

Instruction Time

Instruction time pertains the time that children are expected to spend in learning activities and from a welfare perspective it represents the time during which educational service is provided. Although learning time does not necessarily correlate with learning results – which means that the hours taught do not reveal anything about the quality of this teaching – we can expect countries to at least strive for similar service time, in particular with regard to the value of knowledge for a competitive global economy.

Teaching hours represent one possible approach to instruction time. Our indicator reports the number of hours taught per year in public lower secondary educational institutions, thus representing the time that children are expected to spend on classroom learning.

Table 5: Teaching hours per year, Mean Values 1999-2006

Year	Mean	Coefficient of Variation	Standard Deviation	Range
1999	708.70	0.17	121.99	457.00
2002	728.13	0.23	170.68	613.00
2003	716.83	0.22	155.97	572.00
2004	712.13	0.22	154.86	580.00
2005	714.78	0.22	155.01	580.00
2006	717.91	0.21	153.91	580.00

As table 5 indicates, the average number of teaching hours in 2006 is about 708 per year. However, we can observe large differences: There is a considerable standard deviation of 153 hours and accordingly a broad range of 580 hours. The United States have the highest value with 1080 hours, whereas in Greece children spend less than half this time in class (500 hours). The mean value increased by almost 10 hours since 1999 and the measures of dispersion increased accordingly. Thus, instructional time seems to have risen, but was not accompanied by more homogeneity across countries. Our statistical tests correspondingly do not report significant results.

The number of years that children have to spend in school is a second approach to instruction time. The duration of secondary education varies between two years in Belgium and six years in Germany and Lithuania. A change in the duration indicates a substantial adjustment of the educational system and is therefore not likely to occur. Thus, there are only four countries that recorded a change between 1999 and 2007. Among them are three Eastern European countries: Estonia and Poland switched from two years to three and Lithuania from five years to six. Spain prolonged secondary education from two to four years. With regard to compulsory education, usually a combination of primary and secondary education, data is available for every OECD country for the years 1999-2006. The duration of compulsory education varies between 9 (e.g. Turkey, Po-

land, Korea) and 13 (e.g. Netherlands, Belgium) years. The mean value is 10.4. The data indicate no change for any country for the time period covered.

In sum, thus, the duration of schooling remained stable, while the instruction time has been increased slightly as the mean values show. Convergence cannot be found in either of these cases, signifying persistent differences in the countries.

School autonomy

Finally, governance is also directly concerned with the competencies that sub-governmental entities have in decision-making related to their tasks. Here, the degree of school autonomy and the share of private schools are important indicators. Given conditions as different national traditions or the varying importance of private providers in education, the degree of school autonomy is difficult to quantify and consequently, international comparisons in this regard are hardly possible. The OECD PISA study tries to measure school autonomy by collecting information from school principals. Thus, it is possible to measure the percentage of pupils at schools where the principal reports that the school has the responsibility to undertake certain activities. One strong indicator of school autonomy is the right to hire teachers or to determine teacher's salaries at school level.

With regard to the responsibility of schools to appoint teachers, the mean value accounts for 60.77 per cent in 2006, meaning that two thirds of the tested pupils go to schools with a right to hire teachers by themselves (see table 6). There is considerable variation with a standard deviation of more than half of the mean value and a broad range of almost 95 per cent.

Table 6: Share of Pupils in Schools with Autonomy in Appointing Teachers, Mean Values

Year	Mean	Coefficient of Variation	Standard Deviation	Range
2000	64.48	0.56	35.86	89.90
2003	67.27	0.52	35.08	92.50
2006	70.70	0.43	30.16	78.00

The smallest value can be found in Italy, where 22 per cent of 15 years old students go to 'autonomous' schools in 2006. By contrast, in the Czech Republic, Sweden, the Netherlands, New Zealand and the USA, there is no school that does not have the right (or obligation) to appoint teachers. The overall mean value increased between 2003 and 2006, at the same time, the heterogeneity across the sample decreased, hinting at σ-convergence. The correlation between the value of 2000 and the subsequent change rate is significant and negative and with a value of -0.66 relatively strong. Thus, countries

with a lower degree of autonomy demonstrated an increasing trend, whereas countries with a relatively high autonomy partly decreased their autonomy.

