

**TOWARDS A SOCIAL  
INVESTMENT WELFARE  
STATE?**

Ideas, policies and challenges

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## Do social investment policies produce more and better jobs?

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### Introduction

The argument for the social investment strategy depends on the ability of the strategy to produce employment and particularly employment in high-quality jobs, jobs that are attractive in terms of remuneration and in terms of quality of work. It is really that latter ambition that distinguishes the promise of the social investment strategy from a neoliberal strategy which creates employment by increasing wage dispersion and creating a large number of low-paid private service jobs in sectors such as hotels, restaurants and personal services, which has been the US path to high employment (Esping-Andersen, 1999).

Our analysis is an evaluation of whether this strategy has delivered on these aforementioned promises. First, in a pooled time series analysis of data on 17 OECD countries from 1972 to 1999, we examine the effect of various policies we identify as related to the social investment paradigm on employment levels, both for the economy as a whole and for a subset of knowledge-intensive industries. We consider employment in knowledge-intensive services to be a good measure of the level of quality employment. We find that short-term unemployment replacement rates, active labour market policy, day care spending, sick pay, education spending and educational attainment are very strongly related to employment levels, and that all of these policies with the exception of sick pay are very strongly related to employment levels in knowledge-intensive services.

Second, in a cross-sectional analysis we examine whether social investment is associated with high levels of discretionary learning employment, arguably the best available measure of quality employment (see Chapter Nine). For this analysis we bring literacy into the equation to understand the relationship between social investment policies, skill acquisition and employment. It is, in fact, the accumulation of human capital which links social investment policies to employment

outcomes. Establishing a relationship between these three factors is therefore critical to sustaining the validity of the theoretical arguments put forth thus far. Because our key variable is only available cross-sectionally, our analysis is necessarily tentative, but we do find strong evidence affirming a positive relationship between social investment policies, human capital and quality employment. In short, the results provide substantial evidence that the policies associated with the social investment perspective lead to the expansion of employment, particularly employment in quality jobs.

The rest of the chapter proceeds as follows. First, we define the research question and justify the inclusion of the independent variables in the literature review. The measurement of the variables and the analytic techniques are then reviewed. From there, the next section displays the results of the first analysis on employment levels, both in the aggregate and for a subset of knowledge-intensive industries, and the next section develops these results further by examining variation in skill levels. The final section concludes.

### What we know about social investment outcomes

Analysing the effect of social investment policies on employment outcomes calls for a clarification of the social investment perspective as well as an elaboration of how various policies associated with this perspective should improve employment levels. To begin, the social investment perspective embodies the view that public policies should 'prepare' individuals, families and societies to adapt to various transformations, such as the development of new social risks (Armingeon and Bonoli, 2006), population ageing and climate change, instead of simply generating responses to 'repair' damages after existing policies prove inadequate (see Chapters One, Two, Three and Fourteen). By addressing problems in their infancy, the social investment perspective stands to reduce human suffering, environmental degradation and government debt. The practical pursuit of this perspective calls for a new social citizenship regime (see Chapter Three), which empowers an interventionist state along with a vibrant civil society to anticipate and then address issues of relevance for the future wellbeing of individuals and society.

This chapter addresses a particular line of argumentation within the social investment perspective which relates human capital investment to the expansion of good jobs. The ways in which public policies address new types of social risks are indisputably vast and we choose to limit the scope of our analysis to include only those measures that

improve human capital. Facilitating the acquisition of skills addresses the production needs of various industries, develops the ability to learn and rapidly adjusts to changing conditions (Nelson, 2010; see also Chapter Nine in this volume), and creates active, forward-thinking participants for the associated social citizenship regime. Well-educated citizens (and denizens) therefore advance the social investment agenda in numerous ways. In the present analysis, we narrow our focus a second time to concentrate solely on how human capital policies address skill needs in today's knowledge economy. In doing so, we prioritise the direct labour market value of education and training.

Achieving high employment by promoting skill acquisition speaks to the social investment perspective 'to prepare rather than repair' in numerous ways. On an individual level, enabling individuals to participate in the labour market addresses the growing need to rely on market income to maintain a given standard of living, as family and state-based support become either less available or less sustainable. In this way, policies that promote labour market participation stem the rise of unemployment, precarious employment and poverty, which increase when individuals lack the necessary skills to be integrated successfully in the labour market. For society more broadly, improving the connection of individuals to the labour market increases national income, reduces long-term reliance on social benefits and therein budgetary pressure, and encourages new forms of business investment. Therefore, both individually and on more aggregate levels, promoting high-quality employment holds many advantages.

In light of the benefits to high employment, the precise types of policies which encourage human capital investments deserve attention. Of course, education and training policies constitute the most obvious method of improving skills relevant to the service-based, knowledge economy, particularly cognitive and social skills. Other types of public policies, though, such as sick pay, can also protect the value of individuals' skills. Since skills diminish if not used (a phenomenon economists refer to as skill atrophy (Pissarides, 1992)), policies that minimise periods of absence from the labour market uphold the value of workers' skills over time. Human capital policies that expand high-quality jobs therefore include those that aid in the acquisition of skills as well as protect the value of skills already acquired.

The theoretical arguments about the need to acquire and protect skill investments embody ideas about the centrality of skills to employment growth and the value of government intervention that are in part unique to the social investment perspective. As a case in point, the capacity to address unemployment through supply-side measures

remains a topic of considerable debate; and the proposal for more government intervention flies in the face of the neoliberal orthodoxy that assumes that markets always function efficiently. In this way, in proposing a new paradigm for promoting economic growth in a socially just way, the social investment perspective challenges existing beliefs about why unemployment persists and what should be done to address it (see Chapters One and Two). In the space below, we develop hypotheses about how various policies invest in human capital and thereby enable individuals to succeed in the knowledge economy. We finish this section by explaining how these hypotheses challenge the neoliberal orthodoxy and by addressing possible scope limitations.

### **Education and labour market policies conducive to social investment**

Skill acquisition in formal institutions begins in early childhood education and care (ECEC) and continues in the primary, secondary and tertiary stages of education. Skill acquisition during these stages of education is realised through policies which promote high enrolment and quality instruction. The state of the economy arguably plays the largest role in how many students participate in educational courses, with industrialisation coupled with nation building constituting the largest force behind compulsory education reforms and the growth of the knowledge economy provoking policies that encourage lifelong learning.

