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THE POLITICAL ECONOMY OF SKILLS FORMATION:  
EXPLAINING DIFFERENCES IN CENTRAL AND  
EASTERN EUROPE

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## List of abbreviations

<b>CEE</b>	Central and Eastern Europe
<b>CVET</b>	Continuous vocational education and training
<b>EU</b>	European Union
<b>H</b>	Hypothesis
<b>HE</b>	Higher education
<b>ISCED</b>	International Standard Classification of Education
<b>ISCO</b>	International Standard Classification of Occupations
<b>MS</b>	Member States
<b>OECD</b>	The Organisation for Economic Co-operation and Development
<b>SFS</b>	Skills formation system
<b>VET</b>	Vocational education and training
<b>VoC</b>	Varieties of Capitalism

### Country abbreviations

<b>AT</b>	Austria
<b>BE</b>	Belgium
<b>BG</b>	Bulgaria
<b>CY</b>	Cyprus
<b>CZ</b>	Czech Republic
<b>DE</b>	Germany
<b>DK</b>	Denmark
<b>EE</b>	Estonia
<b>EL</b>	Greece
<b>ES</b>	Spain
<b>FI</b>	Finland
<b>FR</b>	France
<b>HU</b>	Hungary
<b>IE</b>	Ireland
<b>IT</b>	Italy
<b>LT</b>	Lithuania
<b>LU</b>	Luxembourg
<b>LV</b>	Latvia
<b>MT</b>	Malta
<b>NL</b>	Netherlands
<b>PL</b>	Poland
<b>PT</b>	Portugal
<b>RO</b>	Romania
<b>SE</b>	Sweden
<b>SI</b>	Slovenia
<b>SK</b>	Slovakia
<b>UK</b>	United Kingdom
<b>USA</b>	United States of America

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## Introduction

Human capital theory has put skills on top of the research agenda by linking them with the economic performance of national economies. The underlying idea is that more education and training leads to higher productivity and competitiveness. This not only inspired massive investments in education and training across the globe during the second half of the XX<sup>th</sup> century, but also stimulated a lively academic debate on the factors that explain cross-national differences in the skills of the workforce.

The early human capital literature<sup>1</sup> argued that acquisition and utilization of skills can be analyzed in terms of supply and demand, i.e. wealth-maximizing individuals acquire and “rent” skills, profit-maximizing firms “purchase” the skills, the wage is a market price of skills and the market allocates each and every individual to a job, where his/her skills are the most valuable. Accordingly, the skills-profiles of the national economies were explained by three factors. First, individuals’ incentives to acquire skills depend on the costs of skills acquisition and the size of the wage premium, which is intimately linked with marginally higher productivity of better skilled workers. Second, the demand for skills and productivity of “better” skilled workers depend on the availability and type of physical capital. The third factor refers to the capacities of individuals, firms and governments to solve market and intervention failures (such as imperfect information) in producing and utilizing skills.

While such human capital approach still dominates policy and academic debates, it has two main drawbacks. First, the focus on the quantities of skills (years spent in education and training) ignores qualitative differences, i.e. type of knowledge and qualifications that are actually gained during education and training. Second, while the human capital literature acknowledges market and government failures in producing the skills as well as matching the supply and demand, it largely ignores, how different sets of institutions provide divergent types

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<sup>1</sup> Theodore W. Schultz, "Capital Formation by Education," *Journal of Political Economy*, Vol. 68 (6), 1960, pp. 545 – 557. Theodore W. Schultz, *The Economic Value of Education*, New York: Columbia University Press, 1963. Jacob Mincer, "Investment in Human Capital and Personal Income Distribution", *The Journal of Political Economy*, Vol. 66 (4), 1958, pp. 281-302. Gary Becker, *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, 3rd ed., Chicago, London: University of Chicago Press, 1993.



of solutions to these failures. In the light of these and other criticisms, over the past 10 years the varieties of capitalisms (VoC) approach has gained substantial ground by suggesting to focus on the types rather than levels of skills and on the bundles of institutions – the skills formation systems – that facilitate production and economic utilization of skills.

VoC literature<sup>2</sup> argues that differences in skill formation systems could be explained by their complementarity with other capitalist institutions. More specifically, it is argued that skill formation systems are embedded within broader set of economic institutions (corporate governance, financial systems, industrial relations systems and inter-firm coordination), which reinforce each other to produce nations' institutional comparative advantages. In coordinated market economies (for instance, Germany), firms rely on consensual, long term relationships between their banks, employees and other enterprises in order to engage in incremental innovation. This provides institutional support for development of specific skills, which are usually acquired during vocation-oriented education and training, and are of value only in a particular industry or firm. Conversely, in liberal market economies (the US, UK), firms rely on coordinating mechanisms of the markets to engage in radical innovation. This leads to emergence of general skills formation systems. General skills, in contrast to specific ones, are easily transferable across different sectors of the economy and are acquired in academically oriented education.

Within the context of the above theoretical debate, this dissertation seeks to answer the following question: why have different skills formation systems emerged in eight Central and Eastern European (CEE) countries? The term “skills formation system” encompasses both: (a) types of skills (general or specific) that the labor force acquires and employs in the labor market; (b) institutions that support provision of different types of skills. This question is closely related with an empirical puzzle.

The eight CEE countries (the Czech Republic, Hungary, Estonia, Latvia, Lithuania, Poland, Slovakia and Slovenia) provide an ideal laboratory for testing the hypotheses regarding emergence of different skills formation systems, because their initial starting position was largely similar, but over the past 20 years

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<sup>2</sup> Peter A. Hall, David Soskice. *Varieties of Capitalism: the Institutional Foundations of Comparative Advantage*. Oxford, New York: Oxford University Press, 2001. Bob Hancke, Martin Rhodes and Mark Thatcher. *Beyond Varieties of Capitalism: Conflict, Contradictions, and Complementarities in the European Political Economy*. Oxford, New York: Oxford University Press, 2007.

the CEE countries have substantially diverged. Before the collapse of communism all CEE countries were characterized by heavy investment in specific skills. High enrolments in vocational schools, which directly serviced the needs of large local factories, high levels of on-the-job training and rare instances of occupational mobility created a narrowly specialized workforce. However, over the past 20 years the CEE countries have diverged. On the one hand, the Baltic States, Poland and to a smaller extent Hungary witnessed a radical shift from industry specific to general skills. This was accompanied by dramatic decrease in participation in vocational training, severed links between industry and formal training, and exponential growth in enrolments in higher education. On the other hand, Slovenia, Slovakia and the Czech Republic have largely maintained emphasis on specific skills by transforming the inherited institutions to match the needs of the market economy. Hence, the empirical puzzle: despite similar starting positions and challenges of transition, the CEE countries have developed different skill formation systems over the past 20 years.

At the theoretical level, the dissertation aims to contribute to further development of the VoC approach, which has been recently criticized from two perspectives. First, a number of authors<sup>3</sup> argued that the VoC approach is hardly applicable and useful to the analysis of the CEE countries. The explanatory power of the VoC argument rests on the complementarities between institutions, which reinforce each other and form the ideal types of liberal and coordinated market economies. However, research on the CEE countries (with the exceptions of Slovenia and Estonia) found different mixtures of institutions, which fail to match clear cut categories of the US-style liberal market economies with high demand for general skills, or German-style coordinated economies with specific skills<sup>4</sup>. As a result, the

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<sup>3</sup> Dorothee Bohle, Bela Greskovits. "The State, Internationalization, and Capitalist Diversity in Eastern Europe". *Competition & Change*. Vol. 11 (2), 2007, pp. 89 – 115. Dorothee Bohle, Bela Greskovits, "Neoliberalism, Embedded Neoliberalism and Neocorporatism: Towards Transnational Capitalism in Central-Eastern Europe", *West European Politics*, Vol. 30 (3), 2007, pp. 443 – 466. Lucian Cernat, *Europeanization, Varieties of Capitalism and Economic Performance in Central and Eastern Europe*, Houndmills, Basingstoke: Palgrave Macmillan, 2006.

<sup>4</sup> See: David Lane, "Emerging Varieties of Capitalism in Former State Socialist Societies". *Competition & Change*. Vol. 9, No. 3, 2005, pp. 227 – 247. David Lane, "Post-State Socialism: A Diversity of Capitalisms?". In David Lane and Martin Myant (eds.). *Varieties of Capitalism in Post-Communist Countries*, Houndmills, Basingstoke: Palgrave Macmillan, 2007. Lawrence King. "Central European Capitalism in Comparative Perspective", in eds. Hancke, Bob, Martin Rhodes and Mark Thatcher. (eds). *Beyond Varieties of Capitalism: Conflict, Contradictions, and Complementarities in the European Political Economy*. Oxford, New York: Oxford University Press, 2007. Zenonas

apparent absence of clear-cut institutional complementarities and vague national institutional comparative advantages do not yield a straightforward explanation of the type of skills formation system found in each CEE case. Second, the VoC approach has been criticized<sup>5</sup> for the static nature of its arguments, that is while it provides a compelling explanation of complementarities and the functioning of institutions that support modern capitalisms, it fails to explain how and why these institutions and their complementarities have emerged.

This dissertation takes into account these criticisms and seeks to contribute to further theoretical development of the VoC literature in four main areas. First, it is argued that “perfect” complementarities, which were identified by the VoC approach, are theoretically excessive for an explanation of cross-national differences in skills formation systems. Instead, this dissertation focuses on the institutions that provide incentives for individuals and firms to invest in acquisition and provision of specific types of skills. This allows to formulate testable hypotheses that are relevant for the analysis of institutional mixes found in the CEE. Second, this dissertation disposes of the economic determinism of demand for skills in explaining cross-country variation. Instead, the focus is on institutions that structure the incentives faced by firms and individuals. Third, it is argued that commitment and trust in future stability of institutions is a necessary condition for the effective functioning of these institutions. The mainstream of the VoC literature is focused on rich OECD countries, where the assumption of relative institutional stability is reasonable. This, however, is not the case in the CEE. Hence, this dissertation considers the political institutions that act as conditional variables in explaining the effectiveness of labor market and economic institutions. Lastly, in addition to exploration of the institutions that support different skills formation systems, this dissertation also seeks to test the theoretical propositions, which aim at explaining why these institutions emerged. Hence, a historic institutionalist approach is adopted in tracing back the impact of legacies, reform strategies and political institutions on the emergence of different skills formation systems.

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Norkus, “Lietuva tarp Estijos ir Slovėnijos: dėl pokomunistinio kapitalizmo tipologinės diferenciacijos“, *Politologija*, Vol. 1 (49), 2008.

<sup>5</sup> For a review of criticisms see: Hancke, Rhodes and Thatcher, 2007. Also see: Thelen, Kathleen, Ikuo Kume. “Coordination as a Political Problem in Coordinated Market Economies”. *Governance: An International Journal of Policy, Administration, and Institutions*. Vol. 19. (1), 2006, pp. 11 – 42.

Figure 1 schematically illustrates the theoretical argument, which I seek to test the dissertation. The argument is composed of two types of hypotheses. The first group seeks to explain what institutions support different skills formation systems, while the second group aims to explain emergence of the former institutions in the CEE. More specifically, the first group of hypotheses argues that skills formation systems rest on differences in two types of institutions, which (a) create incentives for individuals to acquire skills and (b) provide skills. Following Iversen and Soskice<sup>6</sup>, Margarita Estavez-Abe, et. al.<sup>7</sup>, Torben Iversen<sup>8</sup> and Iversen and John Stephens<sup>9</sup> it is hypothesized that high employment stability and high unemployment benefits create incentives for individuals to acquire specific skills. The overall logic behind this hypothesis is that acquisition of specific skills – due to their nontransferable nature – is a risky decision, because changes in technology or structure of the economy could easily make such skills obsolete. Hence, employment and unemployment protection provides insurance against these risks. Conversely, low levels of employment and unemployment protection should create incentives for individuals to insure themselves against uncertainties of the future labor market by acquiring easily transferable general skills. The empirical tests support these hypotheses.