Selecting teachers, however, is only one possibility to manage a school autonomously, fixing their salary is another. Data shows that the school's right to autonomously establish teachers' salaries is developing differently across OECD countries (see table 7): About one quarter of pupils go to schools with this degree of autonomy. Again there is remarkable variation, with a standard deviation that is as high as the mean value and a range of almost 90 per cent in PISA 2006.

Table 7: Share of Pupils in Schools with Autonomy in Fixing Teacher Salary, Mean Values

Year	Mean	Coefficient of Variation	Standard Deviation	Range
2000	24.38	1.05	25.54	75.50
2003	27.31	0.97	26.63	87.90
2006	30.10	1.02	30.78	89.90

Austria has the lowest value here, with only 0.9 per cent pupils going to schools where the principal is able to determine teacher's salaries in 2006. By contrast, in the United States and in the Czech Republic this practice seems to be the rule with 90 per cent students at schools with this autonomy. With regard to this indicator the measures of dispersion increased according to the increasing mean values. However, this does not hold for the coefficient of variation. Thus it seems that the heterogeneity across all countries decreased nevertheless. For this indicator, our statistical tests hinted at neither σ- nor β-convergence.

Private Schools

A further indicator for school governance is the share of private schools in the education system. This can be measured by the share of private enrolment. Private enrolment refers to pupils or students enrolled in institutions that are not operated by a public authority but controlled and managed, whether for profit or not, by a private body such as a non-governmental organization, religious body, special interest group, foundation or business enterprise. In some countries the importance of private schools increased after the first PISA cycle as private schools are expected to better meet the educational goals. Comparing private school enrolment internationally is difficult, since some education systems practically do not feature private schools whereas in other countries there are only private schools. Since the definitions vary, results have to be interpreted with caution.

Overall, about 14 percent of secondary enrolment is at private schools (see table 8).[6] The standard deviation and the range are relatively high, indicating considerable heterogeneity. In fact, 33 per cent of students in Korea and 28 per cent in Spain are enrolled in private schools but only 0.3 percent in Ireland. New Zealand and Sweden featured the highest increases during the time-period considered with 11 and 8 per cent. By contrast private school enrolment decreased by 8 per cent in Korea. All measures of dispersion show convergence over time, although the mean value has increased, denoting a more equal dispersion at a higher level of private enrolment. However, neither Levene's test nor the sign test showed significant results to confirm this trend.

Table 8: Share of Secondary Students who go to Private Schools, Mean Value 1999-2006

Year	Mean	Coefficient of Variation	Standard Deviation	Range
1999	12.29	0.82	10.14	41.06
2000	12.53	0.80	10.07	40.27
2001	12.39	0.81	10.07	39.14
2002	12.83	0.76	9.76	37.66
2003	13.25	0.74	9.84	36.33
2004	13.76	0.72	9.92	35.23
2005	13.81	0.68	9.40	33.63
2006	13.73	0.65	8.92	32.86

In sum, educational governance is thus still a heterogeneous field in which convergence has only partially taken place. With regard to decentralization, some convergence can be found; the same also holds true for the share of private schools. Further analyses would be needed to show whether less central forms of education governance or the rise of private entities in this field generally tend to cause more convergence.

CHANGES IN EDUCATION POLICY OUTPUTS

Financing and governance are only a means to achieve one overarching welfare goal: a well-educated population and the development of individual abilities to the highest level possible. This section will assess how far these targets are met across countries, and whether the level and extent of education increased and converged. Given the already denoted importance of a knowledge-based economy and the global competition therein, a high level of education seems to be important for any country and the problem pressure can be expected to be high across countries. We analyze three different indicators

[6] The indicator reports private school enrolment as a percentage of total secondary enrolment.

linked to educational outputs: enrolments to show participation along educational stages, the people-teacher-ration to show learning conditions, as well as graduates in selected fields and stages, to assess the share of students that actually finish a specific education program.