Participation in a course of education, however, does not directly translate into high achievement, and the precise policies which promote achievement remains a topic of considerable debate. In light of these debates, a brief discussion of the limitations of our education policy measures is in order. The literature proposes three critiques to measuring education policy as public spending as a percentage of GDP. First, spending effort alone does not provide any information about how spending is allocated, and then translated into learning outcomes in the classroom. Second, this measure does not reveal how much is spent per student. UNESCO offers such a measure but unfortunately it is only available quite recently. Third, GDP as a denominator could pose problems since expansion or contraction of the economy influences the indicator even if spending effort over education has not changed at all. These limitations suggest caution in presuming a straightforward relationship between government spending and the accumulation of human capital.

To make a case that these four stages of education indeed lead to the acquisition of skills demanded in the labour market and the resulting expansion of jobs, and good jobs in particular, we discuss each stage of education in turn, focusing on how patterns of enrolment have changed over time and then working to build a case that each type of education delivers skills demanded in today's economy. Then the relationship between human capital accumulation and employment growth is considered. We also address these aforementioned concerns in the analytical section which analyses the relationship between spending, skill levels and employment.

To begin, ECEC has as much to do with promoting mothers' employment as it does with improving the cognitive and social skills of young children (see Chapter Six). With the large-scale movement of women into the labour market and the observation that policies which reconcile work and family help sustain fertility rates and thereby population replacement, public policies have been expanded which offer alternatives to parental care. ECEC therefore invests in mothers' skills by allowing them to return to work and thereby avoid skill atrophy. With the growth of the knowledge economy, ECEC has also received attention for delivering cognitive skills important for coping with an ever-changing, knowledge-intensive labour market, and numerous studies confirm a significant impact of attendance on cognitive development (Broberg et al., 1997; Campbell et al., 2001; Waldfogel, 2002; Brooks-Gunn, 2003; Magnuson et al., 2007; Burger, 2010). Finally, there does appear to be a correlation between average cost of ECEC and enrolment levels cross-nationally (OECD Family Database).

Whereas ECEC is often voluntary, school attendance is compulsory for about ten years between the ages of roughly six and 16 across advanced industrialised countries and students are encouraged to complete upper secondary school, which typically requires an additional two years. By the end of the nineteenth century, most advanced industrialised countries had implemented compulsory education laws, the length of which was extended throughout the twentieth century. Between 1935 and 1940, primary school enrolment ranged from 28.6% in Portugal to 100% in Canada with the rest of the liberal welfare states lying close to Canada and most continental and Nordic welfare states with about 70% enrolment (Benavot and Riddle, 1988). By the end of the century, enrolment had risen to incorporate almost all school-age children for the duration of primary and secondary education across advanced industrialised countries.

The content of compulsory education has changed over time as well. Up until about 1850, reading, writing and arithmetic made up most of the curriculum (Cha, 1992: 64). Since then, new subjects were introduced, such as social studies, science, art and physical education (ibid), in line with scientific and political developments. As of about 1950, technological change motivated fundamental curricula adjustments to incorporate new technologies into new types of courses or existing teaching methods (Rasinen, 2003; Tondeur et al., 2007). Much research has also focused on pedagogical techniques and the way in which teachers can encourage creative thinking, a facility found to play a more central role in adapting to a more changeable labour market (Hargreaves, 2003). The multifaceted aims of education systems and the particular way in which they reflect economic and social development can be seen in a UNESCO study which assessed national education reports for 161 countries across the world (Benavot and Brasavsky, 2006). Based on a set of educational aims drawn from the literature, the researchers coded the presence (coded as 1) or absence (coded as 0) of these aims in national educational reports. For the period since 2000, the study finds that 48% of country reports emphasised employability, 34% technological and scientific knowledge, 27% lifelong learning, and 22% creative development. For comparison, the highest scoring aim was personal and emotional development at 73%, followed by the norm of equality at 63% and national identity at 55%. Education policy today therefore tends to look beyond basic reading, writing and numeracy skills to address skills made more relevant by the growth of the knowledge, or learning, economy.

In a similar way, tertiary education has become more important over time as a source of advanced theoretical knowledge. The popular press talks about a massification of higher education due to reduced barriers to participation and resulting elevated enrolment rates. The World Bank also writes that:

Tertiary education institutions support knowledge-driven economic growth strategies and poverty reduction by (a) training a qualified and adaptable labour force; (b) generating new knowledge; and (c) building the capacity to access existing stores of global knowledge and to adapt that knowledge to local use. Tertiary education institutions are unique in their ability to integrate and create synergy among these three dimensions. (World Bank, 2002: 4)

Once attended by only a handful of the elite, the university now educates between a third (particularly in countries with a strong apprenticeship system) to above 90% (Canada) of each cohort. St George observes that: 'Science, technology and innovation, the cornerstones of the knowledge based economy, are now clearly on the agenda of both developed and developing countries, as fundamental to achieving sustainable development across the globe' (St George, 2006: 607–8).

Having reviewed policies which primarily facilitate skill acquisition, the focus turns now to policies that protect the human capital of working adults, including active labour market policies, unemployment insurance and sick pay. Active labour market policies protect the employability of marginalised workers through either training or placement in employment positions. In doing so, these policies reduce the risk of skill atrophy and protect the value of workers' existing human capital. It should be noted, however, that training measures also supplement participants' skill set and therefore play a role in skill acquisition as well. The particular profile of active labour market policies pursued by governments has changed over time depending on the state of the economy (see Chapter Seven). Evidence exists that spending on these policies increases employment levels (Kenworthy, 2003; Bradley and Stephens, 2007).

Short-term unemployment replacement rates are also expected to protect the value of workers' human capital by facilitating the search for a job appropriate to the worker's skill set. The limited generosity of these policies over time, however, ensures that recipients feel sufficient financial pressure to re-enter the labour market. In this way, high replacement rates with short duration are strongly employment-friendly. High replacement rates may serve more to reward a worker for his/her skill investment while out of work than to create a reservation wage that prevents the worker from seeking re-employment, and they may allow workers with industry-specific skills to conduct longer and more costly job searches in order to find employment in which their skill set is fully utilised. The importance of social insurance for investment in especially asset-specific high skills is the central theme in Iversen (2005) and Estevz-Abe et al. (2001). High replacement rates also serve as a disincentive for workers to leave the workforce altogether.

In a similar way, sick pay helps individuals who leave the labour market temporarily due to illness to retain the means to re-enter the labour market. Rather than relying on savings during this period of absence and due also in part to other legislation regarding sick leave, individuals receive the financial means to recover completely and therefore return to the same position after their illness has subsided.