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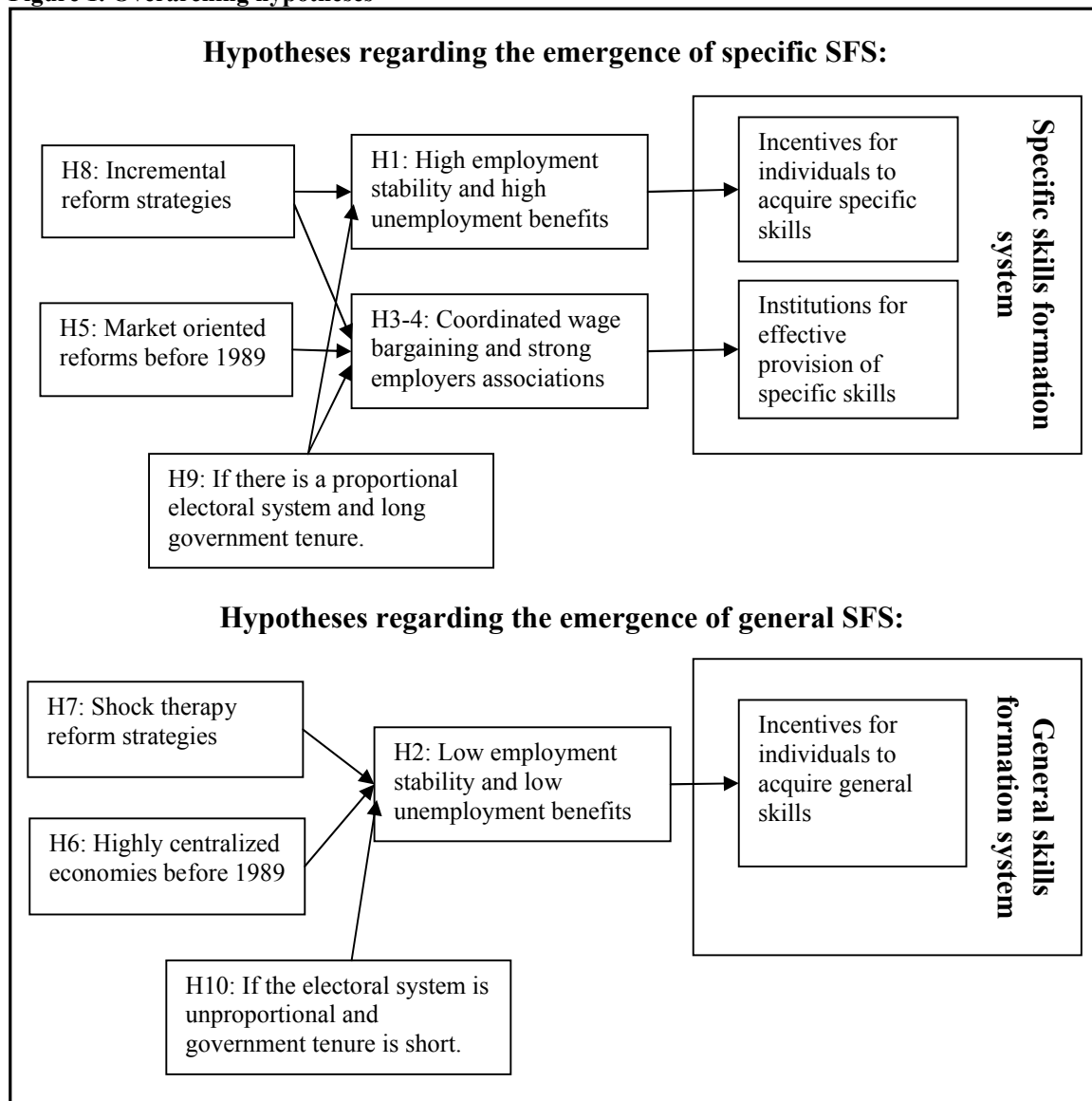
<sup>6</sup> Torben Iversen, David Soskice, “An Asset Theory of Social Policy Preferences”, *American Political Science Review*, Vol. 95 (4), 2001, pp. 875 – 893.

<sup>7</sup> Margarita Estavez-Abe, Torben Iversen, David Soskice. “Social Protection and the Formation of Skills: A Reinterpretation of the Welfare State“. In Peter A. Hall, David Soskice (eds.). *Varieties of Capitalism: the Institutional Foundations of Comparative Advantage*, Oxford, New York: Oxford University Press, 2001.

<sup>8</sup> Torben Iversen, *Capitalism, Democracy and Welfare*, Cambridge, New York: Cambridge University Press, 2005.

<sup>9</sup> Torben Iversen, John D. Stephens, “Partisan Politics, the Welfare State, and Three Worlds of Human Capital Formation”, *Comparative Political Studies*, Vol. 41 (4/5), 2008, pp. 600 – 637.

**Figure 1. Overarching hypotheses**



Source: own compilation.

The explanation of the effective provision of different types of skills largely follows the logic suggested by David Soskice and Peter Hall<sup>10</sup>, Kathleen Thelen<sup>11</sup>, and Pepper Culppeper and Thelen<sup>12</sup>. They argue that provision of specific skills depends on the active involvement of firms, which directly and indirectly participate in training only if there is coordinated wage bargaining and strong

<sup>10</sup> Soskice and Hall 2001.

<sup>11</sup> Kathleen Thelen, *How institutions evolve: The Political Economy of Skills in Germany, Britain, the United States, and Japan*. Cambridge, New York: Cambridge University Press, 2004.

<sup>12</sup> Pepper, D. Culppeper, and Kathleen Thelen., "Institutions and Collective Actors in the Provision of Training: Historical and Cross-National Comparisons" in Karl Ulrich Mayer, Heike Solga. (eds.). *Skill Formation: Interdisciplinary and Cross-National Perspectives*. Cambridge, New York: Cambridge University Press, 2008.

employers' associations. The non-transferable nature of specific skills implies that they should closely match future economic, technological and organizational changes in order to be relevant in the labor market. Hence, employers' involvement in education and training (through involvement in the development of curriculum, training standards, certification of skills, apprenticeships and direct training of the labor force) is crucial for the effective provision of specific skills. However, the participating firms face collective action and free-riding problems. They are generally solved by coordinated wage bargaining, which prevents poaching of employees and compresses wages, and strong employers' associations, which sanction and monitor firms investments in skills formation. Hence, this dissertation seeks to test the hypothesis that coordinated wage bargaining and strong employers' associations are necessary for firms' engagement in education and training, which in turn is necessary for provision of specific skills. The empirical tests show that strong employers' associations are indeed necessary for effective provision of specific skills. However, theoretical expectations regarding the role of coordinated wage bargaining were not confirmed.

I also argue that provision of general skills is based on a premise that future demand for skills is unknown. This implies that effective provision of general skills relies on academic excellence, rather than on any concrete institutional structure. As a result no specific hypotheses were established regarding provision of general skills.

The second group of hypotheses seeks to explain how these institutions emerged. In line with Magnus Feldmann<sup>13</sup> and Dorothee Bohle and Bela Greskovits<sup>14</sup> I hypothesized that higher decentralization of economies prior to 1989 and subsequently adopted incremental reform strategies were favorable for the emergence of cooperation-based institutions, which support specific skills formation systems. Conversely, high centralization of the economy prior to 1989 and shock therapy-based strategies of transition led to market based coordination among firms and employees, which subsequently fostered general skills formation systems. The empirical tests revealed that the type of inherited economy does not explain emergence of different types of capitalist institutions. Furthermore, the adopted

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<sup>13</sup> Magnus Feldmann, "Emerging Varieties of Capitalism in Transition Countries: Industrial Relations and Wage Bargaining in Estonia and Slovenia". *Comparative Political Studies*. Vol. 39, No 7, 2006, pp. 829-854.

<sup>14</sup> Bohle and Greskovits, 2007.

reform strategies explain the strength of employers' associations, but not employment stability or generosity of unemployment benefits.

Furthermore, following Arend Lijphart<sup>15</sup> and Iversen<sup>16</sup> I assessed the importance of political institutions. I hypothesized that proportional electoral systems foster consensus based policy-making, which is necessary for the stability of long term oriented cooperative institutions that support specific skills formation systems. Conversely, unproportional electoral systems should foster majoritarian politics associated with frequent policy changes, which unsettles long-term cooperation and leads to the evolution of market-based relationships that support general skills formation systems.

In addition to the proportionality of the electoral systems I also examined the role of government stability. The duration of government tenure has an impact on the type of feasible policy alternatives. Short tenure implies that government does not have an option of engaging in lengthy processes of building institutions, securing cooperation with other political parties and social partners. Furthermore, past policy instability diminishes the credibility of the current government's resolve to target long term objectives. Hence, short government tenure limits the number of available policy alternatives to the "fast and easy" reforms: strengthening of markets rather than non-market coordinating institutions. Therefore, I hypothesized that long government tenure is necessary for the emergence of institutions that support specific skills formation systems, while short tenure is sufficient to undermine such institutions and lead to evolution of general skills formation system.

The results of empirical tests show that neither the type of electoral system, nor the government stability empirically explain emergence of labor market institutions – the level of unemployment benefits and employment stability – that structure the incentives of individuals to acquire different types of skills. However, the type of electoral system and government stability are directly (rather than indirectly as I hypothesized) related with skills formation systems. The interpretation of this finding is as follows: proportional representation and government stability are necessary for individuals' trust that generous unemployment benefits and

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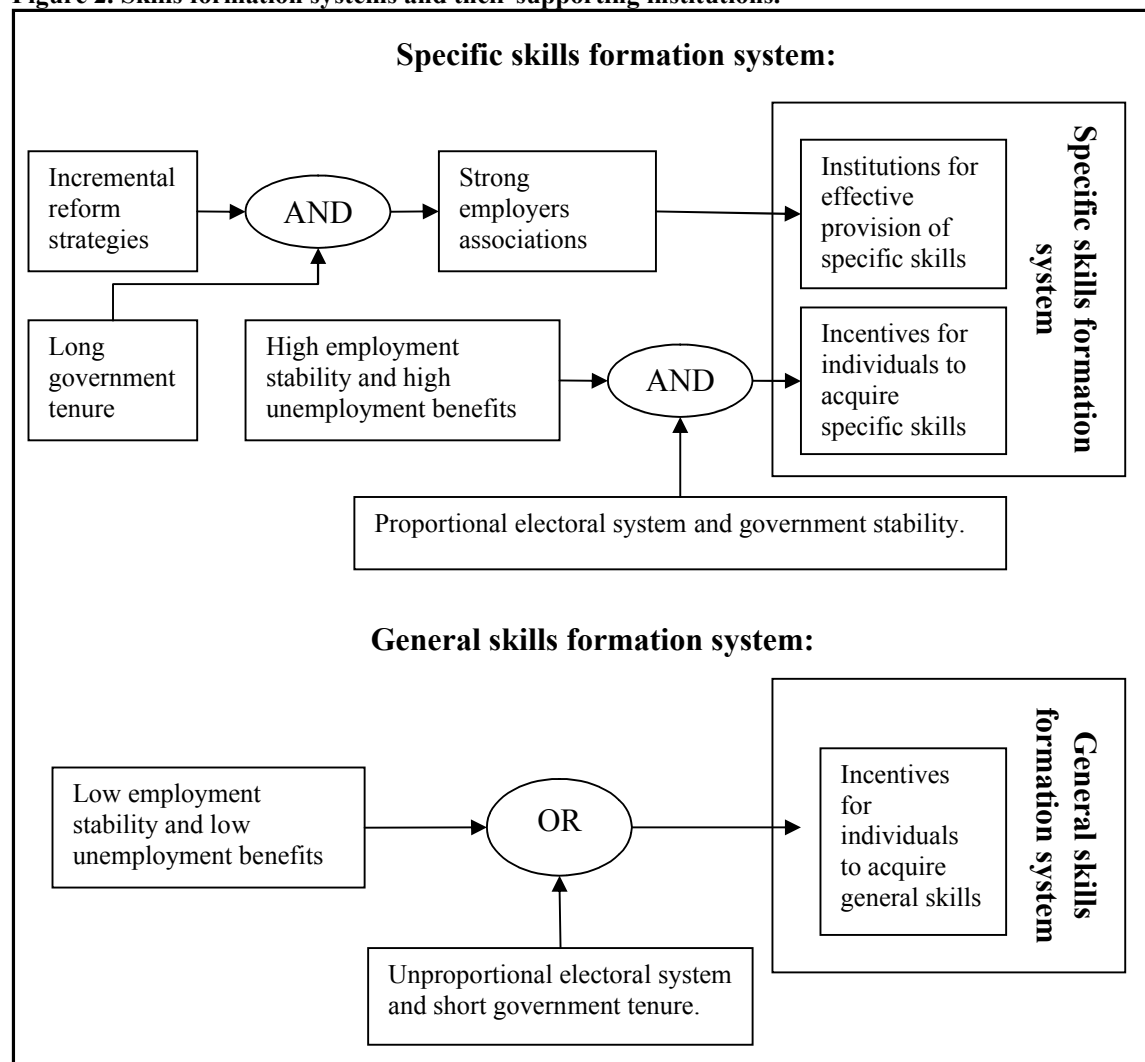
<sup>15</sup> Arend Lijphart, *Patterns of Democracy: Government Forms and Performance in Thirty Six Countries*, New Haven and London: Yale University Press, 1999.

