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# Explaining Convergence of OECD Welfare States:

# A Conditional Approach

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Abstract:

Existing studies have found only limited empirical evidence of welfare state convergence. Moreover, although there are good theoretical reasons both for and against welfare state convergence, there are virtually no studies that have explicitly tested the assumed effects. We argue that the concept of conditional convergence helps to both better describe and explain the phenomenon. By applying error correction models, we examine conditional convergence of various types of social expenditure in 21 OECD countries between 1980 and 2005. Our empirical findings go beyond the existing literature in two respects. *First*, we show that there is very strong evidence of convergence across all categories of social expenditure when conditional factors are taken into account. *Second*, we demonstrate that the speed of convergence is highly driven by globalization and European Union membership and shaped by existing welfare state structures.

**Key words**: convergence, welfare state, social policy, OECD, globalization

# 1. Introduction

Convergence is the process in which countries – or individuals, firms, cities or other kinds of entities – become more similar. While it is certainly not a new theme, it surfaced in the context of the globalization debate in the 1990s. Convergence is not only an academic issue. The notion of a world growing ever closer together in which cultural and institutional differences have been levelled out is commonplace. Journalists and political commentators argue over whether the world has become 'flat' (Friedman, 2005) due to globalization or whether it remains 'spiky' (Florida, 2005).

In economics, convergence has been a central issue for some time, particularly in macroeconomic research on the determinants of economic growth (Barro and Sala-i-Martin, 1992). In other social scientific disciplines, there has been much less systematic research and it is only recently that interest has grown in empirically testing the convergence hypothesis (cf. *Journal of European Public Policy*, special issue 12(5), 2005). Often, the issue is discussed in the context of studies on policy transfer (cf. *Policy Studies*, special issue 30(3), 2009) and policy diffusion (for example, Simmons et al., 2007) – two closely related but analytically distinct concepts.

The starting point of this paper is the question of whether a central policy area of the modern state, namely the welfare state, has converged across the **(← p. 120)** Organisation for Economic Co-operation and Development (OECD) countries over the last three decades. Starting in the 1980s (O'Connor, 1988), this question became subject to a growing body of articles from political scientists, economists and sociologists. What is largely lacking, however, is a thorough theory-based test for *conditional convergence*, which, as we argue below, would represent an important step towards an explanatory – and not just descriptive – assessment of welfare state convergence. This paper is a first attempt at such an analysis. We

examine welfare state changes in terms of social expenditure – both aggregate and disaggregate spending – for 21 OECD countries in the period between 1980 and 2005.

The empirical analysis reveals several striking results. In contrast to the existing literature which only finds convergence for some social spending schemes, we show, by applying dynamic panel models, that convergence is present *in all central types of social expenditure*. Moreover, we identify conditional factors that highly influence the speed of convergence. Three conditional factors turn out to be particularly important: globalization, membership of the European Union (EU) and the structure of the social programmes in question.

The article is structured as follows: the following section summarizes the central findings of the existing research literature. There follows a discussion of the theories of welfare state convergence and this leads to our central hypotheses about the influence of conditional factors on the rate of adjustment. We then clarify the method applied, the variables included and their measurement, before presenting the empirical results as well as a discussion of their relevance. Finally, the main findings are summarized in the conclusion.

## 2. Welfare state convergence: A review of the literature

Convergence is a multifaceted concept. Different conceptualizations are used, most notably sigma-convergence and beta-convergence (see Holzinger and Knill, 2005 on concepts).[1] The most straightforward version of the concept is *sigma-convergence,* which denotes a narrowing of differences between units – or a shrinking distribution of values – over time. This is by far the most common approach in welfare state research. Beginning with O'Connor's article

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[1] Two other concepts are mentioned in the literature: gamma-convergence (the increase in mobility of units within a ranking of units over time) and delta-convergence (the process of minimizing the distance to an exemplary 'model'). They are, however, much less frequently used (but see Starke et al. 2008).

(1988), a great number of studies use measures of dispersion such as standard deviation, the coefficient of variation, the Gini index, or graphics such as boxplots in order to track the convergence of social expenditure (Adelantado and Calderón Cuevas, 2006; Alber, 2006; Alber and Standing, 2000; Bouget, 2003; Greve, 1996), social rights (Montanari, 1995; 2001; Montanari et al., 2008), financing structures (Hagfors, 2000), or a range of different indicators at once (Caminada et al., 2010; Cornelisse and Goudswaard, 2002; Starke et al., 2008; Tomka, 2003). Some scholars focus on sub-areas of the welfare state including family policy (Gauthier, 2002; Gornick and Meyers, 2001), social assistance (Nelson, 2008) and social services (Kautto, 2002). A few qualitative studies also exist (Cacace and Schmid, 2008; Hinrichs, 2006). The sample usually consists of between about 15 to 20 OECD states and typically includes observations from the 1980s and 1990s. Only a few contributions stretch further back in time (Montanari, 2001; O'Connor, 1988; Tomka, 2003). Broadly speaking, the findings of these studies are that there is some evidence of sigma-convergence, especially in terms of total social expenditure rates, though much less so in terms of social rights. However, only very few studies check for the robustness of these results.

An alternative conceptualization is *beta-convergence*. It has its origins in the economics of growth literature and refers to the phenomenon that poor countries grow faster than rich countries (as predicted by neoclassical growth theory) or, put differently, that the growth rate is inversely related to the initial (or lagged) level of economic development (Barro and Sala-i-Martin, 1992). This catch-up movement implies that, in the long term, countries move towards a 'steady state' equilibrium rate. The two concepts are logically related. Sigma-convergence *always* entails beta-convergence, whereas beta-convergence does not necessarily coincide with sigma-convergence – for example, when laggards overtake the pioneers.

Starting in the late 1990s, there have been a few studies testing for beta-convergence (Alonso et al., 1998; Alsasua et al., 2007; Attia and Berenger, 2007; Caminada et al., 2010;

Castles, 2001; Kittel and Obinger, 2003; Sanz and Velázquez, 2003; Starke et al., 2008; Wolf, 2002). In general, there is considerable evidence of beta-convergence in spending ratios, particularly in terms of total public social expenditure, and in terms of public spending on health and unemployment (Starke et al., 2008). **(⬅ p. 121)** Castles even uses the term 'steady-state welfare state' to denote the catch-up movement in social spending dynamics across OECD countries (Castles, 2004). However, the evidence for converging levels of social rights, namely replacement rates, is much weaker and limited to unemployment benefit replacement rates (Caminada et al., 2010; Starke et al., 2008).