Enrolments

Enrolment figures show the share of pupils or students that are actually taking part in a given educational stage. Some sectors, such as pre-primary education, have only recently been discovered as an important stage in learning development, while high participation rates at other levels, such as secondary education or tertiary education, have traditionally been a sign for a highly-skilled population. We assess both pre-primary and secondary education for changes.[7]

Concerning pre-primary education, our indicator measures the gross enrolment as the ratio of total enrolment, regardless of age, to the population of the age group that officially corresponds to pre-primary education.[8]

Table 9: Gross Enrolment Rate Pre-primary Education, Mean Value 1999-2006

Year	Mean	Coefficient of Variation	Standard Deviation	Range
1999	81.69	0.19	15.79	63.50
2000	82.33	0.19	15.70	64.77
2001	83.24	0.19	15.59	65.44
2002	84.28	0.19	15.79	65.32
2003	85.47	0.19	16.01	63.78
2004	86.80	0.20	16.99	62.65
2005	89.94	0.19	17.30	65.46
2006	91.72	0.19	17.45	63.97

As table 9 shows, the enrolment in pre-primary education is generally high with a ratio of about 92 in 2006. Between 1999 and 2006 there is also a distinct increase of more than 10 points. Whereas the standard deviation increased according to the higher mean values, the standardized coefficient of variation remained stable, indicating neither divergence nor convergence. Enrolment is lowest in Poland with a ratio of 57 and remarkably high in Belgium with a ratio of 121, indicating that about 16 per cent of children in pre-primary education do not belong to the actual designated age group. Mexico recorded the highest increase with 32 points (ratio of 106 in 2006), whereas the Nether-

[7] Since we assess tertiary graduates, we did not include an analysis of participation in tertiary education in this section.

[8] As a consequence, the ratio can exceed 100 if children above age participate in this educational stage.

lands and the United Kingdom show lower enrolment rates in 2006 than in 1999. Although the measures of dispersion do not hint at convergence, the sign test indicates a significant change between 1999 and 2006, since only two of 26 countries reduced their enrolment rates between 1999 and 2006. In sum, preprimary education thus becomes more important in OECD countries, but the trend is not yet very clear.

The situation is different in the case of secondary education: Since this educational stage is compulsory, enrolment rates are high and very often exceed 100 per cent, indicating that more students than the actual schooling population (e.g. older students, repeaters or newly arrived immigrants) are enrolled in secondary education.

Table 10: Gross Enrolment Rate Secondary Education, Mean Value 1999-2006

Year	Mean	Coefficient of Variation	Standard Deviation	Range
1999	107.12	0.19	20.32	87.75
2000	107.74	0.19	20.12	89.19
2001	108.44	0.18	19.40	80.26
2002	108.78	0.17	18.87	79.95
2003	109.45	0.17	18.58	79.03
2004	104.45	0.12	12.90	65.92
2005	105.52	0.12	12.79	63.86
2006	105.47	0.12	12.70	63.16

Enrolment varies between 150 in Australia and a ratio of only 87 in Mexico. Between 1999 and 2006 the overall mean value decreased, also accompanied by a decrease of the measures of dispersion (see table 10). A remarkable decrease of more than 50 points can be found in Sweden (103 in 2006); Belgium similarly underwent a decrease of 33 points (109 in 2006) whereas Mexico, Greece and the Czech Republic show increases of about 10 to 30 points. Secondary education thus has a very high participation rate and has also become more targeted over the years, which means that the number of pupils outside the relevant age groups declined. All measures of dispersion show a trend to σ-convergence, although statistical tests do not indicate significance. Moreover, the correlation between the 1999 value and the growth rate is strong, negative and significant with a value -0.79 indicating β-convergence. Thus countries with high enrolment in 1999 reduced their rates whereas countries with lower enrolment show positive growth rates.