<sup>16</sup> Iversen, 2005.

employment stability will be maintained in the future. This is necessary for the effectiveness of said institutions, i.e. if individuals do not trust that the level of generosity of unemployment benefits and employment stability will be maintained, then these institutions do not have an impact on individuals' incentives to invest in the acquisition of specific skills. Conversely, if either proportionality or government stability is lacking, then individuals will seek self-insurance against future policy changes and labor market risks by acquiring general skills.

The theoretical model, which emerged from theoretical testing of the hypotheses is schematically illustrated in Figure 2. It significantly differs from Figure 1, since it omits the rejected hypotheses.

**Figure 2. Skills formation systems and their supporting institutions.**



Source: own compilation.

The research design is based on the logic of theory-testing and theory-building. In addition to testing the hypotheses provided in the literature as well as



own theoretical propositions, the dissertation also develops new explanations, which inductively emerge from empirical analysis. Instead of following conventional linear path of explanation – from theory to empirical analysis – the dissertation is iterative. The initial theoretical explanation is subsequently modified so as to exclude rejected hypotheses and include new causal relationships, which were identified during empirical analysis. This explains why the theoretical arguments provided in Figure 1 (initial theoretical explanation) are considerably different from the ones in Figure 2.

A combination of qualitative and quantitative methods is employed for testing the above discussed hypotheses. First, this dissertation employs fuzzy set techniques, developed by Charles Ragin<sup>17</sup>, for the purposes of qualitative comparative analysis of the 8 CEE cases. This method has several important benefits: it allows for interplay between theory and evidence (and, hence, facilitates iterative analysis), simultaneous testing of the impact of multiple causes and provides tools for a qualitative comparison of a relatively large set of cases without substantial loss of complexity that characterizes the cases. Additionally the dissertation employs robust regression analysis for testing the first group of hypotheses, i.e. explanations regarding the institutions that support different skills formation systems. This is done due to several reasons. I use robust regression to assess the extent to which the empirical and theoretical findings regarding the CEE countries can be generalized to other cases. Since the first group of hypotheses is of general nature, I test them for all EU Member States. The second group of hypotheses regarding the emergence of institutions that support different skills formation systems are applicable only to post-socialist countries and therefore I do not test their validity in other cases. Furthermore, adoption of robust regression as an additional method increases the confidence in the empirical findings. In fact, the results of qualitative and quantitative analysis converge, with the exception of one hypothesis (H2), which is supported by qualitative methods, but rejected by regression analysis.

The structure of the dissertation is as follows. Part one provides a review of human capital theory. While it acknowledges the theory's impact, it argues that the focus on the years spent in education rather than qualitative differences in skills as well as ignorance of institutions that provide solutions to market and intervention failures limits comparative analysis of skills. Part two discusses the

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<sup>17</sup> Charles Ragin, *Fuzzy-Set Social Science*, Chicago and London: Chicago University Press, 2000.

contribution of the VoC approach to understanding the institutional structures that support different types of skills formation systems. It starts by defining specific and general skills and proceeds to the discussion of institutional complementarities. However, review of the critique of VoC literature as well as assessment of attempts to apply this approach to the analysis of CEE countries leads to the conclusion that the VoC approach can not be straightforwardly adopted to explanation of cross-national variation of skills formation systems in CEE. The first and second chapters of part three dissect the VoC approach and seek to identify the key institutions that support specific and general skills formation systems. The third chapter of part three seeks to provide a dynamic explanation, why different institutions have emerged and were maintained in the CEE. The third part concludes by outlining the hypotheses, which are summarized in Figure 1 above and tested in subsequent parts of the dissertation. Part four provides an extensive discussion on adopted methods for testing the hypotheses and operationalizes the variables. Part five provides qualitative and quantitative tests of the hypotheses and the last part concludes.

# 1. The human capital theory

During the past five or six decades research on education and training was dominated by labor and education economists<sup>18</sup> who worked within a broad theoretical framework of human capital theory. Their work was primarily motivated by public policy concerns regarding the role of education in boosting long term growth and competitiveness of national economies. Accordingly, the main questions in the research agenda focused on the following issues: does education and training (“better skills”) contribute to higher productivity and competitiveness? If so, what are the main factors that motivate individuals to acquire education and training? What are the limits of the market and the state in securing adequate levels of education and in coordinating the matching processes of supply and demand of skills?

The discussion on the human capital approach proceeds in several steps. Section 1.1. discusses the basic logic proposed by human capital literature and provides a brief overview of its extensions. It concludes by briefly reviewing the answers to the above policy questions. Section 1.2. argues that while the human capital approach has substantially broadened our understanding, it is limited to explanations of cross-national differences in the levels of homogenous skills, but largely fails to account for the supply and demand of different types of skills. Furthermore, it ignores the role of institutions in solving market and government failures that are intrinsic to the process of acquisition and utilisation of skills. This chapter concludes with section 1.3., which calls for refocusing the research agenda: from counting the years of schooling to analyzing types of acquired skills, from assumptions that the “invisible hand” matches all skills with all jobs to an analysis of the bundles of institutions that characterise different skills formation systems.

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<sup>18</sup> This is not to ignore important contributions of pedagogy and andragogy. These fields, however, are primarily concerned with micro issues, such as teaching and learning strategies. Since this paper is concerned with mezo and macro problems – such as, why individuals seek to acquire different skills and what institutional structures provide these skills? – the achievements in the fields of pedagogy and andragogy are not further discussed.

## 1.1. The markets for skills

Path-breaking works by Theodore W. Schultz<sup>19</sup>, Jacob Mincer<sup>20</sup>, Gary Becker<sup>21</sup> and others provided a set of theoretical instruments for analyzing acquisition and utilization of skills. The underlying idea is that development of human capital depends on the factors affecting the supply and demand of skills, i.e. wealth-maximizing individuals acquire and “rent” skills, profit-maximizing firms “purchase” the skills and the wage is a market price of skills. Looking at the supply side, it is assumed that (boundedly) rational individuals seek to maximize wealth and therefore invest in acquisition of skills. The propensity to acquire skills crucially depends on the costs (foregone income while in education or training and the actual costs of education and training) and expected future earnings. The latter are associated with a wage premium, which stems from higher productivity of workers with “better” skills. Accordingly, in a perfectly competitive market the wage premium for higher skills should equal the marginally higher productivity of skilled workers. The level of productivity and ultimately the level of demand for skills depend on the extent to which the skills can be actually utilized, i.e. on the mix of labor and capital as the main productive factors. The higher are the complementarities between capital and labor in the production function – for instance, if the introduction of new technologies is conditional upon availability of skilled labor – the higher the skills-induced productivity and the higher the level of demand.

Since the market for skills substantially differs from the markets for commodities, this basic model of supply and demand was further developed and nuanced. Below I focus on two issues that are the most relevant in the context of this dissertation: (a) to what extent do skills contribute to higher productivity? (b) what are the market and government failures that prevent individuals and firms from taking optimal decisions<sup>22</sup>?

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<sup>19</sup> Schultz, 1960. Schultz, 1963.

<sup>20</sup> Mincer, 1958. Jacob Mincer, *Schooling, experience and earnings*, New York: NBER, 1974.

<sup>21</sup> Becker, 1993.

<sup>22</sup> For a review see: Alison L. Booth, Dennis J. Snower, *Acquiring Skills: Market Failures, Their Symptoms and Policy Responses*, London: Centre for Economic Policy Research, 1996.

The notion that there is a straightforward link between skills and productivity was challenged from several perspectives. First, the proponents<sup>23</sup> of the screening hypothesis argued that wage differentials between skilled and non-skilled workers tend to exaggerate productivity of the former. The logic of this argument is that persons with higher innate abilities tend to stay longer in education; hence the years spent in schooling signals the abilities rather than skills of (future) employees. Furthermore, the level of productivity depends not only on the qualities of the workers, but also crucially on the availability of technologies, innovative work organization processes, etc<sup>24</sup>. As a result, better educated persons are awarded wage premiums, because firms seek to attract more able employees who need less training, have better work ethics, etc., but not because education *per se* increases productivity. This hypothesis was never fully tested due to problems of disentangling the impact of innate abilities and education on the productivity and earnings. The consensus<sup>25</sup>, however, seems to be that: (a) while there is a link between skills and productivity, it is not straightforward; (b) signaling represents a private rather than social gain from education; (c) innate abilities do have an impact on earnings, but their effect manifests itself fully through education.

The second group of contributions<sup>26</sup> in sophisticating the theoretical link between skills and productivity focused on the interdependences between the competitive strategies of firms and individuals. If physical and human capital are indeed complementary, then investment in physical capital creates higher demand for

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<sup>23</sup> See: Andrew Michael Spence, *Market Signalling: Informational Transfer in Hiring and Related Screening Processes*, Cambridge: Harvard University Press, 1974.

<sup>24</sup> For the most explicit formulation of this idea see: Lester C. Thurow, *Generating Inequality: Mechanisms of Distribution in the U.S. Economy*, New York: Basic Books, 1975.

<sup>25</sup> For a review of studies see: Richard B. Freeman, "Demand for Education", in eds. Orley Ashfhenfelter and Richard Layard, *Handbook of Labor Economics*, Vol. 2, Amsterdam, New York: North Holland, 1986. Peter J. Sloane, "Much Ado about Nothing? What does the Overeducation Literature Really Tells us?" in eds. Felix Buchel, Andries de Grip, Ntje Mertens, *Overeducation in Europe: Current Issues in Theory and Policy*, Cheltenham, Northampton: Edward Elgar Publishing, 2003.

<sup>26</sup> See: Daron Acemoglu, "Credit Constraints, investment, externalities and growth" in eds. Alison L. Booth, Dennis J. Snower, *Acquiring Skills: Market Failures, Their Symptoms and Policy Responses*, London: Centre for Economic Policy Research, 1996. David Ulph, "Dynamic Competition for Market Share and Failure of the Market for Skilled Workers" in eds. Alison L. Booth, Dennis J. Snower, *Acquiring Skills: Market Failures, Their Symptoms and Policy Responses*, London: Centre for Economic Policy Research, 1996. Dennis J. Snower, "The Low-Skill, Bad-Job Trap", in eds. Alison L. Booth, Dennis J. Snower, *Acquiring Skills: Market Failures, Their Symptoms and Policy Responses*, London: Centre for Economic Policy Research, 1996. David Finegold, "Market failure and government failure in skills investment" in eds. Alison L. Booth, Dennis J. Snower, *Acquiring Skills: Market Failures, Their Symptoms and Policy Responses*, London: Centre for Economic Policy Research, 1996.

skills. However, the causality could also run the other way: if there is a lack of supply of skills, then marginal productivity of physical capital diminishes. This depresses investments in physical capital and innovations, which further reduce the demand for skills and this in turn reduces the incentives for individuals to acquire skills thus limiting the level of supply of human capital. Accordingly, a vicious circle should develop: low initial stock of human capital reduces incentives in investing in innovations and technology, which lead to less high-skills high-wages jobs and thus reduce incentives in increasing the supply of skills. The circle could be broken, if firms invested in the skills of their employees. However, if the skills are transferable the threat of poaching should prevent such investments<sup>27</sup>.