For this reason, generous sickness insurance helps to reduce the effect of health risks on deteriorating the value of workers' human capital. Bradley and Stephens (2007) show that short-term unemployment replacement rates and generous sick pay provisions are positively related to employment levels.

### Hypotheses

The hypotheses for the social investment variables on employment are derived in a straightforward manner from the literature review. We expect spending on total education, educational attainment, short-term unemployment replacement rates, day care and active labour market policies to be related to higher levels of employment either through increased participation in education or improved quality of instruction if not both. All of these policies invest in or protect the human capital of (future) workers and therefore improve their chances of finding jobs in the labour market.

Countries with strong social investment policies, moreover, should develop a comparative advantage in knowledge-intensive services.<sup>1</sup> Since jobs in such industries involve higher levels of workplace autonomy (Deetz, 1994; Robertson et al., 2003) and relatively high wages, we consider these to be high-quality jobs. We therefore expect that social investment policies, beyond leading to higher employment rates, support the expansion of good jobs.

Critics of this theoretical argument question the effectiveness of creating jobs through high public spending, condemning this approach as wasteful overeducation. Intervention in the economy more generally is seen as inhibiting business investment when the costs of financing social policy fall on employers.

In justifying the various social investment policies included in the analysis, we have already provided theoretical reasons why policies which promote skill acquisition and protect existing investment are relevant to the accumulation of skills necessary to succeed in the knowledge economy. In order to respond to the criticisms raised above, we review briefly the reasons why the expansion of social investment policies indeed leads to superior employment outcomes as compared to deregulation, the core job-growth strategy of the neoliberal agenda (on this agenda, see Chapter Two and the analysis of the OECD jobs study). Three rejoinders to the neoliberal view are in order. First, contrary to the classical economics perspective, markets do not always allocate resources in a profit-maximising way. Socioeconomic actors may face substantial informational or costs restrictions in participating in what

would otherwise be productive economic exchanges. Second, even where markets function well, collective action problems may obstruct the creation of good policy if participation in the policy cannot be guaranteed and defection is likely. As a case in point, since education is a public good, the benefits of which cannot be internalised, markets are destined to undersupply education policies (Evans, 2008) and therefore care needs to be used in judging existing levels of attendance and spending in educational institutions as an optimal equilibrium. Finally, employment growth today occurs either in high-skill or low-skill jobs. Difficulties of employers to find high-skilled workers demonstrates the extent to which demand for higher levels of skills remains high and therein the benefits to investing in social investment policies. For instance, the inability of many Western European companies to find software programmers has led them to search intensively in Eastern Europe. The market for these skills is so competitive that wages have largely equalised across the European Union. For these reasons, public policies that promote the accumulation of human capital stand to improve employment levels.

At the same time, there may be limits to the extent to which social investment policies can increase job growth and it is important to acknowledge the scope limitations of our theoretical framework and the political challenges inherent in changing national education systems. Although our approach proposes a supply-side solution to create jobs, attention needs to be given that educational courses address skills demanded in growth industries. In this way, the ability to expand employment through education relies on timely adjustments in educational courses to reflect growth areas (for example, green-collar jobs). Moreover, we are not suggesting that unrestrained upskilling is the answer. There are certainly jobs for which a lower level of education is more than sufficient. However, many individuals continue to fall below minimum literacy standards. To the extent that a significant proportion of youth continue to lack the necessary skills to obtain even a low-level employment position, investment in social investment strategies is too weak and there remains room for improvement.

### Data, measurement and analytic techniques

The first analysis of the determinants of employment levels includes 17 advanced industrialised countries from 1972 to 1999. The countries in this analysis include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Sweden, Switzerland, the UK and the USA. For the analysis of

knowledge intensive services (KIS), there are no data for Canada, Norway and Switzerland. In the second analysis of skills, data availability from the International Adult Literacy Survey (hereafter IALS)<sup>2</sup> leads us to drop the cases of Austria, France and Japan. However, since data from the IALS are only available cross-sectionally for the mid-1990s, we are able to include countries for which we lack time series data, including New Zealand, the Czech Republic, Hungary, Poland, Portugal and Slovenia. The measurement of the variables and the data sources are listed in Table 8.1. Details on the measurement and sources are listed in the appendix to this chapter. The analytic technique used in the pooled analysis is Prais Winsten regressions, that is, panel corrected standard errors and first-order autoregressive corrections. In Huo et al. (2008), we explain why this is the most appropriate technique for these data.

The metrics of the independent variables and employment variables are different, so it is not possible to say anything about the effect of each of them absolutely or relative to each other. To this end, we calculate the effect of a two-standard deviation change in the human capital variables on the dependent variables holding the other variables in the analysis constant. As mentioned previously, we have missing data for the three spending variables: education, day care and active labour market policies. The missing values are different for each variable and cumulatively, if entered in the analysis together, they would cause us to lose 48% of our cases. Thus, initially, we enter these variables, along with sick pay generosity, and one year replacement rates one at a time in the analysis (models 1–3). We calculate the two-standard deviation change effect on the basis of these models.

Model 4 enters educational attainment, our human capital stock variable, in the analysis and drops the human capital investment variables. In the final model, we enter both attainment and the human capital investment variables in the analysis together. Theoretically, we would expect the investment variables to operate entirely through their effect on human capital stock and thus not to be significant in this equation, but given the deficiencies of our stock variable, average years of education, this might not be the case.