In sum, we have determined that convergence in enrolment rates varies along educational stages. Secondary education has been an element of the education system for a long time; enrolment is high and differences among countries are about to decrease. In contrast, it is a rather recent development to include pre-primary education as an element of the education system: here, enrolment rates are growing fast, but differences

among countries are high. It is possible to interpret this as an uneven development towards high enrolment in preprimary education, so that analyses in a few years could show rather a similar trend of convergence in this stage, too.

Pupil-teacher ratio

The school pupil-teacher ratio is the number of pupils enrolled in secondary school divided by the number of secondary school teachers of any teaching assignment. In general, the quality of instruction is assumed to be higher in smaller groups. Therefore lower values for the pupil-teacher ratio hint at move favorable conditions for both learners and teachers.

As indicated in table 11, the overall mean accounts for 12.6 in 2006, meaning that one teacher is responsible for 12 pupils – at least theoretically. The standard deviation accounts for one quarter of the mean value which is rather modest. The lowest ratio can be found in Greece with about 8 pupils per teacher. The highest is in Korea, where one teacher is responsible for 18 pupils. Between 1999 and 2006 there seems to be a slight decrease in the ratio, which is also reflected in the measures of dispersion. There is thus a slight convergent trend towards more favorable conditions, although statistical tests cannot report significance.

Table 11: Pupil-Teacher Ratio in Secondary School, Mean Values 1999-2006

Year	Mean	Coefficient of Variation	Standard Deviation	Range
1999	13.80	0.25	3.40	12.65
2000	13.47	0.25	3.35	12.37
2001	13.41	0.23	3.09	11.61
2002	13.19	0.22	2.89	10.90
2003	13.00	0.20	2.62	9.64
2004	12.60	0.23	2.84	9.65
2005	12.71	0.23	2.86	9.52
2006	12.59	0.23	2.93	9.85

Graduates in tertiary education

Graduates in tertiary education are a further important indicator for the outputs of education systems. Given the importance of tertiary education in knowledge-based economies, we can reasonably expect an increase of graduates in tertiary education over time. To assess these figures across countries, we analyze the share of graduates in tertiary education of a country’s working population (15-64 years old).

Table 12: Share of Tertiary Education Graduates of Working Population, Mean Values, 1998-2006

Year	Mean	Coefficient of Variation	Standard Deviation	Range
1998	0.0052	0.3426	0.0018	0.0060
1999	0.0060	0.3227	0.0019	0.0075
2000	0.0063	0.2957	0.0018	0.0061
2001	0.0066	0.3092	0.0020	0.0070
2002	0.0069	0.3076	0.0021	0.0075
2003	0.0072	0.3246	0.0024	0.0082
2004	0.0075	0.3110	0.0023	0.0083
2005	0.0077	0.3329	0.0026	0.0094
2006	0.0080	0.3298	0.0026	0.0102

Overall, less than 1 per cent of the working population graduates from universities every year (see table 12). In 2006, the smallest share can be found for Germany (0.3 percent) compared to 1.4 per cent in Iceland. Iceland, Finland and Australia recorded the highest increases of about 0.7 percent over time, while Spain, Norway and Germany by contrast show slightly decreasing figures. On average, we can observe a stable increase of figures from 0.5 per cent to 0.8 per cent on average between 1998 and 2006. Although the standard deviation and the range increased over time according to the increasing absolute values, the coefficient of variation slightly decreased, indicating less variation. The Levene-test and our test for β-convergence are not significant. The sign test indicates a significant change between 1998 and 2006, since only two of 23 countries reduced their share of graduates during this period.

While these figures relate to all fields of tertiary education, graduates in technical and scientific fields are usually assumed to contribute most effectively to technological innovation. We therefore also computed the share of graduates in manufacturing, engineering, construction and science of all graduates in tertiary education in one year.