Another direction of theoretical research focused on the extent to which government and market failures restrict effective functioning of the market for skills. While the discussion is extensive<sup>28</sup>, a few areas of inadequate functioning of the market of skills are worth a brief overview. First, if the provision of skills was delegated to the market, we should expect individuals to under-invest in skills<sup>29</sup>. This is due to two reasons. On the one hand, individuals face credit constraints while investing in skills: human capital, in contrast to other productive factors, is inadequate collateral, which implies that banks are generally not willing to provide loans to students. Hence, the absence of credit markets for skill acquisition should lead individuals to under-invest in skills<sup>30</sup>. Furthermore, education and training in addition to private gains also create positive social externalities: more educated people tend to be less prone to criminal and other asocial activities, higher educated employees increase the productivity of their co-workers, etc. Hence, if an individual considers only his/her private costs and benefits in investing in skills, the level of

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<sup>27</sup> Becker. (YEAR?)

<sup>28</sup> The remaining market failures, which are not extensively discussed here include: information asymmetry regarding the quality of education and training, imperfect competition in provision of education and training, the costs of hiring and firing and labor market institutions, which have an impact on competitiveness of labor markets. For a more extensive discussion see: Elchanan Cohn, *The Economics of Education*, Cambridge, Massachusetts: Ballinger Publishing Company, 1979. Derek Bok, *Universities in the Marketplace. The Commercialization of Higher Education*, Princeton and Oxford: Princeton University Press, 2003. Robert Boyer, „The Variety and Unequal Performance of the Really Existing Markets: Farewell To Doctor Pangloss“, in eds. Rogers J. Hollingsworth and Robert Boyer, *Contemporary Capitalism, The Embeddedness of Institutions*, Cambridge and New York: Cambridge University Press, 1997. Booth, Snower, 1996.

<sup>29</sup> See: Nicholas Barr, *The Economics of the Welfare State*, 3<sup>rd</sup>. Edition, Oxford: Oxford University Press, 1998.

<sup>30</sup> Robert E. B. Lucas, “Manpower planning and economic development”, in eds. Peter Richards, Rashid Amjad, *New approaches to manpower planning and analysis*, Geneva: International Labor Office, 1994.

investment would be suboptimal from the society's point of view. These two market failures resulting in underinvestment in skills suggest that the state should intervene by providing subsidies for education and training. This, however, shifted the debate<sup>31</sup> towards government failures: if the level of public funding was too high and private costs of skills' acquisition was minimal, we should expect the individuals to over-invest in skills, which should result in over-education.

The second problem that obscures the effectiveness of the market of skills relates to imperfect information. The starting point is that individuals face imperfect information regarding the demand for skills. In addition to fundamental uncertainty regarding future levels of demand<sup>32</sup>, there is also imperfect information regarding current demand, because wages perform poorly as signaling mechanisms of relative scarcity of skills. The main reason is that "real world" labor markets are not perfectly competitive: labor market institutions such as minimum wage and collective bargaining as well as costs of hiring and firing as well as the above discussed factors distort the theoretically clear-cut relationship between wages and productivity<sup>33</sup>. As a result decisions regarding investment in skills are at best boundedly rational. Government intervention is the main solution proposed for tackling this market failure. This in some countries led to establishment of manpower planning: the state planners developed forecasts of future demand for skills and accordingly allocated the resources for education and training<sup>34</sup>. The problem, however, is that state planners faced the same information constraints as individuals: lack of reliable and detailed data on current demand, as well as hardly foreseeable future technological innovations, economic shocks and their impact on the demand

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<sup>31</sup> See Clive R. Belfield, *Economic Principles for Education: Theory and Evidence*, Cheltenham, Northampton: Edward Elgar, 2000. Daniele Checchi, *The Economics of Education, Human Capital, Family Background and Inequality*, Cambridge, New York, Cambridge University Press, 2006.

<sup>32</sup> See: Tazeen Fasih, *Linking education policy to labor market outcomes*, Washington: The World Bank, 2008.

<sup>33</sup> Ronald G. Ehrenberg, Robert S. Smith, *Modern Labor Economics: Theory and Public Policy*, 10<sup>th</sup> edition, Boston, San Francisco, New York: Pearson Education, 2009. Tito Boeri, Jan van Ours, *The Economics of Imperfect Labor Markets*, Princeton and Oxford, Princeton University Press, 2008. Francine D. Blau and Lawrence M. Kahn, "International Differences in Male Wage Inequality: Institutions versus Market Forces," *Journal of Political Economy*, Vol. 104(4), 1996, pp. 791-836. Edwin Leuven, Hessel Oosterbeek and Hans van Ophem, "Explaining international differences in males skill wage differentials by differences in demand and supply of skill", *The Economic Journal*, Vol. 114, 2004, pp. 466-486.

<sup>34</sup> The forecasts of the future demand and supply of the labor force are still attempted in some EU Member States and at the level of all EU. For methodology and results see: CEDEFOP, *Future Skills Needs in Europe: Medium Term Forecast*, Thessaloniki: CEDEFOP, 2008.

for skills<sup>35</sup>. As a result, attempts to “fix” market failures led to emergence of government failures, which motivated one observer to comment that “in spite of the efforts of many countries to plan their manpower needs for the future, unemployment among school-leavers has become worse over the years. Indeed, such unemployment might have been lower if no attempt at manpower forecasting had ever been made.”<sup>36</sup>

To sum-up, human capital theory proposes to use the logic of supply and demand for the analysis of acquisition and utilization of skills. The ongoing discussion clearly shows that the market for skills substantially differs from the market for apples or other commodities. The links between education and training, on the one hand, and higher productivity and competitiveness, on the other hand, are far from straightforward. Furthermore, there are considerable market and government failures, which prevent the market from achieving Pareto optimal outcomes. Nevertheless, the theoretical framework of human capital theory, which focused its attention on the factors behind supply and demand, was fruitfully employed to answer the pressing policy issues, which were outlined at the beginning of this chapter. Table 1 summarizes the questions and answers that comprised the centre of this field of research.

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<sup>35</sup> For further discussion see: Dennis R. Herschbach, “Planning for Education and Work: Alternatives and Issues” in eds. Rupert Maclean, David N. Wilson, *International Handbook of Education for the Changing World of Work: Bridging Academic and Vocational Learning*, Bonn: Springer, 2009. Manfred Tessaring, “Anticipation of Skills Requirements: European Activities and Approaches” in eds. Rupert Maclean, David N. Wilson, *International Handbook of Education for the Changing World of Work: Bridging Academic and Vocational Learning*, Bonn: Springer, 2009. Jack Keating, *Matching supply and demand for skills: international perspectives*, Adelaide: National Centre for Vocational Education Research, 2008.

<sup>36</sup> George Psacharopoulos, „From manpower planning to labor market analysis“, *International Labor Review*, Vol. 130 (4), 1991. p. 459.



**Table 1. The contribution of supply and demand models in explaining the links between skills and competitiveness of national economies.**

Main questions	Summary of findings
Does education and training contribute to higher productivity and competitiveness?	Overall yes, but the link is neither straightforward, nor universal <sup>37</sup> . At the micro level, innate abilities, family background, type of job and other factors also play a role. At the macro level, the stock of physical capital, firms' innovative capacities and strategies are no less important in explaining the productivity and competitiveness of national economies.
What are the main factors that motivate individuals to acquire skills?	The costs of acquiring education and training as well as the wage premium paid for higher skills. A meta-analysis <sup>38</sup> of cross-national research in the developed countries indicated that the rate of return to a year of education was about 8 % in the 1970s and 1980a and it increased to about 12% in the 1990s.
What are the limits of the market and the state in securing adequate levels of acquisition of skills and in coordinating the matching processes of supply and demand of different levels and types of skills?	Effective operation of the market of skills is impeded by market and government failure. If left to its own devices, the market would lead to underinvestment in education and training (due to absence of credit for investments in education and because individuals do not take into account the social value of education) and poor investment decisions, which stem from imperfect information regarding current and future demand for skills. However, state intervention suffers from government failures, which lead to over-education <sup>39</sup> and suboptimal allocation of resources for different types of education and training.

## **1.2. The limits of human capital literature**

While the human capital approach substantially broadened our understanding of why individuals seek to acquire skills and what factors drive the demand for skilled labor, it also constrains further comparative research. First, the prevalent focus on the years of schooling impedes comparative analysis of the differences in the types of skills. Second, the analytical framework of supply and demand is based on the assumption of skill substitutability, i.e. that any worker can

<sup>37</sup> For an interesting review of arguments, why more education has not universally promoted growth see: Lant Pritchett, "Where Has All the Education Gone?", *The World Bank Economic Review*, Vol. 15 (3), 2001, pp. 367 – 391.

<sup>38</sup> Wim Groot, Henriette Maassen van den Brink, "Overeducation in the labor market: a meta-analysis", *Economics of education review*, Vol. 19, 2000, pp. 149 – 158.

<sup>39</sup> A meta-analysis of cross-national research indicated that in the developed countries in the 1980s and 1990s around 26% of the labor force was overeducated. See: Groot, van den Brink.

be substituted within each and every job. However, if we relax this assumption and argue that workers could possess a mix of skills, which have value only in some types of jobs, then the explanation of the matching process between the supply and demand for specific types of skills becomes increasingly problematic. Lastly, the market based explanations of the human capital literature ignore the role of institutions in providing solutions to market and government failures. As a result, it ignores an important source of cross-national variation in the types of skills that are acquired by workers and utilized by the economy. These issues are discussed in more length below.

The first problem relates to conceptualization of skills: much of the human capital literature focused on the levels rather than types of skills. A standard assumption was that the years spent in education and training lead to better (or more) skills. Such an approach was largely motivated by the overall interest in the links between increases in education on the one hand and growth of income, productivity and competitiveness on the other hand. While studies in this area have substantially broadened our knowledge (see section 1.1.), it seems that its assumptions have severely constrained further research. More specifically, the analysis of the years of schooling, which measures the amount of skills, ignores its contents. This leads to a false implicit assumption that the labor force with the same years of schooling possesses the same mix of academic, generic, technical and soft skills<sup>40</sup>. In addition, this constrains comparative analysis to a single dimension – years of schooling. To illustrate this point: comparison of OECD countries would indicate that they are indeed very similar, since the labor force in these countries spend a comparative periods of time in education and training. This, however, would ignore huge cross-national differences: for example, while the US sets world-wide standards in academic education, Germany has developed an extensive system of vocational training, which provides technical skills to a large proportion of its labor force. As a result, a one-dimensional analysis dismisses the possibility that different types of skills rather than sheer quantities of education lead to diverse outcomes at the individual, firm and national levels. Furthermore, focus on the years of schooling fails to explain, emergence of different institutional structures, which create incentives to acquire and produce different types of skills. Accordingly in order to

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<sup>40</sup> Cathleen Stasz, “Assessing skills for work: two perspectives”, *Oxford Economic Papers*, Vol. 53 (3), 2001, pp. 385-405.

gain a more sophisticated understanding there is a need to move away from counting the years of schooling to the analysis of the differences in the types of acquired skills.

This leads to the second problem: to what extent the analysis of supply and demand of different types of skills can be integrated into the theoretical framework provided by human capital literature? The key issue here relates to homogeneity of skills and substitutability of labor. The standard analysis of human capital literature is based on an assumption that different workers have differing quantities of the same (homogenous) types of skills and each and every job requires the same mix of knowledge and expertise. To give an example: it is assumed that each university graduate has largely similar knowledge and expertise, which are required in typical graduate jobs. This implies that each unit of labor (worker) with a given level of skills can be easily replaced by another one and there is perfect elasticity of supply and demand of skills. If this truly holds, then one can comfortably argue<sup>41</sup> that: (a) the price (size of wage premium) directly affects the incentives to acquire and provide a certain amount of skills as well as the incentives to “purchase” these skills; (b) *ceteris paribus* there is always equilibrium between supply and demand. This implies that even if, for example, the supply of skills grows faster than the demand, then the market accommodates these shifts by allocating workers with “too much” skill to low-wage low-productivity jobs, i.e. the wage premium for over-educated workers is smaller or non-existent, which in the long run reduces the incentives to (over)invest in skills’ acquisition.