Apart from distinguishing between sigma and beta-convergence, we can also differentiate *absolute* (that is, unconditional) and *conditional convergence*. Conditional convergence means that structural factors determine whether countries converge or not. To take the example of economic growth again, various growth economists could not find any empirical evidence supporting the basic neoclassical hypothesis of absolute convergence. Yet once structural conditions for growth such as differences in school enrolment rates – a proxy for human capital endowment – were taken into account, it was found that there was convergence between countries (Barro, 1991; Barro and Sala-i-Martin, 1992). Conditional convergence also implies the existence of multiple steady states. In a similar vein, some theories allow for 'convergence clubs'. Here, countries that belong to certain clusters – defined by shared features, for example, membership of the EU or rich versus poor countries – converge to common levels (that is, club-specific steady states).

Only a handful of articles apply the concept of conditional convergence to the welfare state (Alsasua et al., 2007; Attia and Berenger, 2007; Kittel and Obinger, 2003). However, for the most part, scholars only use conditions as *statistical controls*, while the causal mechanisms leading to convergence remain under-theorized. In addition, most studies using total social expenditure suffer from over-aggregation and often neglect policy-specific mechanisms. This represents a missed opportunity. Conditional convergence allows us not

only to better describe whether or not countries are becoming more similar but also to explain why. However, in order to move in such a direction we need to be much more explicit about our theories and carefully model conditional convergence empirically. We will address both issues in turn.

To sum up, what is clearly missing from the literature on welfare state convergence, so far, is an analysis that combines four elements: first, the simultaneous testing at both aggregate and disaggregate levels; second, the systematic inclusion of conditional factors; third, a robust test of several explanatory accounts of convergence and, fourth, the use of panel estimation techniques particularly suited for this task.

# 3. From description to explanation

Some progress has been made in the specification of explanatory theories of convergence. From very abstract and often untested social theories about the convergence of societies, political science has moved towards a 'middle-range' approach, emphasizing the formerly implicit causal mechanisms and allowing a better operationalization of explanatory factors (Braumoeller, 2006; Drezner, 2005; Holzinger and Knill, 2005; Lenschow et al., 2005). In order to formulate hypotheses about the conditions under which convergence takes place, one needs to look at the theoretical factors likely to initiate or influence central mechanisms of convergence.[2] In the following analysis, we do not focus on the direction of convergence, since, theoretically, we know very little about it (apart from the clear downward expectation of the 'efficiency thesis', see below). Based on a wide-ranging review of the theoretical literature on policy convergence, Holzinger and Knill also conclude that '[w]hile some of the

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[2] We do not distinguish between causes and conditions. This stands in contrast, for example, to Holzinger and Knill who explicitly separate causes from conditions (Holzinger and Knill, 2005). We argue that there is no prima facie way to make that distinction. All potential causes of convergence (for example, globalization) may be treated as empirical conditions and vice versa.

mechanisms might lead to an upward or downward shift of the average policy, for others no prediction is possible' (2005: 794). While our analysis cannot fully address this uncertainty empirically, we present some illustrations that point to the direction of convergence and some long-term effects to illustrate the impact of some factors on the dependent variable.

What could explain the convergence of welfare states (or the lack thereof)? Economic *globalization* has been cited as the prime source of convergence pressure in the recent literature.[3] According to what is commonly known as the 'efficiency thesis' in the comparative welfare state literature, economic globalization of the trade in goods and services and the movement of capital should lead to regulatory competition and a (downward) convergence of welfare states (Busemeyer, 2009; Garrett and Mitchell, 2001).[4] Hence, our first conditional hypothesis is as follows:

> *$H_1$: The higher the degree of a country's global integration, the greater the extent of welfare state convergence.* (**← p. 122**)

Many observers expect the mechanisms of competition and transnational communication to be of high relevance within clubs of regional integration, most notably within the *EU*. Through processes of 'positive integration' (harmonization through regulations and directives) and 'negative integration' (abolition of impediments to the Common Market) national social policies have been shaped by EU-level developments (Ferrera, 2005; Leibfried and Pierson, 1995; Scharpf, 2002). While we do not assume that European integration directly

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[3] We do not directly test for another mechanism of convergence linked to globalization, namely transnational transfer and learning (Holzinger and Knill, 2005). On the one hand, there is a dearth of good indicators for transnational communication (that is, the precondition for learning), and on the other hand, in order to adequately test for policy learning, one would need to apply spatial regression techniques which is clearly beyond the scope of this paper (Franzese and Hays, 2008).

[4] The so-called 'compensation thesis' which expects rising social protection levels induced by globalization (Rodrik, 1998), is not so much a theory of convergence as one of the *domestic effects of opening up to world markets.* Hence, the causal mechanisms underlying this theory are less about typical mechanisms of convergence such as competition, learning and international harmonization, but rather about domestic political and economic institutions and the power resources of different domestic actors (Hays, 2009: 4-14). Therefore, we do not include the compensation thesis in our analysis of welfare state convergence.

impacts on social spending – after all, European integration is 'integration through law', not money – there may be a convergence effect stemming from intense regulatory competition (Ganghof and Genschel, 2008) as well as from policy transfer and learning (Trubek and Trubek, 2005). Even though $H_1$ also expects policy learning to increase under conditions of openness by way of increased exchange and communication, EU social policy actively encourages learning processes through the Open Method of Co-ordination (OMC). The rate of convergence should therefore differ between members and non-members of the EU.

> *$H_2$: Welfare state convergence should be stronger among EU members than among non-members.*

Veto points, veto players and domestic constitutional hurdles have been discussed for some time in comparative welfare state research (Bonoli, 2001; Huber et al., 1993; Immergut, 1992; see also Tsebelis, 2002). At a very general level, a higher degree of fragmentation of decision-making should make convergence more difficult. That is because more actors are involved – many of them holding a formal veto over decisions – and because decision-making procedures become protracted and complex. In addition, constitutional structures that disperse power offer more access points for interest groups, including opponents of reform. We assume that the rate of adjustment[5] is slower in political systems that are characterized by a high number of constitutional barriers. The hypothesis is therefore as follows:

> *$H_3$: The greater the fragmentation of a political system and the greater the number of veto points, the lower the extent of welfare state convergence.*

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[5] We use the terms 'rate of adjustment', 'rate of convergence' and 'speed of convergence' interchangeably.