Table 8.2 lists the values of the social investment variables and the dependent variables by country and welfare state regime. Let us begin by examining the variation by regime type in our dependent variables in the last three columns. Employment levels are highest in the Nordic countries followed by the Anglo-American countries, continental European countries and Eastern Europe, with the southern European countries at the low end. KIS employment follows a different

Economic analysis	
Employment: percentage of working age (15–64) population employed	Huber et al. (2004)
KIS employment: percentage of working population employed in knowledge-intensive services	EU KLEMS (2009), GDSC (2006)
Human capital investment variables	
Active labour market policy spending as a percentage of GDP/unemployment, cumulative average	OECD (2007)
Public education spending as a percentage of GDP cumulative average	OECD (2007)
Early childhood education and care, day care spending as a % of GDP cumulative average	OECD, Jannotte (2003)
Sick pay generosity	Scruggs (2005)
Educational attainment: average years of education of the populations 25 or more years old	Barro and Lee (2001)
Controls	
Gross replacement rate, one year, for an unemployment spell of one year for 2/3 median pay	OECD
Gross replacement rate, 4–5 year, for an unemployment spell of fourth and fifth year for 2/3 median pay	OECD
Social security payroll taxes as a percentage of GDP	Huber et al. (2004)
Total taxes as a percentage of GDP	Huber et al. (2004)
Degree of coordination of wage bargaining	Kenworthy (2001)
Union members as a percentage of wage and salary workers	Ebbinghaus and Visser (2000)
Capital market openness	Quinn and Inclan (1997)
Openness: Imports+exports as a percentage of GDP	Huber et al. (2004)
Economic analysis	
Skill acquisition index	Nelson (2008)
Literacy test scores: average for given percentile score of the adult population on the three parts (prose, quantitative, document) of the OECD/HRDC literacy test	OECD/HRDC (2000)
Discretionary learning employment	Valeyre et al. (2009)

Table 8.1: Variables used in data analysis

Table 8.2: Measures of human capital investment, human capital stock, and employment circa 1995

	1	2	3	4	5	6	7
	Public education spending (cumulative average)	Public education spending	Skill acquisition index	Altysp spending	Day care spending	(year) unemployment replacement rate	Sick pay generosity
<b>Nordic countries</b>							
Denmark	7.1	7.7	3.5	1.0	1.7	82	2.4
Finland	5.8	6.8	0.6	1.0	1.0	58	1.2
Norway	6.5	7.4	1.8	0.8	0.6	62	3.8
Sweden	7.5	7.2	1.5	2.1	1.8	90	3.1
Mean	6.7	7.3	1.8	1.3	1.3	73	2.6
<b>Western continental Europe</b>							
Austria	5.0	5.4	0.3	0.3	0.4	42	1.4
Belgium	5.5	5.2	0.3	1.2	0.1	55	2.0
France	5.3	6.6	0.2	0.9	0.4	69	0.3
Germany	4.6	4.6	-0.1	1.0	0.3	38	3.4
Netherlands	6.6	5.1	0.5	1.1	0.4	70	1.8
Switzerland	5.0	5.4	-0.0	0.3	0.1	70	1.1
Mean	5.3	5.4	0.1	0.9	0.3	57	1.7
<b>Southern Europe</b>							
Italy	4.3	4.9	0.0	0.3	0.1	15	0.3
Portugal	5.4	5.4	-0.2	0.4	0.0	65	0.7
Mean	4.3	5.2	-0.1	0.3	0.1	40	0.5
<b>Eastern Europe</b>							
Czech Republic	4.6	-0.5	0.2	0.2	0.1		
Poland	5.3	-0.0	0.3	0.5			
Hungary	5.3	-1.2	0.6	0.8			
Slovenia	6.0	0.4	0.0	0.7			
Mean	5.3	-0.3	0.3	0.5			
<b>Anglo-American countries</b>							
Australia	5.1	5.0	-0.9	0.4	0.1	32	-2.9
Canada	7.0	6.5	0.4	0.6	0.2	58	-2.4
Ireland	5.4	5.0	-0.6	1.1	0.1	38	-8.2
New Zealand	5.6	5.6	0.3	0.8	0.0	32	-4.4
UK	5.5	5.2	-0.3	0.6	0.0	26	-0.8
USA	6.2	4.7	-0.4	0.2	0.0	27	-8.3
Mean	5.8	5.3	-0.3	0.6	0.1	36	-4.5
Japan	3.6	0.5	0.2	0.3	0.2	32	-0.6

	8	9	10	11	12	13	14
	Educational attainment	Score on OECD literacy test	Mean	95th percentile	Employment	KIS employment	Discretionary retraining employment
<b>Nordic countries</b>							
Denmark	9.9	213	289	353	72.8	27.8	55.2
Finland	9.8	195	288	363	60.4	20.0	44.9
Norway	11.8	207	294	363	72.9		
Sweden	11.2	216	304	386	72.2	28.5	67.5
Mean	10.7	208	294	366	69.6	25.4	55.9
<b>Western continental Europe</b>							
Austria	7.6				68.8	17.2	47.3
Belgium	8.6	163	277	359	55.2	20.3	43.3
France	7.7				57.6	21.9	47.7
Germany	9.6	208	285	359	64.8	18.7	44.3
Netherlands	9.0	202	286	355	64.7	24.2	51.6
Switzerland	10.2	150	271	349	79.8	24.2	
Mean	8.8	181	280	356	65.2	21.1	46.8
<b>Southern Europe</b>							
Italy	6.6	114	237	325	51.0	14.1	36.8
Portugal	4.5	96	229	334	63.2	12.2	24.9
Mean	5.6	105	233	329	57.1	13.2	30.9
<b>Eastern Europe</b>							
Czech Republic	9.3	195	283	361	69.4	15.7	28.0
Poland	8.5	157	254	337	52.9	12.4	33.3
Hungary	9.7	99	230	328	58.1	11.3	38.3
Slovenia	7.2	109	235	328	66.6	12.7	34.9
Mean	8.7	140	250	338	61.8	13.0	33.6
<b>Anglo-American countries</b>							
Australia	10.3	146	274	359	68.4	22.2	
Canada	11.2	145	280	372	67.3		
Ireland	8.8	151	263	353	55.1	15.3	39.0
New Zealand	11.3	158	272	361	69.7		
UK	9.0	145	267	360	68.0	25.3	31.7
USA	12.2	133	272	371	72.6	26.6	
Mean	10.5	146	271	363	66.8	22.3	35.4
Japan	-0.8				74.0	16.2	

The data for discretionary learning are for 2005, the earliest for which data for the Eastern European countries are available.