However, the analysis of supply and demand of skills becomes substantially more complicated if we relax the above assumptions and argue that even with the same levels of skills workers do possess different bundles of knowledge and expertise that can be applied only in some types of jobs. While this is a matter of empirical analysis and it can differ across cases and in time, there is some consensus in the literature<sup>42</sup> that overall the substitutability of labor is far from perfect and elasticity of supply and demand is low. However, human capital literature circumvents the problem of imperfect substitutability of skills within jobs by assuming that the market signals (wage) should always assign an individual to the

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<sup>41</sup> For instance, see: Daniel L. Harmermesh, “The Demand for Labor in the Long Run”, in eds. Orley Asfhenfelter and Richard Layard, *Handbook of Labor Economics*, Vol. 2, Amsterdam, New York: North Holland. 1986.

<sup>42</sup> For a review of findings of empirical research see: Freeman, 1986.

job where his/her education yields the highest value<sup>43</sup>. Accordingly, the wage levels, for example, regulate the supply of accountants and lawyers and the market allocates each accountant and lawyer to their corresponding jobs. Obviously this does not necessarily hold. The standard criticism is that the capacity of wages to signal relative scarcities of skills is impeded by imperfectly competitive labor markets<sup>44</sup>. Furthermore, since imperfect substitutability of skills implies that the elasticity of supply is limited, then we should see considerable skills-mismatches. To use the same example, a shortage of accountants does not imply that lawyers will take up these jobs even in the face of high wage differentials, because the lawyers obviously lack accountancy skills. The time needed to acquire these skills and the dynamic nature of the demand for skills makes the problem worse, by reducing the chances that even in the long term supply and demand will be in equilibrium. As a result we should see the emergence of skills mismatches<sup>45</sup>, which remain unexplained by standard supply and demand models. To sum-up, the human capital literature provides a good explanation for the process of matching the supply and demand of more or less substitutable skills, but a better theory is needed to account for the incentives to acquire and the matching process of non-substitutable skills.

Lastly, the third problem of human capital literature is that it has largely ignored the role of institutions. As the discussion in section 1.1. showed, the market for skills is riddled with market and government failures, which distort the supply and demand of skills. Accordingly, it is feasible that the capacity of market and non-market institutions to provide solutions to these failures should have a substantial effect on the overall levels as well as the types of skills that the individuals seek to acquire and the economy “needs”. To be sure, labor economics has produced considerable amount of research<sup>46</sup> on the impact of institutions (such as

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<sup>43</sup> See: Joop Hartog “Allocation and the Earnings Function”, *Empirical economics*, Vol. 11 (2), 1986, pp. 97-110.

<sup>44</sup> Whereas the attempts to correct these market failures by state planning has led to government failures.

<sup>45</sup> For a review of the skills mismatch in Europe see: Giorgio Brunello, Pietro Garibaldi, Etienne Wasmer, *Education and Training in Europe*, Oxford, New York: Oxford University Press, 2007. For a review of skills mismatch in CEE see: Zuzana Brixiova, Wenli Li, Tarik Yousef, “Skill shortages and labor market outcomes in Central Europe”, *Economic Systems*, Vol.33(1), 2009, pp. 45-59. For the communication of the EU Commission note on skills mismatch see: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *New Skills for New Jobs. Anticipating and matching labor market and skills needs*. Brussels, 2008, COM(2008) 868 final.

<sup>46</sup> Olivier Blanchard and Justin Wolfers, "The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence," *Economic Journal*, Vol. 110(462), 2000, pp. 1-33.

minimum wage, collective bargaining, employment protection legislation, etc.) on labor market outcomes, such as wage inequality, levels of unemployment, etc. However, this research was never explicitly linked to the analysis of supply and demand of skills. Hence, there is a need for cross-disciplinary approach to analyzing the role of institutions in the process of production and utilization of skills.

### **1.3. Implications for further theoretical development**

The above sections argued that while the human capital literature does provide a compelling explanation of incentives to acquire skills and the factors behind the demand for skilled labor, it does not tell the whole story. In particular, three areas of further theoretical development were identified. First, cross-national comparative studies should shift focus from counting the years of schooling to analyzing different types of acquired skills. This implies that there is a need for a taxonomy of skills and analytical instruments for identifying what types of skills dominate in different national economies. Second, to the extent that skills are not homogenous and workers can not be easily substituted within each and every job, there is a need for an explanation of how is the information (regarding the specific bundles of skills that are “demanded”) transmitted from the labor market to the system of education and training. While price (wage differentials) certainly plays a role, its explanatory power diminishes with the decreasing elasticity of supply and demand of skills. This leads to a third issue: there is a need to go beyond the analytical framework of supply and demand of skills and focus on skills formation systems, i.e. the configuration of institutions, which structure incentives as well as the market and non-market interaction between the actors involved in provision and utilisation of skills. This is motivated by the need to move from identification of market and government failures towards the analysis of potential solutions of these failures and their impact on the emergence of different types of skills. The next chapter tackles these issues.

## **2. Reconceptualising skills and their role in national political economies.**

Problems encountered by human capital approach clearly show that we need a more adequate framework of explanation. This problem is tackled in the current chapter. First, I seek to redefine the notion of “skills”. Moving beyond simple dichotomies of high or low skills, I argue that we should focus on different types rather than levels of skills. More specifically, section 2.1. explores the distinction between specific skills, which are applicable only in concrete sectors of economy, and general skills, which are broadly transferable across a wide range of occupations and economic sectors. Second, I discuss the notion of institutional complementarities and different forms of coordination, which were put forward by the emerging literature on the Varieties of Capitalism (VoC). Hence, section 2.2. provides a framework for the analysis: (a) of different institutional structures, which support the development of different types of skills; (b) the structure of incentives for individuals and firms to engage and invest in the development of different types of skills. The framework of analysis developed in the current chapter serves as a theoretical foundation for a more detailed assessment of different skills formation systems (SFS), which is pursued in chapter 3.

### **2.1. Redefining skills**

Skills are generally defined as an ability to perform mental or physical activity, which may be developed by education, training or practice<sup>47</sup>. While the notion of skills is an old one, it did not enter the political economy literature until the second half of the XXth century. The reason was that the dominant thinkers from Adam Smith to Karl Marx and their neoclassical and neocommunist followers treated labor as a homogeneous category<sup>48</sup>. This implies that workers are perfect substitutes: any unit of labor can be easily replaced by any other unit of labor. Theoretically, this assumption was crucial for the emergence of a wide array of theories based on the

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<sup>47</sup> Jeane MacKenzie and Rose-Anne Polvere, “TVET Glossary: Some Key Terms” in eds. Rupert Maclean, David N. Wilson, *International Handbook of Education for the Changing World of Work: Bridging Academic and Vocational Learning*, Bonn: Springer, 2009.

<sup>48</sup> Phillip Brown, Andy Green and Hugh Lauder, *High Skills: Globalization, Competitiveness, and Skill Formation*, Oxford, New York: Oxford University Press, 2001.

comodification of labor and its implications on the power struggle between capital and labor<sup>49</sup>. Furthermore, the core organizing principles of industrial mass production regimes in the US and Great Britain also relied on the assumption of large supply of homogeneous labor.

Distinction between high and low skills is the most frequently used<sup>50</sup> method for categorizing homogenous skills. The main assumption behind the high/low skills distinction is that the key differences between the units of labor refer to the *level of complexity* of the tasks that a unit of labor can perform given his/her abilities and knowledge. Hence, the workers with more education and training can perform more complex tasks than labor with less education and training.

The high/low skills distinction, however, suffers from three main criticisms. First, it focuses on a single dimension of “inputs” into human capital formation (years spent in education and training), which masks qualitative variation in the types of outputs – different types of skills to perform different types of activities. High/low skills distinction largely implies that higher education (HE) graduates possess “better” skills than labor with vocational education and training (VET) qualifications, because the former have spent more years in education institutions. Such reasoning leads to a conclusion that university graduates are capable of performing more complex tasks and activities than VET graduates. This is clearly at odds with the observation that VET and HE produces different types of skills (academic and vocational), which could be equally important for production of different types of services and products.

Secondly, distinction between high and low skills fails to account for a multiplicity of institutions, which “produce” skills. For instance, most of the European countries have a dual track of secondary education: one is oriented towards academic training (ISCED 3A level), while the other one seeks to provide vocational training (ISCED 3B and 3C). Similar logic also pertains to dual track of higher

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<sup>49</sup> See: Gøsta Esping-Andersen, *Politics against Markets*. Princeton: Princeton University Press, 1985. Gøsta Esping-Andersen, *The Three Worlds of Welfare Capitalism*. Princeton: Princeton University Press, 1990.

<sup>50</sup> Among many other see: Acemoglu Daron and Jorn-Steffen Pischke, “Why do Firms Train? Training in Imperfect Labor Markets”. *Economic Journal*, 109, 1999, pp. 112 – 142. Sandra E. Black, Lisa N. Lynch, “Human Capital Investments and Productivity”, *American Economic Review. Papers and Proceedings*, 86 (2), 1996. Alison L. Booth, Dennis J. Snower, *Acquiring Skills: Market Failures, Their Symptoms and Policy Responses*, London: Centre for Economic Policy Research, 1996. Finegold David., David Soskice, “The Failure of Training in Britain: Analysis and Prescription”, *Oxford Review of Economic Policy*, (4)3, 1988, pp. 21-53.

education: universities focus on theoretically based programs, which provide access to postgraduate studies or the labor market (ISCED 5A), while other higher education institutions (ISCED 5B) seek to provide occupational skills, which should be directly relevant in the labor market. Accordingly, the analysis, which focuses on the years spent in education, as a proxy of “high skills”, ignores the fundamental differences in the types of skills that are acquired in different tracks of education.

Lastly, high/low skills distinctions simply assume that inputs (time spent in education and training) directly translate into outputs (skills to perform a certain task). This is a very strong assumption, given the cross-national variation in educational systems: even similar HE programs vary in the types of skills they develop. For instance, universities with a liberal arts education tradition tend to develop a curriculum with a substantially broader scope of subjects than similar HE programs, which aim at a more specialist education.

An alternative to thinking about skills as being high or low was proposed in the path breaking analysis of Gary Becker<sup>51</sup>, who distinguished between general and specific skills. General skills are fully transferable across sectors and firms, i.e. they could be deployed to increase the productivity of many firms in different sectors. Specific skills, on the other hand are employable only in particular firm. Completely specific training can „be defined as training that has no effect on the productivity of trainees that would be useful in other firms“<sup>52</sup>. Estavez-Abe, Iversen and Soskice<sup>53</sup> further refined the notion of specific skills by distinguishing between firm specific skills, which are of value only for a particular company and sector specific skills, which are employable in all firms within a particular sector<sup>54</sup>. Since most of the economies (Japan being a prime exception with high investment in firm specific skills) exhibit high variation in general and sector specific skills, further on I will concentrate only on these two types of skills. Law, management, math or IT could be employed in a wide number of sectors and therefore exemplify general skills. On the other hand, expertise and competence in operating and maintaining

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<sup>51</sup> Becker, 1993.

<sup>52</sup> Becker, 1993, 27.

<sup>53</sup> Estavez-Abe, Torben Iversen, David Soskice, 2001.

<sup>54</sup> Margaret Stevens argued that skills, which are neither completely general, nor completely specific (such as sector-specific skills) are transferable skills. In order to avoid potential confusion over terms I will continue using the term “sector specific skills”. For more elaborate discussion on transferable skills see: Margaret Stevens, “Transferable training and poaching externalities”, in eds. Alison L. Booth, Dennis J. Snower, *Acquiring Skills: Market Failures, Their Symptoms and Policy Responses*, London: Centre for Economic Policy Research, 1996.



specific type of machinery are applicable only in the sectors that use that machinery, and therefore exemplify sector specific skills.