On average (see table 13), about one third of all degrees are degrees in technical or scientific fields. Again, there is considerable variation across the OECD. The share is highest in Korea with 42 per cent, also comparably high in France and Germany, but lower than 20 per cent in Iceland, Hungary and the Netherlands. France und Finland demonstrate a considerable decrease: While Finland featured 76 per cent of technical and scientific graduates in 1998; it had only 32 per cent in 2006. Overall more countries reduced their graduates in these fields than they actually showed increasing figures. Spain and Poland are two countries with increasing figures, but they are not as high as the losses in other countries. However, in sum countries have converged with regard to their share of graduates, as the measures of dispersion show: While the mean values dropped slightly, indicating fewer technical and science graduates, the coefficient of

variation decreased sharply, as did the standard deviation and the range. The output of graduate has thus become slightly lower, but more equal across countries. However, neither the sign nor the Levene-test report significant results and the correlation between the values of 1998 and the change rate is not significant. Thus we cannot statistically prove the convergence shown.

Table 13: Share of Technical and Science Graduates of all Tertiary Education Graduates, Mean Values 1998-2006

Year	Mean	Coefficient of Variation	Standard Deviation	Range
1998	0.33	0.42	0.14	0.58
1999	0.28	0.29	0.08	0.28
2000	0.28	0.30	0.09	0.29
2001	0.28	0.31	0.09	0.33
2002	0.28	0.29	0.08	0.30
2003	0.29	0.28	0.08	0.31
2004	0.28	0.28	0.08	0.31
2005	0.29	0.27	0.08	0.31
2006	0.29	0.27	0.08	0.27

In sum, we can conclude that countries still differ widely with regard to the educational attainment of their populations, but there are slight trends towards convergence in some fields, such as secondary education enrolment, pupil-teacher ratios and graduates in technical and scientific fields. Nonetheless, indicators such as tertiary graduates or pre-primary enrolment still show wide disparity, which can be interpreted as continuing divergence, or – given the political emphasis on both fields – as an ongoing restructuring of these fields, that might lead to convergence in the future.

CONCLUSIONS

This paper assessed whether convergence can be observed in welfare state development, more specifically in education policy of OECD countries. We first outlined the importance of education in current social policy and its reliance on ‘enabling’ the individual. Afterwards, we discussed possible causes for welfare state convergence and divergence. From this perspective, we can assume education policy to converge since OECD countries are facing problem pressure such as the transformation to the knowledge society and the growth of transnational communication on education policy issues. However, given that education policy is also closely linked to national traditions and their path dependency, persistent divergence in education policy is another plausible alternative.

In the next sections, we thus assessed three dimensions of education policy: education financing, education governance, as well as education policy outcomes.

As the results show, the situation is mixed: Some indicators show convergence, but of varying extent. With regard to education finance, we could observe convergence in the total public spending on education and the ratio of public and private spending on tertiary education. With regard to governance, we were able to determine convergence in school autonomy with regard to hiring teachers and in the share of private enrolment. With regard to policy outcomes, countries have converged with regard to secondary enrolment, the pupil-teacher ratio and with regard to graduates in tertiary education, in particular those in technical fields and science. Comparing these indicators across fields shows that – linked to educational outcomes – further inquiries could be carried out to evaluate the extent to which countries have reached similar outcomes in different ways. Moreover, the ongoing trend towards privatization in education may denote that larger changes towards convergence are still coming in the following years.

Nonetheless, these findings mainly relate to a decreasing variation among the countries, signified by the coefficient of variation. Applying different tests of statistical significance reduces the number of converging fields, so that we mainly witness continuing divergence in this welfare sector. This shows that the timing of this assessment might be difficult. Most of our data only covers a time span of ten years or less, which is rather short. Therefore future analyses would be helpful to show whether these findings are constant over the years. Although other social policy sectors prove not to show much convergence even over a longer period of time, this might be different in education policy, given the intense communication of international benchmarks and the urgency that most countries attach to education policy due to the expected transition towards a knowledge-based economy.

The assessment also shows that it is fruitful and important to link education policy research more closely to other social policy research and to cross-check whether findings in one field are transferable to another. Reasons for convergence and divergence might not be that different in health, pensions and education. Given the importance that education has for individual opportunities, for labor market policy and the economy as a whole, it is obviously part of the wider transformation of the state towards an agency that conceives individuals as self-reliable, and whose social policy does not mainly redistribute wealth.