Institutional effects that influence welfare state convergence may also be caused by *policy feedback* stemming from the very institutions that make up the welfare state. 'Policies determine politics' (Lowi, 1972: 299), which, in turn, shape the probability that a welfare state converges cross-nationally. Feedback hypotheses come in different forms and refer to different mechanisms. Hence we differentiate between five programme-specific feedback hypotheses ($H_{4.1}$ to $H_{4.5}$). Since, to our knowledge, there is no generally agreed typology of active labour market policy regime, we cannot test the impact of policy-specific regime types on the rate of convergence in this area.

With respect to the overall structure of a country's 'welfare regime', we expect the financing structures and the forms of governance that are dominant in a country to matter for the rate of convergence. 'Corporatist' welfare states in particular, such as Germany, France or Italy, are said to be less prone to reform, since they involve the social partners in the organization of social insurance funds and because financing is largely based on earmarked social contributions instead of general tax revenue. Hence, employers and trade unions, in particular, have a direct stake in the welfare state and are easier to mobilize in times of reform and restructuring (Korpi and Palme, 2003: 442; Palier and Martin, 2007). In other words, the welfare state creates its own constituency (Pierson, 1994). Our hypothesis can be formulated as follows:

> *$H_{4.1}$ The rate of welfare state convergence should be lower in corporatist welfare states.*

In addition, some parts of the welfare state are generally thought of as prime examples of *path dependency* (on the concept, see Mahoney, 2000; Pierson, 2000; 2004). In terms of pension systems, the historical distinction is between Bismarckian social-insurance schemes, which provide earnings-related pensions mainly for workers, and Beveridge schemes, which only

provide universal, flat-rate benefits. In the course of the 20th century, however, virtually all Beveridge countries added earnings-related supplements to their basic schemes. Some such as Sweden did this relatively early on ('early birds') while the so-called 'latecomers' (for example the Netherlands) set up supplementary provision only after the early 1970s (Hinrichs, 2006; Hinrichs and Lynch, 2010). Mature social-insurance based pension systems, as found in 'Bismarckian' and (← p. 123) 'early bird' countries, in particular, are said to be path dependent.[6] In Bismarckian systems, where eligibility is tied to a contributory record and benefits are calculated on the basis of contributions, pension rights are seen as quasi-property rights by citizens, which narrows the room for legislative changes.

> $H_{4.2}$ *Pension policy convergence should be slower among 'Bismarckian' and 'early bird' pension systems.*

Public systems of unemployment compensation may be another example of policy feedback effects. For example, in 'voluntary state-subsidised' unemployment insurance systems, as can still be found in Scandinavia, the state co-finances and, to some extent, regulates unemployment insurance. However, trade unions run the administration of most of the schemes. In a similar manner, the 'corporatist' social insurance schemes of continental Europe involve the social partners in the administration of the system. The politics around the reform of unemployment compensation schemes can be expected to differ in these countries compared to purely state-run and tax financed systems – be they 'targeted' at the needy or on a more universal, 'comprehensive' basis (Sjöberg et al., 2010). This leads to specific expectations regarding their convergence rate:

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[6] 'Latecomers' usually opted for private and/or occupational schemes to supplement their basic public pension.

*H4.3 The rate of convergence of unemployment compensation schemes should be lower in voluntary state-subsidised insurance systems and in corporatist insurance systems.*

Family policy can pursue various aims. With respect to the gender dimension, Korpi (2000) distinguishes welfare states that follow policies of 'general family support' (for example, Italy) from those that provide 'dual-earner support' (the Nordic countries). Furthermore, some welfare states follow a relatively hands-off strategy of 'market-oriented policies' (for example, the US and Australia). The three regimes differ in the extent to which they encourage female labour force participation and shape the distribution of care work (both within the family and in society at large). Since dual-earner countries rest on a large public childcare and elderly care sector and (relatively) less on cash transfers, we expect a policy feedback effect on the rate of adjustment stemming from the vested interests of those who provide care as well as the receivers of subsidised or universally free care (see Pierson, 1994):

*H4.4 The rate of convergence in family policy should be lower in countries providing 'dual-earner support'.*

In health care, the effect is very similar to the one expected in the field of unemployment insurance, although benefits are not directly earnings-related. The involvement of actors beyond the state (whether non-profit or for-profit actors) should make a difference regarding the rate of adjustment (Alber, 1988; Hitiris and Nixon, 2001). The greater the number of actors involved, the lower the rate of adjustment, due to the more difficult politics of negotiation and coordination. In social health insurance countries (for example, Germany), non-state actors are heavily involved, for example, in the administration of sickness funds. Private insurance countries (for example, the U.S.) involve non-state actors more indirectly. Here the state typically regulates private insurance and the provision of services through

private actors. These vested interests, in turn, have an important stake in health policy and try to lobby the government.

*H$_{4.5}$ The rate of convergence in health policy should be lower in social health insurance countries and in private insurance countries.*

In the following section, we empirically test the conditional hypotheses about the impact of global integration, European integration, veto players and policy feedback on social policy convergence.

# 4. Approach, model, variables and data

Apart from being under-theorized, the research on welfare state convergence suffers from methodological limitations. Most research measures the variance across units over time, usually by tracking the change in the coefficient of variation. If the standard deviation decreases, this is taken as evidence in favour of (sigma) convergence. However, Plümper and Schneider (2009) show that the variance approach is not reliable. Most importantly, it is unable to detect conditional convergence and club convergence. They suggest using the regression approach and therefore estimating rather than measuring convergence. They sum up the advantages as follows: **(← p. 124)**

'First, scholars can account for the conditionality of the convergence process […]. Second, the estimation of convergence allows testing causal hypotheses of convergence directly. Third, scholars can directly model quasi-automated processes versus causal convergence processes. Fourth, the regression approach

can easily be applied to various policy areas. Estimation finally allows researchers to control for various other explanatory factors and it eliminates unsystematic measurement errors' (Plümper and Schneider, 2009: 1002).