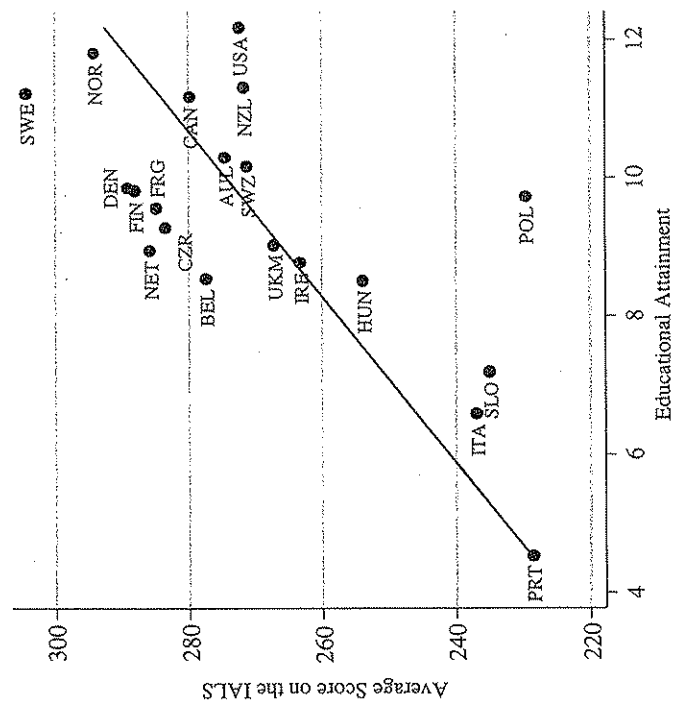


pattern with the Nordic countries followed by the Anglo-American countries and the continental European countries at the same level with Eastern and southern European countries at the bottom. Note that the KIS figures (like the overall employment figures) are expressed as a percentage of the working age population, which means that the percentage of total employment that is KIS employment is lower in the Anglo-American countries than in continental Europe. We should also note that the KIS employment figures are the percentage of the working age population working in KIS sectors, not the percentage working in KIS jobs. Thus, the discretionary learning employment figures, which are the percentage of employees working in discretionary learning jobs, has greater face validity as a measure of quality employment. In terms of discretionary learning employment, the Nordic countries are again at the top, followed by the continental European countries, with the other three groups at the bottom.

The Anglo-American countries stand out as doing well in overall employment performance but not in the production of quality employment. These countries are liberal market economies and have liberal welfare states. With high levels of wage dispersion and ungenerous welfare states, they have high levels of employment in low-wage service sector jobs, that is, employment but not quality employment. This fits with the fact that these countries do not invest heavily in human capital as indicated by our social investment variables in columns 1–7.

Columns 8–11 contain our measures of human capital stock in the adult population. Educational attainment is the average years of education of the adult population. Columns 9–11 are the average IALS scores at the fifth decile, the mean and the 95th decile. Figure 8.1 shows the relationship between the mean IALS score and average years of education. There is a moderately strong relationship between the two variables but not one that is sufficiently high to claim that they are measuring the same thing. Of the two variables, the IALS clearly has greater face validity as the more accurate measure of human capital stock. One can see that the Anglo-American and Nordic countries are similar in terms of average years of education but differ in terms of average literacy scores with the Nordic countries scoring much higher on the latter, arguably a result of their high levels of social investment. One can see from Columns 9–11 of Table 8.2 that the differences between these two groups of countries are concentrated in the bottom half of the skill distribution. The differences at the fifth percentile are particularly striking.

Figure 8.1: Average years of education of the population over 24 and mean score on the International Adult Literacy Survey



### Analysis I: Pooled times series analysis of employment and employment in knowledge-intensive services

Our central hypothesis is that social investment policies increase employment, particularly employment in high-quality jobs. We began our examination of the empirical evidence with a pooled time series analysis of the data which are available for 17 countries over the span of 18 years, from 1972 to 1999. First, we examine the impact of social investment policies on total employment to answer the question of whether such policies increase employment. Then we examine their impact on knowledge intensive service (KIS) employment, to answer the question whether they produce quality employment.

The results from the pooled time series analysis are shown in Table 8.3. The results largely support the hypotheses. Day care, short-term unemployment replacement rates, sick pay generosity, active labour market policies, education spending and higher educational attainment

increase employment levels. The final model indicates that day care, active labour market policy and sick pay have effects on employment levels independent of their effect on average years of education. That is, even independently of raising the level of formal education, these social investment policies increase employment by increasing the quality of skills. The model also indicates that average years of education has effects independent of the human capital investment policies. That is, average years of education does have an effect which is not simply a product of the social investment policies. Table 8.4 shows the estimated effect of the human capital variables on employment. To interpret the figures in the table, it is useful to know that the mean level of employment is 66% of the working age population and the standard deviation is 7.8%. Thus, the estimated effect of day care and active labour market policy is larger than a standard deviation and thus enough to move across more than 34% of the country years in the data set. These are impressive effects by any standard. The employment effects of sick pay generosity and educational attainment are also large.

**Table 8.4: Estimated effect of a two-standard deviation change in human social investment variables on employment**

Short-term unemployment replacement	2.8
Sick pay	5.1
ECEC (day care spending)	8.3
Active labour market policy spending	8.5
Educational attainment	5.0
Educational attainment with investment variables	4.3
Education spending	1.5

Table 8.5 displays the results of the regressions of employment in knowledge-intensive services on the human capital variables and controls. Day care, active labour market policies, education spending and higher educational attainment are associated with higher levels of KIS employment. Model 5 indicates that these investment variables have strong effects independent of their effect on average years of education. We interpret this to mean that they raise the quality of education. Referring back to Figure 8.1, they explain why the Nordic countries are all above the regression line and the Anglo-American settler colonies are all below it. That is, in the figure, the literacy skill levels of the Nordic countries are higher than one would expect given the average level of education. The analysis in Table 8.5 indicates that this helps these countries to produce high levels of KIS employment. Short-term unemployment replacement rates and sick pay generosity

**Table 8.3: Labour market and social policy determinants of employment levels**

	Model 1	Model 2	Model 3	Model 4	Model 5
Direct investment outflows	178 **	192 **	182 **	162 *	108
Openness	-0.85 ***	-0.49 **	-0.55 ***	-0.37 **	-0.52 **
Payroll taxes	-5.48 ***	-4.29 ***	-4.92 ***	-2.53 ***	-4.81 ***
Government revenue	-1.32 *	-2.47 ***	-0.38	-0.20	-1.48
Wage coordination	0.70	2.44	0.77	1.50	0.81
Union density	-0.89 **	-1.08 **	-0.63 *	0.51	-1.64 **
Long-term unemployment replacement	0.09	-0.83 ***	-0.77 ***	-0.56 **	-0.21
Short-term unemployment replacement	0.86 **	0.65 *	0.43 **	1.23	1.23
Sick pay	6.98 ***	7.79 ***	1.052 ***	7.96 ***	7.96 ***
Active labour market policy spending	28.842 ***	8.161 ***		26.178 ***	26.178 ***
ECEC (day care spending)			7.61 *	4.334 *	4.334 *
Total educational spending				1.55 **	1.326 **
Educational attainment	78.363 ***	82.869 ***	73.496 ***	55.058 **	67.376 ***
Constant	85	83	85	86	88
Common rho	95 ***	95 **	95 ***	90 ***	96 ***
R <sup>2</sup>	287	286	423	473	246
Observations					