General and sector specific skills are produced by different institutional arrangements. Specific skill formation systems are usually characterized by highly specialized dual vocational training. It combines school based training, with enterprise funded apprenticeships, which provide training on the job and transmits knowledge and expertise on how the job is done<sup>55</sup>. Skill specificity is furthered by continuous and extensive investment of firms in the skills of their employees. General skills, on the other hand, are usually acquired in higher education institutions<sup>56</sup>. This could be exemplified by the orientation of traditional universities towards the principles of liberal arts. Furthermore, due to highly general nature of the skills of the workers, the firms invest only in an incremental upgrade of firm-specific rather than sector specific skills of their employees.

The notions of general and specific skills are further developed and operationalized in section 4.3.1. Table 2 below provides a brief overview of main differences between the two “ideal” types of skills.

**Table 2. Ideal types of specific and general skills.**

	Specific skills	General skills
Commonly used notions	Specialist	Generalist
Dominant forms of secondary education.	Vocationally oriented secondary education (ISCED 3 B and C).	Academically oriented secondary education (ISCED 3A).
Dominant types of higher education.	Programs that seek to provide skills directly relevant in the labor market (ISCED 5B).	Theoretically based programs, which provide access to postgraduate studies or the labor market (ISCED 5A).
Dominant types of curriculum, type of knowledge and competences developed in educational systems.	Narrow, occupation-based knowledge and skills.	Dominant liberal arts education. Substantial proportion of graduates in social science, business and law fields.
Level and type of firms' investment in employees.	Extensive investment in skills including: apprenticeships, continuous vocational education and training (CVET).	Limited investment in employees' skills. Focus only on very narrow firm-specific skills.

<sup>55</sup> Christian Dustmann, Uta Schoenberg, “Why does the German Apprenticeship System work?” in eds. Karl Ulrich Mayer, Heike Solga, *Skill Formation: Interdisciplinary and Cross-National Perspectives*, Cambridge, New York: Cambridge University Press, 2008.

<sup>56</sup> Walter Müller, Marita Jacob, “Qualifications and the Returns to Training Across the Life Course“, in eds. Karl Ulrich Mayer, Heike Solga, *Skill Formation: Interdisciplinary and Cross-National Perspectives*, Cambridge, New York: Cambridge University Press, 2008.

Previous research found that general skills dominate in UK, USA and Australia, while specific skills are of utmost importance for the competitive strategies of firms in Germany, Austria, Denmark, Sweden and the Netherlands<sup>57</sup>. Furthermore, this dissertation (see section 4.3.1.) argues that general skills dominate in the Baltic States, Poland and to a smaller extent in Hungary, while specific skills characterize a large proportion of the labor force in Slovenia, Slovakia and the Czech Republic.

The distinctions between general and specific skills, however, should be used with two caveats in mind. First, the notion of “skills” is a multidimensional concept, i.e. it denotes different types and layers of knowledge and abilities. Hence, the same institutions (for example, universities) could develop different types of skills. Training of physicians provides a good example: physicians typically acquire broad academically-based knowledge as well as sector specific skills, which are gained during the studies in universities and residency in real work environments. This implies that: a) no single person could be considered entirely as generalist or specialist, while empirically we can only expect to distinguish dominant type of acquired skills; b) such empirical measures should be multidimensional (operationalisation of the dependent variable is discussed in section 4.3.1.).

The second caveat is that different mixes of specific and general skills could co-exist, since any national economy does require all types of skills. Hence, the theoretical discussion that follows does not assume that a country should necessarily have either specific or general skills. Instead, the focus is on the dominant types of skills and the extent to which they are “supplied” and acquired.

## ***2.2. The logic of institutional complementarities in the Varieties of Capitalism approach***

What institutional structures “produce” general and specific skills and what is the role of skills in the national political economies? The notion of institutional complementarities, which was developed by the Varieties of Capitalism (VoC) literature, serves as a theoretical framework for answering these questions. The underlying idea is that skill formation systems are embedded within broader set

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<sup>57</sup> Kathleen Thelen, “Skill Formation and Training”, in eds. Geoffrey Jones and Jonathan Zeitlin, *The Oxford Handbook of Business History*, Oxford, New York: Oxford University Press, 2007.

of institutions, which reinforce each other to produce nations' institutional comparative advantages. This argument is developed in several steps. First, I provide a broad overview of VoC literature and discuss, how skills formation systems are complementary to other institutions and shape the strategies of firms. Second, I discuss theoretical critiques of VoC literature. Third, I discuss previous attempts to apply the logic of institutional complementarities in the CEE countries. The chapter concludes that the VoC literature has provided a sophisticated explanation of how the labor market and economic institutions support different types of skills formation systems. However, the theoretical critique as well as difficulties in applying the VoC approach outside a handful of rich OECD countries, implies that it cannot be directly adopted for the analysis of skills formation systems in the CEE.

### **2.2.1. The logic of institutional complementarities**

The VoC approach emerged as a response to modernization and neoliberal theories, which argue that over time institutions across the world should converge towards some “best practice”. Instead, as Peter Hall and David Soskice<sup>58</sup> argue in their seminal work, globalizing pressures lead to divergence, because each country seeks to specialize in the areas of its unique competitive advantage. Divergent competitive advantages rest on different constellations of economic and political institutions. More specifically, it is argued that institutional complementarities between different financial systems, industrial relations, skill formation systems and inter company relations provide the institutional core of two “ideal” types of capitalism: coordinated market economies (CMEs) and liberal market economies (LMEs). In the latter, “firms rely more heavily on market relations to resolve the coordination problems that firms in CMEs address more often via forms of non-market coordination that entail collaboration and strategic interaction”<sup>59</sup>. Hence, the overall idea behind VoC approach is that institutional complementarities enable different forms of coordination, which produce qualitatively different outcomes.

Table 3 describes different constellations of institutions in coordinated and liberal market economies. Effective functioning of each of these institutions

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<sup>58</sup> Hall, Soskice, 2001.

<sup>59</sup> Hall, Soskice, 2001, 27.

depends on the extent to which it is complemented by other institutions. In coordinated market economies firms have access to “patient capital”, which is usually provided by banks or long term institutional investors. This strengthens firms’ capacities to endure short term fluctuations and allows focusing on long term competitive strategies. This increases the credibility of firms’ commitment to long-term cooperation with other firms and with employees. Cooperation with other firms facilitates standard setting and technology transfer. Furthermore, cooperation between firms usually results in establishment of strong employers associations that are necessary for collective wage bargaining. This (in addition to an independent central bank)<sup>60</sup> compresses wages and helps to avoid poaching. Collective wage bargaining ensures peaceful industrial relations and in cases of economic shocks acts as an adjustment mechanism in the face of rigid labor market regulation. Long term relationships between employees and the firms allow the latter to make continuous investments in the skills of its labor force and reap the benefits of higher productivity. The complementarities between these institutions and specific skills formation systems are necessary for firms in CMEs to engage in incremental innovation, occupy niche markets and compete on the basis of quality (rather than price) in mature sectors, such as capital goods industries, machine tools, etc.<sup>61</sup>

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<sup>60</sup> Lars Calmfors, John Driffill, “Bargaining structure, corporatism, and macroeconomic performance”, *Economic Policy*, Vol. 9, 1988, pp. 14 – 61.

<sup>61</sup> Wolfgang Streeck., “Productive Constraints: On the Institutional Conditions of Diversified Quality Production,” in W. Streeck (ed.), *Social Institutions and Economic Performance: Studies of Industrial Relations in Advanced Capitalist Economies*, London: Sage, pp. 1 – 40.

**Table 3. Institutions in coordinated and liberal market economies.**

Institutions	Coordinated market economies (CMEs)	Liberal market economies (LMEs)
Financial systems	Access to “patient capital” from banks. Long term relationships between firms and providers of capital implies focus on long term competitiveness and short term performance is less important. Performance of enterprises is monitored on the basis of “insider information” and reputation.	Stock markets and venture capitalists provide funding. Dispersed investors rely on publicly available information to assess the value of the firm, which puts emphasis on short term performance indicators.
Industrial relations	Long term relationships between employers and employees. Coordinated system of wage bargaining. Rigid labor markets: high costs of firing. Representatives of employees participate in firm-level decision making on working conditions and layoffs.	Reliance on market mechanisms for supply of labor and wage-setting: flexible labor markets (low costs of firing), individual-level bargaining on wage. High managerial autonomy of CEO to make decisions on layoffs, restructuring, etc.
System of skills formation.	Specific skills. Trade unions and employers associations perform semi-public functions in skills provision.	General, easily transferable skills.
Ineter-company relations	Strong employers associations orchestrate standard setting, development of new technologies. Firms engage in long term cooperative relations, which are based on reputational monitoring and implicit informal contracts.	Inter-firm relations are based on competition and explicit formal contracts. Strong antitrust policy.
“Ideal” cases	Germany	USA

Source: own compilation on the basis of: Peter A. Hall, David Soskice, *Varieties of Capitalism: the Institutional Foundations of Comparative Advantage*, Oxford, New York: Oxford University Press, 2001.

Firms in liberal market economies engage in radical innovation strategies in fast moving technology sectors and services<sup>62</sup>. Stock markets and venture capital funds provide the funding needed for radical innovations. In order to attract such funding firms have incentives to focus on short term indicators. Therefore, firms need flexible labor markets, which reduce the costs of shedding labor during economic downturns and in cases, when radical innovation strategies fail. Furthermore, radical innovation strategies and the need to consistently demonstrate good short term performance indicators call for strong CEOs, capable of fast decision making regarding the amount and price of the labor force, the direction of investments, etc. Orientation towards short term performance indicators and strong anti-trust policies imply that firms have neither the incentives, nor are allowed to engage in long term cooperation. Hence, relationships between firms are based on explicit formal contracts and market mechanisms. This increases firms’ capacity to acquire new technology by buying other companies, poaching their personnel and

<sup>62</sup> Hancke, Rhodes, Thatcher, 2007.

licensing new products. Hence, in LMEs firms rely on the coordinating mechanisms of the market (instead of dense non-market institutions as the case in CMEs) for finance, personnel and when dealing with other firms.

A brief overview of different institutional complementarities in CMEs and LMEs serves as a context for a more in-depth discussion on how skills formation systems are embedded within other institutions and how they are driven by divergent coordination mechanisms. In fact, it is possible to show that there are two-way relationships between skills formation systems and other institutions. In CMEs, strong employers associations provide the institutional infrastructure for cooperation between firms. In addition to other functions, these associations play an active role in ensuring smooth functioning of specific skills formation systems: they set occupational training standards, monitor the quality of apprenticeships and certify acquired skills. On the other hand, specific skills formation system supports inter-firm cooperation by providing standardized industry-specific skills, which are necessary for cooperation in developing and transferring technologies<sup>63</sup>. Coordinated wage bargaining sets standard wage levels across companies, which prevents poaching of employees. This protects firms' investments in industry specific skills of the employees. On the other hand, industry specific skills of the employees strengthen their position vis-à-vis employers in collective bargaining: in case of industrial conflict, employers will face substantial problems in substituting industry-specific skills of their employees. Similarly, the financial system in CMEs allows firms to focus on long term competitiveness, which increases the job security during economic downturns. This assures employees that their non-transferable specific skills are not likely to become obsolete during the exogenous shocks. On the other hand, employees' investments in specific skills and commitment to the long term competitiveness of the firms allows the latter to capture the gains of higher productivity, pursue long term strategies aimed at increasing the quality of the products and specialize in niche higher value added markets.