Quantitative research using the regression approach is dominated by cross-section analyses. However, with cross-section designs it is not possible to capture short-term effects and dynamic effects are treated as static. Furthermore, because of the problem of having many variables but few cases, the small number of observations often inhibits the estimation of all explanatory variables of theoretical interest.

We use dynamic panel modelling, namely error correction models (ECMs), as the most suitable strategy for testing convergence. Since ECMs assume the existence of a long-term equilibrium defining the ultimate state which the units converge to over time, it is particularly suitable to test the theoretical predictions of convergence theory (De Boef and Keele, 2008: 191).[7]

The empirical analysis is structured as follows. Before testing for conditional convergence, we estimate models that integrate only the lagged expenditure level (*LEL*) and which therefore test for unconditional or absolute convergence (Table 1). Against this background, we then analyse conditional convergence. In order to obtain reliable results, we proceed in two steps: first, both the *LEL* – the main indicator of beta-convergence – as well as the main theoretically relevant explanatory factors are included (Table 2). This estimation reveals whether convergence is conditioned by other factors. However, it does not tell us anything about whether the *rate of adjustment* is conditioned by those factors. Therefore, in line with Plümper and Schneider (2009), a second set of models with interaction terms (Table

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[7] ECMs were originally developed for non-stationary data and are usually associated with co-integrated time series. De Boef and Keele (2008), however, show analytically and with simulated data that ECMs are also appropriate for stationary data. The general ECM equation is $\Delta Y_t = \alpha_0 - \alpha_1(Y_{t-1} - \beta_1 X_{t-1}) + \beta_0 \Delta X_t + \varepsilon_t$ where $\beta_0$ captures the immediate effect and $\beta_1$ reflects the equilibrium effect that X has on Y. The rate of realisation of the long-term state is determined by the error correction rate $\alpha_1$. For details on ECM and the derivation of the equation estimated from the general ECM equation see especially De Boef and Keele (2008).

3) is estimated. Since the estimation of all interaction effects in one model would suffer from low statistical power – which provides information about the probability that the test will accept a right alternative hypothesis – and multicollinearity problems, we estimate the interaction effects not in one model but separately (Jaccard et al., 1990).

When analysing panel data, several pitfalls exist and certain restrictions have to be considered. Panel data estimations are usually confronted with the problem of serial correlation. When autocorrelation was detected, the models are estimated with autoregressive disturbances.[8] To deal with panel heteroscedasticity, we estimate the models with panel corrected standard errors.[9] Moreover, the Hausman test (Hausman, 1978) indicates the existence of unit unobserved heterogeneity typically caused by national differences in the initial conditions at $t_0$. However, since first differencing removes the unit specific effects and possible level effects, estimations are consistent (Wooldridge, 2002).

In order to test our theoretical hypotheses about welfare state convergence, we measure our dependent variable as the annual change in social expenditure as a percentage of gross domestic product (GDP) for 21 OECD countries for the period from 1980 to 2005 (Organisation for Economic Co-operation and Developement, 2008c).[10] The use of social expenditure has been criticised by researchers for being atheoretical (Esping-Andersen, 1990). However, the main available alternative, that is, the analysis of average replacement rate data (for example, Montanari et al., 2007), is less suitable when it comes to welfare state convergence. Replacement rates are particularly helpful when the object of analysis is the development of social rights of citizenship and individual protection levels (Korpi and Palme,

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[8] The residuals are regressed with a simple OLS (ordinary least squares) regression on all independent variables, including the lagged dependent variable and the lagged residuals.
[9] Moreover, we perform an augmented Dickey-Fuller test to check for stationarity. The null hypothesis of non-stationarity is rejected. Multicollinearity is checked with pairwise correlations and the variance inflation factor.
[10] The countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. The time period was selected on grounds of data availability and because most theories of convergence apply to mature welfare states subject to pressures stemming from globalization, Europeanization, mass unemployment and sluggish growth. Overall, the selection of core OECD-countries during the 1980 to 2005 period should be the most relevant sample for a test of these theories.

2003). It is often claimed that replacement rate data gives a much better picture of policy changes than social expenditure since the latter may be driven by demand factors such as unemployment and demographic change. When these factors are empirically controlled for, however, this disadvantage of spending data can be minimized. **(← p. 125)** Moreover, replacement rate data suffers from its own specific problems. The reliance on hypothetical model household types, in particular, may lead to bias when the research question concerns the macro level of total welfare state development and the development of whole policy sub-areas (family policy and so on) as opposed to changes in certain benefit schemes. Moreover, since replacement rates set average benefit rates in relation to average net wages, tax reforms as well as changes in wage levels can impact the value of the indicator. To draw a more differentiated picture we separately analyse total public social expenditure *(TOTAL)* and disaggregated programme expenditure in several models (Castles, 2008). Following the OECD classification, we differentiate expenditure into spending on old age *(OLDAGE)*, unemployment *(UNEMPLOYMENT)*, active labour market policies *(ALMP)*, family *(FAMILY)*, and health *(HEALTH)*.[11]

In order to identify simple beta-convergence, we include the lagged level of the dependent variable (lagged expenditure level or *LEL*). Furthermore, to capture the conditional effect of globalization on beta-convergence ($H_1$), we use the sum of exports and imports as a percentage of GDP *(TRADE)* and the net inflows of foreign direct investments as a percentage of GDP *(FDI)*.[12] EU membership ($H_2$) is captured by a dummy variable *(EU)*. The index of constitutional structures *(POLINST)* by Huber et al. (1993) is included to test the veto player hypothesis ($H_3$). In order to test for specific policy feedback effects ($H_{4.1}$ to $H_{4.6}$), we use

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[11] We include only the most important programme areas where at least some theoretical expectations about the conditional factors of convergence can be formulated. This excludes data on housing, incapacity-related benefits and survivor benefits which is also provided by the OECD.