\* significant at 5%, \*\* significant at 1%, \*\*\* significant at 0.1%; ^ significant opposite hypothesised direction. Cell entries are Prais Winsten coefficients; significance level calculated with panel corrected standard errors. R<sup>2</sup> proportion of variation in the employment levels explained by the variables in the equation.

are not robustly related to KIS employment. This makes theoretical sense as these two policies are probably most important to the least skilled members of the workforce and not to KIS workers. Table 8.6 displays the estimated effect of the human capital variables on KIS employment. Again the mean level of KIS employment, 19.6%, and the standard deviation, 6.1%, are relevant data in interpreting the strength of the effects. By this standard, the effects of educational attainment and day care are very large and the effects of active labour market policy and education spending large.

**Table 8.6: Estimated effect of a two-standard deviation change in human social investment variables on knowledge-intensive service employment**

ECFC (day care spending)	8.6
Active labour market policy spending	5.4
Educational attainment	6.9
Education spending	4.3

### Analysis II: Social investment policies, literacy skills and employment

As mentioned previously, the IALS data, which are direct measures of the quantitative, prose and document interpretation skills of the adult population, and thus are the most accurate measure of stock of general skills in the adult population, are only available at one time point. The discretionary learning employment data, the best measure of quality employment available, are not available at enough time points to make pooled time series analysis feasible. Thus in Table 8.7 we employ cross-sectional correlations to examine the effects of social investment policies on the IALS scores and the effects of both social investment policies and the IALS scores on the three employment variables.

The shaded area of Table 8.7 shows the correlations of the social investment measures with the IALS scores at three points in the skills distribution. With the exception of cumulative average educational spending, one sees that the impact of social investment variables is greater at the middle and bottom end of the distribution. These results provide insight into the relative position of the Anglo-American countries at the top and bottom ends of the skill distribution in Table 8.2. At the fifth percentile, the Anglo-American countries, weak as they are in social investment policies, do poorly, but at the 95th percentile, they score only slightly behind the Nordic countries. The contrasting position of the USA is particularly striking: at the top, it ranks third

**Table 8.5: Labour market and social policy determinants of employment in knowledge intensive-services**

Model	Model 1	Model 2	Model 3	Model 4	Model 5
Direct investment outflows	184 ***	154 ***	236 ***	113 ***	165 ***
Openness	-0.31 **	0.01	-0.26 **	0.03	-0.14
Payroll taxes	326 ***	196 ***	204 ***	-0.88 **	-2.45 ***
Government revenue	100 *	0.83 *	1.81 ***	2.20 ***	-0.09
Wage coordination	-427 v	-189 v	-124	0.16	-3.38 v
Union density	-0.97 ***	-1.41 ***	-0.68 ***	-0.18	-1.18 **
Long-term unemployment replacement	0.55 v	0.29 v	0.13	0.05	0.40 v
Short-term unemployment replacement	0.87 ***	0.15	0.25 **		0.20
Sick pay	123	-0.06	2.12 *		1.53
Active labour market policy spending	18.373 ***			12.009 ***	
ECFC (day care spending)	8.449 ***			3.352 **	
Total educational spending		2.455 ***		1.966 ***	
Educational attainment	19.120 ***	19.837 **	2.557	2.149 ***	-1.03
Constant	78	82	81	-6.960 **	14.537 **
Common rho	82 ***	84 **	80 ***	6.8 **	87 *
R <sup>2</sup>	235	251	334	371	216
Observations					

\* significant at 5%; \*\* significant at 1%; \*\*\* significant at 0.1%; v significant opposite hypothesised direction. Cell entries are Prais Winsten coefficients; significance level calculated with panel corrected standard errors. R<sup>2</sup> proportion of variation in the employment levels explained by the variables in the equation.

behind Sweden and Canada; at the bottom, it scores behind all the countries in the Nordic, continental European, Anglo-American groups, but also behind the Czech Republic and Poland. Tentatively, one could interpret these findings in the following way: at the high end of the skill distribution (which is certainly correlated to high levels of parental education and income), private educational investment and residential segregation, both characteristics of the egalitarian Anglo-American countries, make low levels of public human capital investment less consequential for skills at the high end. Expressed another way, elites across all countries manage to pass on valued skills and their related advantages to their children. Whereas a disadvantaged person is likely to develop greater literacy skills in Sweden than in the USA, for instance, well-to-do people in both these contexts should demonstrate high literacy because they are not dependent on public policies for skill development.

Figure 8.1 suggests an additional explanation to the contrasting performance of the Anglo-American countries at the top and bottom end of the distribution. The Anglo-American settler colonies (USA, Canada, Australia and New Zealand), all of which have a tradition of very broad access to secondary education, are well below the regression line, which indicates that they score poorly on the IALS given the average years of education of the adult population. The low values on the Anglo-American settler colonies on the human capital investment variables indicate the reason for this is probably that the quality of education at the primary and secondary level is not high on average in these countries. We should note here that two of these countries, the USA and Canada, were actually the countries with the highest level of educational spending in 1970, spending 8.5% and 7.4% of GDP on education, respectively. Their relative position deteriorated after that point.

Below the shaded area in Table 8.7 one finds the correlations of the social investment variables and the three employment variables. As one moves from total employment to KIS employment to discretionary learning employment, the correlations between the social investment variables and the employment variable increase in strength. Thus, social investment policies are much more consequential for the production of quality jobs than they are for the production of jobs regardless of quality; the correlations of the IALS and the employment variables (the box on the lower right-hand corner of the table) indicate a similar pattern: the measures of the stock of human capital are much more strongly related to quality employment than they are to the overall level of employment. These findings suggest that social investment

Table 8.7: Correlations between social investment policies, literacy scores and employment outcomes

	Bottom fifth percentile literacy	Average literacy	Top 95th percentile literacy
Discretionary learning employment	82	83	82
Employment in KIS in 1995	50	40	54
Employment levels in 1995	58	30	54
Top 95th percentile literacy	79	41	53
Average literacy	42	51	53
Bottom fifth percentile literacy	57	60	54
Cumulative educational spending	66	68	66
Educational spending in 1995	42	51	54
Skill acquisition index	58	64	66
Cumulative ALMP spending in 1995	58	64	66
EGEC (cumulative day care spending)	27	38	47
Short-term unemployment replacement	21	30	40
Sickness insurance	20	42	45
Average literacy	15	37	41
Top 95th percentile literacy	16	37	41
Bottom fifth percentile literacy	50	67	72
Average literacy	72	79	81
Top 95th percentile literacy	72	79	81

policies therefore steer countries on a route to high employment that also improves the quality of work. Deregulation and slashing wages are often touted as necessary measures to increase jobs by those supporting the neoliberal orthodoxy. Our results show that investing in people is another viable path to high employment.