With regard to the mechanisms outlined before, we can say that in all cases, education policy has been subject to soft mechanisms, like transnational communication – even the idea of competition for a favorable position in a global knowledge economy provides a background for adoption of similar policies. Thus, if at all, convergence in education policy seems to be most likely due to common ideas on good practices and

governance in education, not international regulations or harmonization. In this respect, it still resembles other parts of social policy that are also not internationally regulated.

However, our results also pose important questions for further research: Even if we could not find much significant convergence in education policy, we have nonetheless observed changes in many indicators. Countries are transforming education policy, and a comparison of this field with other sectors of social policy could be interesting. Since we chose a descriptive approach, we could not assess the reasons for these transformations in different countries. It would be worthwhile to explore whether a specific group of countries is particularly active in reforming education policy, to what extent this is related to national ‘problem pressure’, veto players and the like. In particular the link to international organizations could be crucial, because they placed huge emphasis on education policy. For example, the decreasing number of secondary school students that do not belong to the foreseen age group – as repeaters – could be caused by OECD criticism of the practice of repetition. It might well be that some countries are more likely to follow international suggestions than others, so that subgroups of the countries analyzed might indeed converge towards international models. Nonetheless, as our paper illustrated, there is no ‘automatism’ in welfare state research, but much conditionality.

ANNEXES

Annex 1: Additional Table

Table A-1: Correlation of Spending on Education and Social Expenditures as Percentage of GDP 2000-2005

Year	Pearson's r
2000	0.53
2001	0.46
2002	0.47
2003	0.44
2004	0.45
2005	0.38

Annex 2: Information on Data

This annex reports the data sources for each indicator and lists the countries and years included in the analyses. In several cases, missing figures for one or two successive years were replaced by the mean value of adjacent years this is denoted as ‘imp.’ (Imputation).

a) Data on Educational Expenditures

Expenditure per student in secondary education as a percentage of GDP per capita

Source: World Development Indicators 2007 (The World Bank Group), 18 countries, years 1999-2005.
Austria, Czech Republic, Finland, France Germany, Hungary, Iceland, Ireland, Italy, Japan, Republic of Korea (2000 imp.), The Netherlands (2000 imp.), New Zealand, Norway, Slovak Republic, Spain, Sweden, United Kingdom,

Total public spending on education total as a % of GDP

Source: World Development Indicators 2007 (The World Bank Group), 18 countries, years 1998-2005.
Australia, Austria (2000 imp.), Denmark, France, Greece, Hungary, Ireland, Italy, Japan, Mexico, the Netherlands (2000 imp.), Norway, Poland, Spain, Sweden, Switzerland, United Kingdom, United States

Ratio of public and private expenditures in secondary education

Source: OECD.stat, Education and Training Dataset, 18 countries, years 1997-2005.
Australia, Austria, Canada (2002 / 2004 imp.), Czech Republic, Denmark, France, Germany, Greece, Hungary, Iceland (1998 / 1999 imp.), Ireland, Japan, Korea, Mexico, Netherlands, Spain, Switzerland, United States

Ratio of public and private expenditures in tertiary education

Source: OECD.stat, Education and Training Datase, 20 countries, years 1998-2005.
Australia, Austria, Canada (2002 / 2004 imp.), Czech Republic, Denmark, France, Germany, Hungary, Ireland, Iceland (1999 imp.), Italy, Japan, Korea, Mexico, Netherlands, Portugal, Spain, Sweden, United Kingdom, United States (Greece left out due to extreme outliers)

b) Data on Educational Governance

Number of teaching hours per year (net contact time in hours per year in lower secondary education)

Source: OECD Education at a Glance 2001 -2008, 23 countries, years 1999, 2002 – 2006
Australia, Austria, Belgium/Fl., Belgium/Fr., Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Republic of Korea, Mexico, Netherlands, New Zealand, , Portugal, Scotland, Spain, United States