[12] We are aware that both globalization indicators are insufficient in capturing the complexity of the various causal mechanisms that potentially explain convergence, particularly when it comes to policy transfer and learning processes. However, there is a lack of clearly differentiated quantitative indicators in globalization studies. Trade openness and FDI should be seen as second-best solutions.

variables that measure the welfare regime type as well as the structure of specific sub-areas of the welfare state *(REGIME)*. We use Korpi and Palme's empirical welfare regime typology for total expenditure ($H_{4.1}$), Hinrichs and Lynch's typology of pension regimes (2010; see also Myles and Pierson, 2001), Sjöberg et al.'s classification of unemployment compensation schemes (2010), Korpi's family policy (2000) and Schmid et al.'s healthcare financing regimes (2010). Our choice was motivated by both the theoretical substance of the typology and by data availability. The *REGIME* variable is time-invariant, since even though, in theory welfare state institutions are certainly not static, there is little evidence of clear-cut path departures in the literature on welfare regimes. Furthermore time-series measures of welfare state institutions are difficult to come by for 21 countries.

We furthermore include several socioeconomic and political control variables which are widely assumed to influence social expenditure. The operationalization of all variables is described in detail in the Appendix.


# 5. Empirical evidence


Table 1 shows the empirical results regarding absolute beta-convergence. In line with existing studies (for example, Starke et al., 2008), we find absolute beta-convergence in total social expenditure as well as in spending on unemployment and health. In contrast, expenditures on old age and family schemes as well as active labour market programmes seem not to have converged over time.

**Table 1. Bivariate regressions: LEL and annual point changes of social expenditure, 21 OECD countries, 1980–2005**

| Dependent Variable | LEL |
|---|---|
| ΔTOTAL | -0.033(0.013)* |
| ΔOLDAGE | -0.004(0.009) |
| ΔUNEMPLOYMENT | -0.078(0.024)*** |
| ΔALMP | -0.049(0.030) |
| ΔFAMILY | -0.014(0.11) |
| ΔHEALTH | -0.059(0.14)*** |

*Note*: *p<0.05, **p<0.01, ***p<0.001.

**(Table 1 p. 125)**

Table 2 shows the empirical results when including the conditional factors as independent variables. The findings presented in Table 2 reveal some remarkable aspects not only with respect to the conditional factors presented above but also with respect to the drivers of welfare state change more generally (although the latter effects do not really concern the question of convergence per se). First, in all models the lagged dependent variable turns out to be highly significant, irrespective of the type of expenditure. This is a striking result since previous research found welfare state convergence to be a much more limited phenomenon, especially when tests were restricted to absolute convergence. We show, by contrast, that beta-convergence can be detected across the board only when the theoretically relevant variables are taken into account. Furthermore, the direction of convergence can be illustrated. When setting the rate of adjustment to zero to predict the outcome of the convergence process for *TOTAL*, the mean for the predicted outcomes indicates a slight upwards convergence trend (Plümper and Schneider, 2009).

**Table 2. Determinants of social expenditure growth**

| Dependent Variable | $\Delta TOTAL$ | $\Delta OLDAGE$ | $\Delta UNEMPLOYMENT$ | $\Delta ALMP$ | $\Delta FAMILY$ | $\Delta HEALTH$ |
|---|---|---|---|---|---|---|
| | I | II | III | IV | V | VI |
| LEL | -0.053***(0.010) | -0.042***(0.011) | -0.050***(0.013) | -0.061**(0.022) | -0.055***(0.016) | -0.083***(0.023) |
| $TRADE_{t-1}$ | 0.0001(0.002) | -0.001(0.001) | 0.0007*(0.0003) | 0.0006**(0.0002) | 0.0004(0.0004) | -0.002***(0.0006) |
| $\Delta TRADE$ | -0.041***(0.008) | -0.010***(0.002) | -0.002(0.002) | -0.001(0.001) | -0.007***(0.002) | -0.012***(0.003) |
| $FDI_{t-1}$ | 0.016**(0.006) | 0.004*(0.002) | 0.004**(0.001) | -0.002(0.002) | 0.002(0.002) | 0.012**(0.005) |
| $\Delta FDI$ | 0.016*(0.007) | 0.001(0.002) | 0.005**(0.002) | -0.001(0.002) | 0.001(0.002) | -0.004(0.004) |
| EU | 0.048(0.144) | 0.008(0.039) | -0.006(0.018) | 0.006(0.017) | -0.058(0.042) | 0.044(0.053) |
| $GDP_{t-1}$ | 5.57e-06(0.000) | 2.72e-06(2.95e-06) | -4.30e-06*(1.85e-06) | 5.59e-07(1.47e-06) | -5.98e-07(3.37e-06) | 1.00e-05**(3.74e-06) |
| $\Delta GDP_{t-1}$ | 0.015(0.022) | -0.015*(0.007) | -0.005(0.004) | -0.012***(0.003) | -0.004(0.005) | 0.011(0.006) |
| $DEBT_{t-1}$ | -0.003(0.002) | -0.001(0.001) | -0.0006**(0.0002) | -0.0003*(0.0002) | -0.001***(0.0003) | -0.0006(0.0008) |
| $\Delta DEBT$ | 0.035***(0.010) | 0.017***(0.004) | 0.006**(0.002) | 0.004***(0.001) | 0.001(0.002) | 0.006(0.003) |
| $RIGHT_{t-1}$ | -0.002(0.001) | -0.0002(0.0003) | -0.0001(0.0002) | -0.0003*(0.0001) | -0.0001(0.0003) | -2.00e-05(0.0003) |
| POLINST | -0.032(0.027) | -0.033*(0.014) | -0.0004(0.004) | -0.005(0.003) | -0.018*(0.008) | 0.01(0.009) |
| REGIME1 | 0.044(0.114) | 0.283***(0.078) | 0.065**(0.021) | - | 0.027(0.039) | 0.093(0.05) |
| REGIME2 | - | 0.105*(0.047) | -0.010(0.020) | - | 0.043(0.065) | -0.085(0.053) |
| REGIME3 | - | 0.115*(0.048) | - | - | - | - |
| $UNEMPLOYMENT_{t-1}$ | -0.006(0.017) | - | 0.0007(0.004) | 0.001(0.002) | - | - |
| $\Delta UNEMPLYOMENT$ | 0.424***(0.048) | - | 0.179***(0.009) | -0.007(0.007) | - | - |
| $ELDERLY_{t-1}$ | 0.052(0.033) | 0.012(0.009) | - | - | - | -0.016(.011) |
| $WOMEN_{t-1}$ | -4.35e-06(3.65e-06) | - | - | - | -2.18e-07(8.59e-07) | - |
| $YOUNG_{t-1}$ | -0.476(3.177) | - | - | - | -0.260(0.573) | - |
| N | 363 | 399 | 377 | 366 | 363 | 331 |
| R (WALD CHI) | 0.423*** (355.79) | 0.223***(306.81) | 0.578***(911.23) | 0.112***(117.80) | 0.115***(74.61) | 0.183***(187.41) |