## Conclusion

In our pooled time series analysis, we find strong support for the hypothesis that social investment policies have large effects on employment and quality employment more specifically. Short-term unemployment replacement rates, sickness insurance, day care spending, education spending, active labour market policy and average years of education all have significant effects on total employment levels and all of them except sickness insurance have significant effects on employment in knowledge-intensive services. The effects of active labour market policy spending and ECEC on both dependent variables are particularly strong. Moreover, there are effects of sickness insurance, active labour market policy and ECEC on employment, and of active labour market policy, ECEC and education spending on KIS employment independent of average years of education.

In our correlational analysis, we were able to include data from the International Adult Literacy Survey on the prose, quantitative and document interpretation skills of the adult populations of the countries studied, which is by far the best indicator of the human capital stock of the adult population. Moreover, since OECD/HRDC (2000) reports the average national scores at different deciles of the skill distribution, these data allow us to pinpoint where in the skill distribution the cross-national differences lie. For EU member states, we could also include data from the fourth European Working Conditions Survey on the level of discretionary learning employment, the best available indicator of quality employment (Valeyre et al., 2009). We found that there were strong effects of the social investment policies on the human capital stock and these effects were concentrated in the bottom half of the skill distribution. That is, social investment policies are particularly important in improving the skills at the mean of the skill distribution and below. In terms of the effect of social investment policies on employment, we found their effect on quality employment to be much larger than their effect on overall employment, regardless of quality. Moreover, the effect of social investment policies was greater for discretionary learning employment, our best-quality employment measure, than for KIS employment. Similarly, the IALS skill measures were more strongly

related to the two measures of quality employment than to the measure of overall employment. In sum, we present strong empirical evidence that social investment policies do indeed produce more quality jobs, precisely the type of jobs characteristic of the emerging knowledge economy.

In pooled time series analyses, we and our co-authors have shown that social democratic government is associated with high levels of all of our human capital variables (Huo et al., 2008; Iversen and Stephens, 2008; Nelson and Stephens, 2009). The links between some of these variables, such as educational spending, and social democratic government are not as obvious as in the case of policies aimed primarily at redistribution. It would seem that parties across the spectrum would be in favour of upgrading the skills of the workforce. The additional motivation for left governments to invest in education is to expand secondary and tertiary school enrolment to open up educational opportunity to sons and daughters of workers. The expansion of secondary and tertiary education also expands the supply of educated workers, which reduces the education premium in income, which in turn results in greater income equality, the traditional goal of social democracy. Conservative parties by contrast may want to protect the educational privileges of their upper income constituencies, so they oppose expanding secondary and tertiary education. The average human capital level of the working age population suffers as a result: a World Bank study by Thomas et al. (2001) shows that there is an extremely high correlation between inequality of education as measured by the Gini index and average years of education, suggesting that it is almost impossible significantly to increase the average level of education without increasing equality in the distribution of education.

Had we historical data reaching further back than 1970, when our education spending time series begins, the relationship between social democratic government and education spending would probably not have been so strong. In 1970, the three highest education spending countries were Canada (8.5% of GDP), the USA (7.4%) and Sweden (7.4%), followed by the Netherlands (7.0%) and Denmark (6.7%). This is right after the Johnson administration's Great Society programmes, many of which involved education investment, and a long period of Liberal government in Canada (19 of 26 years since the end of the war). This suggests that centrist parties may invest in education in order to improve the workforce's skills and to increase educational opportunity and social mobility, so that social democratic government is not a necessary condition for social investment.

Higher spending in Canada and the USA in the early 1970s still would have an effect on total employment and KIS employment in our data analysis because people in school in this period were still in the workforce at the end of our time series or in the mid-1990s cross-section. One can see in Table 8.2 that the USA and Canada are higher on the cumulative average education spending variable than they are on education spending in 1995. Arguably, this had a positive impact on employment and especially KIS employment in those two countries. The decline in education spending in the USA and Canada does not bode well for the ability of the two countries to continue to produce high levels of high-quality employment.

## Notes

<sup>1</sup> Eurostat classifies the following service sectors as knowledge intensive: (61) water transport, (62) air transport, (64) post and telecommunications, (65) financial intermediation, (66) insurance and pension funding, (67) other financial intermediation, (70) real estate, (71) renting of machinery and equipment, (72) computer and related activities, (73) research and development, (74) other business activities, (80) education, and (85) health and social work. The numbers of sector are codes according with the NACE (French acronym for Statistical Classification of Economic Activities in the European Community) classification scheme.

<sup>2</sup> Consistent with the usage in the IALS publications, we refer to the IALS as measuring 'literacy' skills, but we emphasise that it measures quantitative skills and document interpretation as well as verbal skills.

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### Appendix: Measurement of the variables

The first dependent variable in the pooled analysis is employment levels, which are measured as the number of employed individuals as a proportion of the working age population (15–64 years old). Our measure of knowledge-intensive services is based on the Eurostat classification of industrial sectors into classes based on technological and knowledge intensity. Eurostat classifies the following service sectors

as knowledge-intensive (see note 1 for a list of the sectors). The data sources were GGDC (2006) and EU KLEMS (2009). The GGDC and EU KLEMS data were incomplete for sector 92, recreational, cultural and sports activities, so this sector was not included in our analysis. Only an average of 1.1% of the working age population worked in this sector compared to 19.6% in all other KIS sectors, so it is unlikely that the exclusion of this sector affected our results. (Initially, we intended to include sectors which Eurostat classifies as high technology manufacturing. However, two of these sectors, manufacture of pharmaceuticals, medicinal chemicals and botanical products (244), and manufacture of aircraft and spacecraft (353), are defined at the three-digit level and, apparently for this reason, there were no data for many country years and a number of countries had no data at all for one or both of the sectors. An average of only 1.4% of the working age population worked in these sectors. It is not surprising that when we reran the analysis including these sectors for only country years for which complete data were available, the results were essentially the same.)