Similar complementarities exist between general skills formation systems and institutions found in LMEs. Abundance of general skills in LMEs reduces the costs of hiring the labor force, which enhances the flexibility of the market. On the other hand, flexibility of the labor markets also implies that

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<sup>63</sup> Hall, Soskice, 2001.

employees face high risks of losing a job and therefore seek to acquire broadly transferable skills, which could facilitate fast moves from unemployment to employment. Similarly market based competition between firms fosters poaching, which facilitates technology transfer, but also prevents firms from investing in the training of their employees. Poaching, however, would not be possible in the absence of transferable skills. Lastly, an abundance of general skills facilitates radical innovations. Radical innovations imply that the specific skills needed for innovations are absent before the innovation is actually carried out (for instance, computer engineers did not exist before invention of computers). Hence, firms rely on academically trained employees, who are capable of adapting their broad knowledge and expertise to new areas of innovation. For instance, Estavez-Abe, Iversen and Soskice<sup>64</sup> argue that American financial institutions took advantage of abundant supply of math PhDs to develop new financial products, such as derivatives.

Hence, differences in skills formation systems in the CEE could be explained by the differences in the types of capitalisms i.e. different institutional constellations and strategies of the firms. We should expect to find specific skills formation systems (SFS) in CMEs and general SFS in LMEs. More specifically, we should expect that specific skills formations systems have emerged in cases, where firms engage in incremental innovation in mature sectors and there is coordinated wage bargaining, rigid labor markets, high levels of long-term cooperation among employers and abundance of long term “patient capital”. Conversely we should expect that general skills formation systems have emerged in cases, where firms engage in radical innovation and rely on market mechanisms for supply of capital, labor and relations with other firms.

Such an explanation, however, can not be straightforwardly adapted to analyze the emergence of skills formation systems. While the logic of institutional complementarities provides a theoretically sophisticated and holistic understanding of how skill formation systems function in different types of capitalism, we should take into account: a) critiques of VoC literature; b) problems in applying VoC approach to a wider range of countries, which have different constellations of

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<sup>64</sup> Estavez-Abe, Iversen and Soskice, 2001.

institutions than the ideal cases of CME (Germany) and LME (USA)<sup>65</sup>. Below I discuss these issues in more detail.

### **2.2.2. Critiques of VoC literature**

The above discussed approach of the early VoC literature has been criticized from a number of perspectives. The first substantial critique is that it does not explain institutional change: why have different institutions emerged in CMEs and LMEs? As Thelen and Khume puts it<sup>66</sup>, the early VoC literature tends to treat institutions as a “state of affairs”, which some countries have and others do not. This critique has two aspects. The first one relates to the problem of dual causality, which is implied by the logic of institutional complementarities. As discussed above, the early VoC approach does not argue that some types of institutions cause emergence of other institutions. Instead, the argument is more sophisticated: institutions complement each other, which implies that the causality runs both ways. For example, it is not feasible to argue that flexible labor markets are logically and historically prior to and cause emergence of general skills formation systems. The reason is that transferability of general skills also facilitates the flexibility of the labor markets by reducing the costs of hiring. Hence, complementarities act as “gravity forces”, which hold institutions together. Such argument is the basis of strength as well as the weakness. The undisputable strength of the early VoC approach lies in its capacity to explain institutional stability in the face of shocks: as long as other complementary institutions are in place, attempts to change one of them are likely to fail due to the “gravitational forces” of other institutions. Furthermore, this explains why different institutional constellations provide divergent responses to the same shocks. The flip side of this argument, however, constitutes its weakness. If the institutional complementarities resist change, how have they emerged and how can we explain radical as well as incremental institutional change?

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<sup>65</sup> Bob Hancke, Martin Rhodes and Mark Thatcher, “Introduction: Beyond Varieties of Capitalism“, in Bob Hancke, Martin Rhodes and Mark Thatcher. (eds). *Beyond Varieties of Capitalism: Conflict, Contradictions, and Complementarities in the European Political Economy*. Oxford, New York: Oxford University Press, 2007. Oscar Molina, Martin Rhodes, “The political economy of adjustment in Mixed Market Economies: A study of Spain and Italy“, in Bob Hancke, Martin Rhodes and Mark Thatcher. (eds). *Beyond Varieties of Capitalism: Conflict, Contradictions, and Complementarities in the European Political Economy*. Oxford, New York: Oxford University Press, 2007.

<sup>66</sup> Thelen, Kume, 2006.



Furthermore, the ideal models of LMEs and CMEs were analytically constructed on the basis of the US and German cases. This implies that the institutions associated with liberal and coordinated market economies have emerged from a long, protracted and case-specific historical development of the US and Germany. Hence, what were the main historical critical junctures that lead to divergence of capitalist institutions? Have different countries experienced similar junctures? If not, to what extent is it feasible to claim that “there is more than one way” to liberal or coordinated market economy?

The second substantive criticism of early VoC literature is that by putting firms at the centre of analysis it ignores the role of individuals and state in building and sustaining institutions<sup>67</sup>. This is particularly important when considering emergence of skill formation systems. The state is among the central actors in funding, regulating and providing education and training, although the degree of state involvement and type of adopted policies differ. Furthermore, emphasis on the strategies of the firms provide only a partial explanation of individuals’ decisions to acquire skills: demand for certain type of skills and institutions for provision of these skills are necessary, but not sufficient conditions. Additionally, we need to explain signaling mechanisms that coordinate individuals’ decisions. Hence, an adequate explanation of the emergence of different skill formation systems should also account for varying role of the state and mechanisms that structure individuals’ decisions.

### **2.2.3. Problems in applying early VoC literature: how many capitalisms?**

Substantive criticisms aside, a number of authors also pointed out that the VoC literature is hardly applicable outside a handful of rich OECD countries. Empirical assessments found that a wide number of cases do not exhibit a clear cut constellation of capitalist institutions, which could be attributable to either CME or LME. This posed theoretical problems that go beyond a mere proliferation of the number of capitalisms: encounters with “non-pure” models of capitalisms diminish

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<sup>67</sup> Hancke, Rhodes, Thatcher, 2007.

the explanatory power of the early VoC literature. Hall and Soskice<sup>68</sup> powerfully argued that effectiveness of each institution depends on the extent to which it is complemented by and complements other institutions. If the complementarities are absent, the effects of institutions could be dramatically different from the ones theorized in the VoC literature. Hence, what are the theoretical benefits of applying the VoC approach to cases, which do not exhibit clear-cut complementarities?

This problem is particularly important, when the VoC approach “travels” to the East. Previous research found that in Central and Eastern Europe capitalist institutions do not form complementary constellations that could be attributed to coordinated or liberal market economies. Instead authors argued that various mixes of institutions in the CEE lead to emergence of unique types of capitalisms. The characterizations of capitalisms found in the CEE countries range from neoliberal to state-led, from developmental to liberal – dependent. The full review of different typologies is provided in Table 4. Furthermore, while most of the studies<sup>69</sup> agree that Estonia comes closest to LME and Slovenia is a CEE prototype of CME, all other cases have been grouped in a wide variety of ways.

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<sup>68</sup> Hall and Soskice, 2001. Marino Regini, “Tripartite Concertation and Varieties of Capitalism“, *European Journal of Industrial Relations*, Vol. 9 (3), 2003, pp. 251-263. Vivien A. Schmidt, *The Futures of European Capitalism*, Oxford: Oxford University Press, 2002.

<sup>69</sup> Clemens Buchen, “East European Antipodes: Varieties of Capitalism in Estonia and Slovenia.” in David Lane and M. R. Myant (eds.). *Varieties of Capitalism in Post-communist Countries*, Basingstoke: Palgrave Macmillan, 2007. Magnus Feldmann, “Emerging Varieties of Capitalism in Transition Countries: Industrial Relations and Wage Bargaining in Estonia and Slovenia“. *Comparative Political Studies*. Vol. 39, No 7, 2006, pp. 829-854. Zenonas Norkus, *Kokia demokratija, koks kapitalizmas? Postkomunistinė transformacija Lietuvoje istorinės lyginamosios sociologijos požiūriu*. Vilnius: Vilniaus universiteto leidykla, 2008. Zenonas Norkus, “Lietuva tarp Estijos ir Slovėnijos: dėl pokomunistinio kapitalizmo tipologinės diferenciacijos“, *Politologija*, Vol. 1 (49), 2008.

**Table 4. Varieties of capitalisms in Central and Eastern Europe.**

Author	Types of capitalisms (CEE countries)			What factors were used to derive typology of capitalisms in CEE?
Bohle, Greskovits <sup>70</sup>	Neoliberal (Estonia, Latvia, Lithuania).	Embedded neoliberal (Czech Republic, Hungary, Poland, Slovakia)	Neo-corporatist (Slovenia)	Extent of marketization, social cohesion, type of exports, impact of external pressures.
Buchen <sup>71</sup> Feldmann <sup>72</sup> , Norkus <sup>73</sup>	Liberal market economy (Estonia)	Coordinated market economy (Slovenia)		Industrial relations, corporate governance, inter-firm relations, social security systems, vocational training, sectoral contributions to trade balance, patterns of foreign direct investment.
Cernat <sup>74</sup>	Anglo-Saxon (Estonia)	Continental (Poland, Slovakia, Bulgaria, Lithuania, Latvia, Romania)	Developmental (Czech Republic, Hungary, Slovenia)	Type of wage bargaining, extent of state intervention into the markets, role of the banking sector and other financial institutions.
Hancke, Rhodes, Thatcher <sup>75</sup>	Liberal market economies (Estonia, Latvia, Lithuania)	Compensating state (Czech Republic, Hungary, Poland, Slovakia)	Coordinated market economy (Slovenia).	State – economy relations and extent of interest organization.
King <sup>76</sup>	Liberal dependent capitalism (Poland, Hungary).	Patrimonial capitalism (Russia).		Industrial relations, corporate governance, inter-firm relations, social vocational training.
Knell, Srholec <sup>77</sup>	Liberal market economies (Estonia, Hungary, Slovakia, Lithuania, Poland, Bulgaria)	Coordinated market economies (Czech Republic, Latvia, Slovenia)		Social cohesion, labor market regulation and business regulation.
Lane <sup>78</sup>	State-led, continental market capitalism (1 <sup>st</sup> subgroup: Czech	Hybrid state/market uncoordinated capitalism	Non market economies (Uzbekistan, Belarus,	Extent of marketization, privatization, stock market capitalization, extensiveness of welfare state, income

<sup>70</sup> Dorothee Bohle, Bela Greskovits. “The State, Internationalization, and Capitalist Diversity in Eastern Europe“. *Competition & Change*. Vol. 11 (2), 2007, pp. 89 – 115. Dorothee Bohle, Bela Greskovits, “Neoliberalism, Embedded Neoliberalism and Neocorporatism: Towards Transnational Capitalism in Central-Eastern Europe“, *West European Politics*, Vol. 30 (3), 2007, pp. 443 – 466.

<sup>71</sup> Buchen, 2007.

<sup>72</sup> Feldmann, 2006, 2007.

<sup>73</sup> Norkus, 2008.

<sup>74</sup> Cernat, 2006.

<sup>75</sup> Bob Hancke, Martin Rhodes and Mark Thatcher, “Introduction: Beyond Varieties of Capitalism“, in Bob Hancke, Martin Rhodes and Mark Thatcher. (eds). *Beyond Varieties of Capitalism: Conflict, Contradictions, and Complementarities in the European Political Economy*. Oxford, New York: Oxford University Press, 2007.

<sup>76</sup> King, 2007.

<sup>77</sup> Mark Knell, Martin Srholec, “Diverging Pathways in Central and Eastern Europe“, in eds. David Lane and Martin Myant, *Varieties of Capitalism in Post-Communist Countries*, Houndmills, Basingstoke: Palgrave Macmillan, 2007.

	Republic, Hungary, Estonia, Poland, Slovakia, Slovenia; 2 <sup>nd</sup> subgroup: Lithuania, Croatia, Latvia, Romania, Bulgaria).	(Russia, Ukraine, Kazakhstan, Georgia, Turkmenistan, Moldova).	Turkmenistan).	inequality, mechanisms of economic coordination, quality of exports
Mykhnenko <sup>79</sup>	Mixed market economies or weak coordinated market economies (Poland and Ukraine).			Product-market competition, wage-labor nexus, financial institutions, social protection, education.