*Notes*: *p<0.05, **p<0.01, ***p<0.001; Panel corrected standard errors are in brackets and the models are estimated with autoregressive disturbances if autocorrelation was detected; The *REGIME* variable has to be read as follows: Model I (*TOTAL*): *REGIME1*= Corporatist; Model II (*OLDAGE*): *REGIME1*=Bismarckian, *REGIME2*=Early Birds, *REGIME3*=Latecomers; Model III (*UNEMPLOYMENT*): *REGIME1*=Voluntary State Subsidised, *REGIME2*=Corporatist Insurance Systems; Model V (*FAMILY*): *REGIME1*=General Family Support, *REGIME2*=Dual-Earner Support; Model VI (*HEALTH*): *REGIME1*=Social Health Insurance; *REGIME2*=Private Insurance.

**(← Table 2 p. 126)**

What is more, we can interpret the effect of the conditional factors on the change of social expenditure. For example, the change in outcome is negatively affected by changes in trade openness $(\Delta TRADE)$. This is in line with the 'efficiency thesis' mentioned earlier. However, we find that, in the long run, an increase in the net inflow of foreign direct investment $(FDI_{t-1})$ is related to *higher* social expenditure growth. This finding supports the 'compensation thesis', which suggests that the higher (perception of) vulnerability associated with a greater degree of openness must be compensated for with higher social expenditure (Cameron, 1978; Rodrik, 1998).[13] For the other two globalization indicators ($TRADE_{t-1}$ and $\Delta FDI$) the results are less consistent. The effect of EU membership varies greatly across the different spending types. As theoretically expected, a high degree of power dispersion produced by domestic constitutional arrangements hampers policy change and therefore changes in social expenditure. Welfare state institutions matter to some extent: the growth rate of old age expenditure is higher in Bismarckian countries and spending increases faster in voluntary state-subsidized unemployment systems. So-called 'early bird' and 'latecomer' multipillar pension systems also display higher pension expenditure growth than the reference group but the effect is smaller than for Bismarckian countries.[14]

Regarding the other variables included, parties on the right of the political spectrum limit the growth of social expenditure, as might be expected. With respect to socioeconomic variables, we find that GDP growth has a negative effect on all expenditure types except for total and health expenditure. In addition, while in the long run, public debt reduces social expenditure growth, in the short term, an increase in debt offers the opportunity for governments to use social policy measures as a deficit-financed fiscal stimulus. The variables

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[13] This is a puzzling result which calls for further analysis. However, since this article is concerned with the impact of various factors on welfare state convergence and not so much their directional effects, we do not pursue the question of efficiency versus compensation further.
[14] The jack-knife procedure indicates that the significant result for early bird pension systems depends on only a few observations.

that measure the extent of societal 'need' for social spending matter to a limited degree. A substantial and highly significant positive effect can only be found for the change in unemployment rates (*TOTAL* and *UNEMPLOYMENT*). However, unemployment has no effect on active labour market policies, and female labour market participation and the relative percentage of young people in relation of the total population also fail to have the expected positive influence on family spending.

The results support Castles' findings (2008), according to which the determinants of social expenditure vary critically across different expenditure types. Health spending, in particular, deviates from the overall pattern. Moreover, the empirical findings on the short- and long-term effects emphasize the need for an adequate theoretically based model specification when analysing social policy convergence.

In order to test whether the *rate of adjustment* is influenced by the conditional factors, interaction effects are estimated.[15] Only these models make it possible to check whether the rate of convergence partly or entirely depends on conditional factors. As mentioned above, to avoid low statistical power and inefficiency caused by multicollinearity, we checked (**← p. 128**) the interaction effects separately while each time including the whole set of control variables. Due to limitations of space and reasons of simplicity, in Table 3, only the results for the interactions effects are presented. The regime variables are estimated together in one model because different regime types are the distinct values of a single categorical variable. When estimating interaction effects, coefficients and effects have to be carefully distinguished (Kam and Franzese, 2007). The effects of the *LEL* on the annual change in social expenditure depend on the level of the other variable with which *LEL* interacts. Hence, the coefficient of *LEL* only tells us something about the situation when the other part of the interaction effect equals zero. To illustrate the impact of the conditional factors on the rate of adjustment, we therefore present the marginal and long-run effects of the most relevant interactions only.

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[15] Since the marginal effect $\delta y/\delta x = \beta_X + \beta_{XZ} * z$, the same sign of $\beta_X$ and $\beta_{XZ}$ strengthen the effect of x and vice versa. .

**Table 3. Conditional convergence in social expenditure growth**

| Dependent Variable | ΔTOTAL | ΔOLDAGE | ΔUNEMPLOYMENT | ΔALMP | ΔFAMILY | ΔHEALTH |
|---|---|---|---|---|---|---|
| | I | II | III | IV | V | VI |
| LEL x TRADE | -0.0004*(0.0002) | -0.0005*(0.0002) | 0.0006*(0.0002) | -0.001*(0.0006) | -0.002**(0.0007) | -0.002***(0.001) |
| LEL x FDI | -0.001(0.002) | -0.004**(0.001) | 0.0006(0.002) | -0.001(0.004) | -0.012***(0.003) | 0.003(0.005) |
| LEL x EU | -0.034(0.018) | -0.005(0.015) | - | -0.092*(0.040) | -0.066*(0.030) | -0.022(0.036) |
| LEL x POLINST | -0.007(0.004) | 0.006(0.006) | -0.033***(0.006) | -0.006(0.008) | 0.012(0.009) | 0.010(0.006) |
| LEL x REGIME1 | 0.088***(0.014) | 0.137***(0.033) | 0.106**(0.037) | - | -0.053(0.033) | 0.008(0.034) |
| LEL x REGIME2 | - | 0.102**(0.036) | 0.037(0.049) | - | -0.126*(0.053) | 0.076*(0.036) |
| LEL x REGIME3 | - | 0.083(0.045) | - | - | - | - |

*Notes*: Panel corrected standard errors in brackets and autoregressive disturbances are indicated if autocorrelation is detected.