The main explanatory variables include day care spending, active labour market policy spending, total educational spending, sick pay generosity, educational attainment and the short-term unemployment replacement rate (see Table 8.1). Day care effort, our measure of early childhood education and care, is measured by public day care spending as a percentage of GDP. These data are drawn from the OECD and Jaumotte (2003) series on day care spending. We use the OECD series and fill in with Jaumotte for 28 observations for which she has data and the OECD does not. There are 286 observations in this series for the period 1980–99 but of varying length depending on the country. The measure of active labour market policies is the level of government spending on active labour market programmes as a percentage of GDP. The variable is further divided by the unemployment rate in order to control for the number of individuals actually in a position to use these policies. There are 287 observations in this series of varying length, depending on the country. Education spending is measured as a percentage of GDP. We reasoned that these spending variables would have little immediate effect but rather would play out over time, so we measure them as cumulative averages.

Our measure for sick pay generosity is drawn from Scruggs' (2005) data. He provides measures for replacement rates, coverage, waiting days and qualifying conditions. We standardised each measure and then added the standard scores of replacement rates and coverage and subtracted the standard scores of waiting days and qualifying conditions.

The measure for educational attainment comes from Barro and Lee (2001). We use their measure of average years of schooling for those aged 25 and over. Total years of schooling is preferred over attainment of a given level of schooling (primary, secondary, and so on) in order to recognise all forms of education participation regardless of whether or not it culminated in an official qualification.

We use the OECD summary indicator of 'benefit generosity' of unemployment insurance at two-thirds of the average earnings level for our measures of short- and long-term unemployment replacement rates. One of our social investment variables, the one-year replacement rate, and one of our control variables, the replacement rate in the fourth and fifth year, are the average replacement rates across three different family situations (single, married with dependent spouse, and married with spouse in work). The OECD data are gross replacement rates. Both the income and the transfer are pre-tax. Net replacement rate is clearly the preferable measure. Scruggs (2005) has recently released data on net replacement rates and duration of benefits, but there it is not possible to calculate the replacement rate for bouts of unemployment of long duration from the data, which is essential for our purposes. As we have shown in previous work, these variables have the opposite effect on employment, which makes theoretical sense. Work by other scholars has shown that generous short-term replacement rates have positive effects on skills while generous long-term replacement rates, which tend to lengthen unemployment bouts, are associated with deterioration of skills (Huo et al., 2008). To check the validity of the gross replacement rates data, we calculated a net replacement rate for a bout of unemployment one year long from the Scruggs data. The one year gross and net replacement rate series are highly correlated (0.85), which increases our confidence in the analysis using the OECD measure.

The remaining controls follow from Huo et al. (2008) and consist of factors that were found to significantly influence employment levels, including long-term unemployment insurance, payroll taxes, government revenue, wage coordination, union density, capital market openness and trade openness. The variable for payroll taxes is payroll and social security taxes as a percentage of GDP. Government revenue is the total value of current receipts for general government as a percentage of GDP. Our measure of wage coordination is Kenworthy's (2001) indicator. This measure is preferable to measures of bargaining centralisation because it taps institutionalised practices such as pattern setting, tacit coordination and government intervention, which are missed by measures of bargaining centralisation. Our measure of union



strength is net union membership as a percentage of wage and salary workers.

As control variables, we include two measures of economic openness or 'globalisation'. Following Moller et al. (2003), we use the Quinn/Inclan (1997) measure of capital and current account controls as our measure of capital market openness. As a general measure of capital market openness, we favoured the control measures over the flow measures (inward and outward FDI as a percentage of GDP) because, as Simmons (1999) and others have argued, it is the possibility of easy exit that changes the behaviour of actors not variations in actual flows. In the Quinn/Inclan measure, the maximum score indicates no capital controls. For these same reasons, our preferred measure of trade openness would be a measure of tariff and non-tariff barriers to trade. Unfortunately, no such time series exists, so we use the conventional measure of trade flows, imports plus exports as a percentage of GDP.

The Skill Acquisition Index measures the extent to which education policy expands opportunities to acquire skills. The index is made up of nine variables which cluster into four groups. Four variables capture investment in (future) workers' cognitive capacity; one variable measures access to further education at the end of compulsory education; two variables tap the openness of access to tertiary education; and two variables measure access to continuing education and labour market training (see Nelson (2008) for details on the measurement of the variables and construction of the index).

The International Adult Literacy Survey has produced highly comparable measures of the human capital stock, at least in terms of general (rather than firm or industry-specific) skills of the adult population (OECD/HRDC, 2000). In this study, a cross-nationally comparable test of respondent skills in prose, document handling and interpretation and mathematics (roughly analogous to the American SAT) was administered to a random sample of the adult population in 24 countries. We include the average scores of the fifth and 95th deciles, and the mean in our correlational analysis.

The data on discretionary learning employment are taken from the fourth European Survey on Working Conditions (Valeyre et al., 2009). Discretionary learning jobs are jobs that involve high levels of problem-solving and learning on the job and high levels of freedom for the worker to organise his or her work activity (see Chapter Nine for a fuller discussion).

## Social investment in the globalising learning economy: a European perspective

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### Introduction

The social investment perspective depends on correctly understanding the characteristics of the economy as a basis for identifying appropriate policies for promoting growth and competitiveness. In this chapter we start from a characterisation of the current phase of capitalism as a 'globalising learning economy', where the speed of adaptation and innovation is seen as crucial for the competitiveness of firms (Lundvall and Johnson, 1994; Archibugi and Lundvall, 2001). While the concept 'the knowledge-based economy' is associated with the need to invest in research and in the formal education of scientists and engineers, the learning economy signals the importance of institutional design in relation to labour markets and national education and training systems. We shall provide evidence to support the view that social investments in the form of expenditures on further education and training and in support of flexible labour markets combined with security (flexicurity) play a crucial role in sustaining the learning economy.

We build on previous research linking the dynamics of learning at the firm level to the innovative performance of national economies. In particular we build on work showing:

- that innovation requires a combination of science-based and experience-based knowledge (Jensen et al., 2007);
- that innovation thrives in countries where a big proportion of the employees are engaged in work activities involving problem solving and learning (Arundel et al., 2007);
- that the dramatic differences within Europe in how people learn at the workplace reflect differences in national institutional settings in relation to education and labour markets (Holm et al., 2010).