Duration of secondary schooling

Source: World Development Indicators 2007 (The World Bank Group) 30 countries, years 1998-2007
Australia, Austria; Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Portugal, Republic of Korea, Slovakia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States

Duration of compulsory schooling

Source: UNESCO Institute for Statistics, Education Data, 30 countries, years 1999 - 2006 (no missing)
Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Korea, Slovakia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States

Percentage of students in schools where the principals report that schools have responsibility for appointing teachers

Source: OECD PISA 2000, 2003, 2006, 21 countries, years 2000, 2003, 2006 (no missing).
Australia, Austria, Canada, Czech Republic, Denmark, Finland, Germany, Hungary, Iceland, Ireland, Italy, Japan, Republic of Korea, Mexico, Netherlands, New Zealand, Portugal, Spain, Sweden, Switzerland, USA

Percentage of students where the principal reports that schools have responsibility for establishing teachers' salaries

Source: OECD PISA 2000, 2003, 2006, 21 countries, years 2000, 2003, 2006 (no missing).
Australia, Austria, Canada, Czech Republic, Denmark, Finland, Germany, Hungary, Iceland, Ireland, Italy, Japan, Republic of Korea, Mexico, Netherlands, New Zealand, Portugal, Spain, Sweden, Switzerland, USA

Enrolment in private schools (secondary)

Source: World Development Indicators 2007 (The World Bank Group), 28 countries, years 1999-2006.
Australia, Austria (2001 imp.), Belgium, Czech Republic, Denmark (2003 imp.), Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Republic of Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden (2003 imp.), Switzerland, United Kingdom, United States

c) Data on Educational Outputs

Enrolment in pre-primary education

Source: World Development Indicators 2007 (The World Bank Group), 26 countries, years 1999-2006.
Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Japan, Republic of Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, United Kingdom, United States

Enrolment in secondary education

Source: World Development Indicators 2007 (The World Bank Group), 28 countries, years 1999-2006.
Australia, Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece (2002 imp.), Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, , United Kingdom, United States

Pupil-teacher-ratio

Source: World Development Indicators 2007 (The World Bank Group), 14 Countries, years: 1999-2006.
Austria (2001 imp.), France, Germany, Greece (2002 imp.), Hungary, Iceland, Italy, Japan, Republic of Korea, Mexico, New Zealand (2002 imp.), Slovakia, Sweden, United States

Share of graduates in tertiary education (of working population)

Source: OECD.stat, Education and Training Dataset (graduates), US census bureau international database IDB (population), 23 countries, years 1998-2006
Australia, Austria, Czech Republic, Germany, Finland, France, Greece (2003 imp.), Hungary, Ireland, Iceland, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Poland, Portugal (1999 imp.), Spain, Sweden, Turkey, United Kingdom, United States

Share of graduates in technical and scientific fields (of all graduates in tertiary education)

Source: OECD.stat, Education and Training Dataset, 22 countries, years 1998-2006.
Australia, Austria, Czech Republic, Germany, Finland, France, Hungary, Ireland, Iceland, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Poland, Spain, Sweden, Turkey, United Kingdom (2002 / 2005 imp.), United States (2002 imp.)

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BIOGRAPHICAL NOTE

Anja P. Jakobi, Dr., is a senior researcher at the University of Bremen, Collaborative Research Center ‘Transformations of the State’. Her main research interests are internationalization of public policy, mainly in the fields of education policy, social policy and crime policies and with an emphasis on international actors and international relations.

Telephone:	+49 421 218 8728
Fax:	+49 421 218-8721
E-Mail:	anja.jakobi@sfb597.uni-bremen.de
Address:	University of Bremen, Collaborative Research Center „Transformations of the State“, Linzer Strasse 9a, D 28359 Bremen

Janna Teltemann is research fellow at Migremus – Migration, Residential Mobility and Urban Structure, University of Bremen.

Telephone:	+49 421 218 67311
Fax:	+49 421 218-8721
E-Mail:	janna@uni-bremen.de