Please note that interaction effects were estimated separately (except for the regime variables). Moreover, all models are tested with the following variables: ΔTRADE, ΔTRADE, FDI, ΔFDI, GDP, ΔGDP, DEBT, ΔDEBT, RIGHT, POLINST. The results for all these variables remain the same as in Table 2 and are therefore not displayed for reasons of simplicity. Additionally, the models are estimated with the variables included in the interactions.

The *REGIME* variable has to be read as follows: Model I (*TOTAL*): *REGIME1*= Corporatist; Model II (*OLDAGE*): *REGIME1*=Bismarckian, *REGIME2*=Early Birds, *REGIME3*=Latecomers; Model III (*UNEMPLOYMENT*): *REGIME1*=Voluntary State Subsidised, *REGIME2*=Corporatist Insurance Systems; Model V (*FAMILY*): *REGIME1*=General Family Support, *REGIME2*=Dual-Earner Support; Model VI (*HEALTH*): *REGIME1*=Social Health Insurance; *REGIME2*=Private Insurance.

*p, z<0.05, **p, z<0.01, ***p, z<0.001.

The results presented in Table 3 again reveal conditional convergence. The lagged level of social expenditure (not displayed) shows a significant negative sign in every model. Only in model IV (*ALMP*), the coefficient of the *LEL* is less substantive. The overall results for the *LEL* indicate that the rate of adjustment does not entirely depend on the conditional factors. The reasoning goes as follows: If the coefficient of the *LEL* is zero and that of the interaction effect is different from zero, the rate of adjustment entirely depends on the conditional factor. If, however, the coefficient of the *LEL* is negative and that of the interaction effect is zero, the rate of adjustment is not affected by other factors. If both are different from zero, the speed of convergence is partly influenced by the conditional factors.

With respect to the globalization hypothesis $H_1$, the results clearly show that an increase in trade openness tends to accelerate the convergence process. This can be illustrated with simulated values. For example, in model V (*FAMILY*) the effect of the *LEL* is -0.086 when the *TRADE* variable takes its minimum value and -0.378 at its maximum. The long-run effect is also negative for the whole range of trade and stronger for high values. Only in model III (*UNEMPLOYMENT*), is the reverse effect observable. Moreover, a higher level of foreign direct investment (*FDI*) inflows advances convergence particularly in old age and family expenditure.

The picture is similar for the influence of EU membership ($H_2$). In all models the interaction between the *LEL* and EU membership shows a negative sign even though the effects do not reach significance level in all models. However, given the low statistical power, effects close to conventional significance levels such as the EU effect in Model I, can be considered meaningful. Again, we can illustrate the marginal impact of the EU membership on the rate of convergence family expenditure. The effect of the *LEL* regarding family expenditures changes from -0.026 (-0.017 in the long run) for non-EU members to -0.092 (-0.025 in the long run) for EU members. This indicates that countries inside the EU converge faster than non-members. The EU constitutes a convergence club.

Due to severe multicollinearity, the test of the EU hypothesis could not be applied to model III (*UNEMPLOYMENT*).

The results for the effect of domestic constitutional arrangements (H$_3$) in model I (*TOTAL*) and particularly in model III (*UNEMPLOYMENT*) are counterintuitive. Note that, as expected, the effect of political institutions in Table 2 was negative. However, when the effect of the number of veto points on the influence of the *LEL* is estimated (interaction effect), we find the exact inverse pattern: a higher number of veto points *increases* the rate of adjustment. When the institutional arrangement equals 0, the effect of *LEL* on the annual change of expenditure on unemployment schemes is -0.124 while under a highly restrictive institutional arrangement the effect is -0.291. Given the very strong theoretical expectations that veto points slow down welfare state convergence, this is a truly puzzling result that is in need of explanation. It might be argued that a high number of veto points restrict the scope for political action. Politicians have only a limited number of policy instruments available and expenditure development within a narrow institutional framework may be more likely to follow the driving forces of overall convergence. Conversely, a wider room for manoeuvre may lead to a variety of divergent policy solutions and therefore to a lower rate of convergence within countries with a low number of veto points.

A number of very interesting results concern the impact of the existing welfare state structure on the rate of adjustment or, in other words, policy feedback. The exact operationalization of the *REGIME* variable is again determined by the type of expenditure analysed. For instance, we use the classification of the pension system – Bismarckian, 'early birds' and so on – when testing for the convergence of old age expenditure, and we use typologies of unemployment compensation schemes – 'voluntary state-subsidised', 'corporatist' and so on – when analysing expenditure on unemployment.

With regard to total expenditure, our central hypothesis (H$_{4.1}$) stated that the rate of adjustment should be slower in corporatist welfare regimes. This hypothesis is supported by

the empirical results. In the absence of a corporatist welfare regime, the effect of the *LEL* is -0.082 in comparison to 0.005 in its presence. In the long run, the total effect of the *LEL* is -0.158 in non corporatist regimes while a one unit increase in the level of social expenditure in corporatist countries turns out to increase the social expenditure in total by 0.01. Furthermore, the analysis of convergence clubs in old age expenditure clearly shows that Bismarckian systems converge differently in comparison to all other countries – even to the ones that supplemented their initial basic pension schemes with earnings-related top-ups (the 'early birds' and 'latecomers'). The convergence process of Bismarckian systems is slower, which is in line with the hypothesis that these systems are very difficult to modify ($H_{4.2}$), perhaps due to their strong contribution-benefit nexus. The presence of a Bismarckian system decreases the convergence effect of the *LEL* from -0.164 to -0.024. More surprisingly, 'early bird' countries such as Sweden also show a lower rate of convergence. Yet, in contrast to the 'latecomers' (for example, Australia), these are also countries where the second additional pension pillar is based on pay-as-you-go principles and public provision. They could be subject to rather similar pressures as to those seen in Bismarckian countries. In model III, all estimated coefficients for the regime interactions are highly inefficient, indicating that neither the voluntary state-subsidised system of unemployment compensation nor the corporatist insurance system of unemployment compensation constitute convergence clubs (as hypothesized in $H_{4.3}$). Concerning family expenditure, dual-earner regimes tend to have a higher rate of convergence, which contradicts the theoretical hypothesis formulated above. Last but not least, the private health care systems of Switzerland and the United States constitute a convergence club.

# 6. Conclusion

In this article, we have examined whether social policy has converged in 21 OECD countries from (**← p. 130**) 1980 to 2005. We have shown that it has and explained why. The contribution of this analysis to the research literature on welfare state convergence is twofold: methodological and substantial.

In terms of *method*, for the first time, the procedure suggested by Plümper and Schneider (2009) is applied to the analysis of social policy convergence. It can be shown that estimating rather than measuring convergence has several distinct advantages: first, the regression approach allows for the testing of alternative explanations of convergence processes rather than merely describing them. Second, the regression approach also makes it possible to identify conditional convergence or convergence clubs. Third, we have demonstrated that applying a dynamic panel estimation technique, namely error correction models (ECMs), is particularly suitable for modelling convergence processes.

The *substantial* contribution can be summarized as follows: the overall conclusion from this article is that welfare state convergence is a much more common phenomenon than suggested by the literature so far. Earlier studies exclusively focused on absolute convergence when analysing disaggregated social expenditure. Therefore, they were not able to detect how widespread convergence in social expenditure rates really is. More specifically, previous research did not identify convergence in old age, family and active labour market schemes. Our analyses, by contrast, reveal that, when taking important conditional factors into account, convergence exists both at the aggregate level of the 'whole' welfare state and at the disaggregated levels of the main spending categories. This fills an important gap in the literature.

When modelling conditional factors through interaction terms, several substantive conclusions can be drawn: the speed of welfare state convergence is influenced by the degree of globalization, EU membership and welfare regime type. First, globalization clearly brings national policies closer together. The more open the economy to trade and investment, the stronger the tendency to become more alike. Second, the EU constitutes a convergence club and accelerates the speed of convergence within its member states. Perhaps this result comes as no surprise given the EU's goal of creating an 'ever closer union', but the hypothesis has rarely been empirically tested so far. What is more, the speed of convergence depends, third, on the welfare regime type. This holds not just for the overall welfare regime but also for the more policy-specific typologies. In particular, structures that emphasize the link between contributions and benefits (for example, corporatist welfare regimes and Bismarckian pension systems) inhibit convergence.

There are several avenues for further research. The question of convergence mechanisms, for instance, could be further differentiated. This is most clearly the case for the globalization effect on welfare state convergence. While, in this study, we have established a globalization effect, it remains unclear if this is primarily an economic phenomenon or if it has to do with increased cross-national policy transfer and learning. To answer these questions, one would have to find more precise globalization indicators and use methods designed to explicitly deal with competition and diffusion, notably spatial regression techniques. In addition, in this analysis we deliberately left the question of direction largely unexamined. It seems promising to look not just at convergence effects but at the long-term steady states towards countries are moving. (← p. 131)

# Appendix: TableA1 Operationalization and data sources (← p. 135)

| Variable | Description | Source |
|---|---|---|
| *Dependent variables* | Growth rate of social expenditure as a percentage of GDP (aggregate and disaggregate, programme-level expenditure) | OECD (2008c), *Social Expenditure Database* |
| *LEL* | Lagged social expenditure level as a percentage of GDP at t-1 | OECD (2008c), *Social Expenditure Database* |
| *TRADE* | Openness of the economy, measured as total trade (sum of imports and exports) in current prices as a percentage of GDP | Heston et al. (2006) *Penn World Table Version 6.2* |
| *FDI* | Net inflows of foreign direct investment as a percentage of GDP | World Bank (2006), *Development Indicators* |
| *EU* | EU membership (1=yes; 0=no) | Own assessment |
| *GDP* | Real GDP per capita | United Nations Statistics Division (2009), *National Accounts* |
| *GROWTH* | Growth of real GDP | Heston et al. (2006) Penn World Table Version 6.2 |
| *DEBT* | Gross government debt (financial liabilities) as a percentage of GDP | OECD (2008a), *Economic Outlook* |
| *RIGHT* | Cabinet composition: right-wing parties as a percentage of total cabinet posts, weighted by days | Armingeon *et al.* (2009) *Comparative Political Dataset* |
| *POLINST* | Augmented index of constitutional structures by Huber et al. (1993: 728); Description: additive index composed of five indicators: (1) federalism (0=absence, 1=weak, 2=strong) (2) parliamentary government =0, versus presidentialism or other =1 (3) proportional representation =0, modified proportional representation=1, majoritarian=2 (4) bicameralism (1=weak, 2=strong), (5) frequent referenda=1. | Armingeon *et al.* (2009) *Comparative Political Dataset* |
| *UNEMPL* | Unemployed as a percentage of civilian labour force | OECD (2008b) *Employment and Labour Market Statistics* |
| *WOMEN* | Employed women as a percentage of civilian labour force | OECD (2008b) *Employment and Labour Market Statistics* |
| *REGIME* | Table 2 Model I (TOTAL) and Model IV (ALMP): REGIME1= State Corporatist, REGIME2= Encompassing | Korpi and Palme (2003: Table 1) |
| | Table 2 Model II (OLDAGE): REGIME1= Bismarckian, REGIME2= Early Bird, REGIME 3=Latecomer | Hinrichs and Lynch (2010) |
| | Table 2 Model III (UNEMPLOYMENT): REGIME1=Voluntary State-Subsidies, REGIME2=State Corporatist | Sjöberg et al. (2010) |
| | Table 2 Model V (FAMILY): REGIME1: General Family Support, REGIME2=Dual Earner Support | Korpi (2000) |
| | Table 2 Model VI (HEALTH): REGIME1=Social Health Insurance, REGIME2=Private Insurance | Schmid et al. (2010) |
| *YOUNG* | Population aged 15 and under as a percentage of the total population | OECD (2008b) *Employment and Labour Market Statistics* |
| *ELDERLY* | Population aged 65 and over as a percentage of the total population | OECD (2008b) *Employment and Labour Market Statistics* |

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