Theoretical problems in conceptualizing the diversity of capitalisms in the CEE lead to a discussion regarding the usefulness of the VoC approach. On the one hand, Bohle and Greskovits<sup>80</sup> claim that a number of factors – common socialist legacies, transitions from authoritarianism to democracy and from planned to market economy as well as the huge influence of trade and foreign investment – lead to the emergence of new types of capitalisms in the CEE. Hence, the CEE countries are considered as being more similar to each other than to their Western counterparts. As a result, adoption of the VoC approach for the analysis of the CEE countries produces more problems than useful knowledge<sup>81</sup>.

On the other hand, King<sup>82</sup> and Feldmann<sup>83</sup> proposed that the VoC approach provides a useful framework for analysis, but it must be contextualized. The need for contextualization is justified by the fact that a number of institutions, which are at the centre of VoC approach, do not exist, are underdeveloped or produce substantially different results in the CEE in comparison to the ones in rich Western countries. For instance, a number of studies found that labor unionization is extremely low in the CEE, which in combination with formally existing institutions for centralized wage bargaining produce “fake corporatism”<sup>84</sup>. Others found that due to low regulation enforcement capacities, some CEE countries exhibit a rigid labor

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<sup>78</sup> Lane, 2005. Lane, 2007.

<sup>79</sup> Vlad Mykhnenko, “Strengths and Weaknesses of ‘Weak’ Coordination: Economic Institutions, Revealed Comparative Advantages, and Socio-Economic Performance of Mixed Market Economies in Poland and Ukraine”, in eds. Bob Hancke, Martin Rhodes and Mark Thatcher. (eds). *Beyond Varieties of Capitalism: Conflict, Contradictions, and Complementarities in the European Political Economy*. Oxford, New York: Oxford University Press, 2007.

<sup>80</sup> Bohle, Greskovits, 2007, 2007a.

<sup>81</sup> Bohle and Greskovits, 2007.

<sup>82</sup> King, 2007.

<sup>83</sup> Feldmann, 2007.

<sup>84</sup> King, 2007. Feldmann, 2006. Cernat, 2006.

market regulation and at the same time very high labor market flexibility<sup>85</sup>. Furthermore, an underdeveloped financial system, emergence of grey and shadow economies and “informal” relationships between firms also impede attempts to use VoC framework for analysis of the CEE countries<sup>86</sup>.

Hence, contextualization implies that we should assess how the institutions are functioning within their contexts, instead of mechanically assuming that formally existing institutions in CEE should produce the same results as in the rich OECD countries. For example, the Baltic States exhibit very rigid labor market regulation. The experience of rich OECD countries would indicate that such regulation should increase the costs of firing, which substantially reduces labor market flexibility. Such reasoning would imply that the labor markets in the Baltic States are similar to the ones found in coordinated market economies. The caveat, however, is that due to low capacities of the state and trade unions the labor market regulation in Estonia, Latvia and Lithuania is poorly enforced. As a result the strictly regulated labor markets in the Baltic States are in fact as flexible as the ones found in the liberal market economies. The implication is that instead of focusing on formal institutions, we should analyze how they function within their contexts. This should allow a more meaningful application of the logic of institutional complementarities in the analysis of CEE.

To sum up, the VoC literature provided a sophisticated explanation of how the properties of the labor markets, industrial relations, inter-firm relations and the strategies of the firms support different types of skills formation systems. However, theoretical critique and problems in conceptualizing capitalisms in the CEE pointed out to three areas, where the VoC approach should be further developed: a) it does not take into account the role of the state and the incentives of individuals; b) apparent absence of clear-cut institutional complementarities and vague national institutional comparative advantages do not yield straightforward explanation of type of skills formation systems found in each CEE case; c) the VoC approach is static and does not explain how institutions emerge.

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<sup>85</sup> Tiiu Paas, Raul Eamets, *Labor Market Flexibility, Flexicurity and Employment: Lessons of the Baltic States*, New York: Nova Science Publishers, 2006. Žilvinas Martinaitis, „Flexicurity: Will the European Medicine Cure Lithuanian Labor Market?“ *Lithuanian Political Science Yearbook*, 2008, Vilnius: Vilniaus universiteto leidykla, 2008.

<sup>86</sup> Lane 2005, 2007.

In order to tackle the first two problems, this dissertation proposes to dissect the logic of institutional complementarities. “Perfect” complementarities between all the capitalist institutions, are theoretically excessive for an explanation of cross-national differences in the skills formation systems. Hence, instead of analyzing (mixed) types of capitalisms in the CEE, the logic of the VoC approach could be used to develop testable hypotheses on the role of concrete institutions in providing the incentives for individuals and firms to invest in acquisition and provision of different types of skills. Such hypotheses could be relevant for the CEE as well as other capitalist countries.

In order to tackle the third problem, this dissertation aims to test historical-institutionalist hypotheses regarding the emergence of different capitalist systems in the CEE. Such explanation, of course, is relevant only to the region in question rather than all capitalist states. The next chapter discusses the hypotheses: a) regarding the institutions, that support different SFS and b) historical factors that contributed to the emergence of these institutions.

### **3. Explaining the institutional foundations of skills formation systems and trajectories of their emergence**

This chapter seeks to contribute to further theoretical development of VoC approach by providing a more elaborate explanation of how different skills formation systems function and how they emerge. First, I discuss what institutions support different types of skills formation systems. Hence, the focus is on the institutions that provide incentives for individuals to acquire different types of skills (section 3.1.) and the institutions that ensure effective provision of these skills (section 3.2.). The main argument is that individuals who acquire specific skills face higher labor market risks than “owners” of general skills. Hence, high employment stability and unemployment benefits, which act as insurance mechanisms, are necessary to motivate acquisition of specific skills. Conversely, if insurance mechanisms are absent, individuals will seek to enhance their adaptability in the labor market by acquiring transferable general skills. Furthermore, I argue that involvement of firms is necessary for provision of specific skills. The firms, however, have incentives to directly or indirectly participate in provision of skills, if there is coordinated wage bargaining and strong employers associations – both institutions provide solutions to collective action problems, faced by the firms. Conversely, provision of general skills is more flexible and could function effectively in the absence of firms’ involvement.

Second, I explore the theoretical explanations of how the institutions, which support different types of skills formation systems, have emerged in the CEE countries (section 3.3.). Here I focus on: (a) the importance of initial conditions and strategies of early economic reforms in creating the different sets of institutions; and (b) the impact of structure and tenure of the cabinet in sustaining or abandoning the institutions.

#### ***3.1. Individual-level explanations: insuring investments in skills***

This section seeks to provide a theoretical explanation of why individuals seek to acquire different types of skills. The discussion heavily draws on

research conducted by Iversen and Soskice<sup>87</sup>, Estavez-Abe, Iversen and Soskice<sup>88</sup>, Iversen<sup>89</sup> and Iversen and Stephens<sup>90</sup>, who all work within the framework of VoC. The overall logic is that individuals' willingness to acquire different types of skills depends on the extent to which welfare state institutions provide insurance against labor market risks. High employment and unemployment protection are necessary for risk averse individuals to invest in the development of specific skills, while absence of these institutions create incentives to acquire general skills.

Following Estavez-Abe et. al.<sup>91</sup> and Iversen<sup>92</sup>, lets assume that the individual's decision to acquire skills is an investment, which implies present costs (tuition fees, forgone income while studying, etc.) and future benefits in terms of higher wage, prestige, etc. One of course could argue that individuals study for the sheer enjoyment of the process (hence, education is consumption) or because they seek non-monetary rewards, such as self-enrichment. However, considering that wage constitutes the single biggest source of income during ones working life and that wage is usually closely related with acquired skills, the above assumption seems realistic.

Further assume that the incentives to acquire some types of skills crucially depend on the expected level of income. Typically, as in human capital approach, acquisition of skills is associated with the wage premium: workers, who have the necessary skills, are more productive and therefore, are rewarded with higher wages than workers, who do not have these skills. This argument, however, also has a flip side. If the demand for some types of skills diminishes in the future, the wage premium of these skills will also diminish and in extreme cases will equal zero. A number of historical cases of technological and economic shocks illustrate this logic. For instance, highly skilled European shipbuilders reaped healthy wage premiums on their skills during the after war period. However, the decline of industry in Europe in the end of the XXth century implied that European shipbuilders' skills became obsolete and investments in these skills largely failed to

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<sup>87</sup> Torben Iversen, David Soskice, "An Asset Theory of Social Policy Preferences", *American Political Science Review*, Vol. 95 (4), 2001, pp. 875 – 893.

<sup>88</sup> Estavez-Abe, Iversen and Soskice, 2001.

<sup>89</sup> Iversen, 2005.

<sup>90</sup> Iversen, Stephens, 2008.

<sup>91</sup> Estavez-Abe, Iversen and Soskice, 2001.

<sup>92</sup> Iversen, 2005.



deliver the expected returns<sup>93</sup>. Hence, decision to acquire some types of skills depends not only on the level of expected wage premiums, but also on probability that these wage premiums will actually be reaped.

Exposure to risk (that skills could become obsolete) differs by type of skills. Overall, the more specific skills are acquired, the more risky is the investment<sup>94</sup>. This is because specific skills are of value only in some particular sector, while general skills are easily transferable across different sectors. Hence, changes in technology or structure of the economy poses the risk, that investment in specific skills will fail to produce expected returns. On the other hand, transferable nature of general skills implies that their “owners” are more capable of adapting and therefore face smaller risks. This has profound implications: even in the face of high demand for specific skills and high wage premiums associated with such skills, the future workforce will instead invest in general skills, if the risks of acquiring specific skills are considered as too high.

Assuming that individuals are risk-averse, Estavez-Abe et. al.<sup>95</sup>, Iversen<sup>96</sup> and Soskice and Iversen<sup>97</sup> argued that some form of insurance against technological and labor market risks is necessary for individuals to invest in specific skills. Insurance in this case has two sides. First, high employment protection (rules and regulations, which increase the costs of layoffs) assures that employers will restrain from firing. This reduces the likelihood that specific skills will become obsolete (the person will lose a job). The second form of insurance is provided by unemployment benefits, which (at least to some degree) substitute the loss of income, if an employee does loose a job. More, specifically, unemployment serves two functions here. On one hand, if the economic downturn is temporary, generous unemployment benefits substitute wage premiums until the economic cycle changes and firms engage in hiring. Hence, provision of temporary income support discourages workers from downgrading their skills and seeking “any” employment, i.e. from seeking employment in sectors, where acquired specific skills are of no value and do not contribute to higher productivity. On the other hand, if due to technological shocks specific skills become permanently obsolete, generous

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<sup>93</sup> John Stirling, Jeff Bridgford, “British and French shipbuilding: the industrial relations of decline”, *Industrial Relations Journal*, Vol. 16 (4), 2007, pp. 7 – 16.

<sup>94</sup> Iversen, Soskice, 2001. Estavez-Abe, Iversen and Soskice, 2001. Iversen, 2001.

<sup>95</sup> Estavez-Abe, Iversen and Soskice, 2001.

<sup>96</sup> Iversen, 2001.

<sup>97</sup> Iversen, Soskice, 2001.

unemployment benefits should provide support for retraining (acquisition of different skills) instead of downgrading skills by seeking “any” employment.

Conversely, absence of insurance mechanisms should lead risk averse individuals to acquire general skills. If individuals expect frequent job changes and frequent moves from employment to unemployment (and *vice versa*), then individuals will seek to increase their capacities to adapt to volatile labor markets by acquiring easily transferable general skills. Furthermore, capacity to apply general skills in a number of sectors and professions facilitates fast moves out of unemployment, which is necessary, if the social security system does not provide adequate compensation for loss of income. Hence, the decision to acquire general skills increases workers’ adaptability. This could be treated as a form of self-insurance against loss of income in liberal labor markets.

The argument developed above has two considerable strengths. First, it moves beyond a “markets against politics” logic and implies that rigid labor markets and generous welfare state could be a stable political solution, which contributes to competitiveness of national economies. Power resource theories<sup>98</sup> have long argued that welfare state provides an arena of conflict between workers, who seek “decomodification” from market relationships, and employers, who seek higher competitiveness (in terms of higher flexibility and lower taxes) by limiting the scope of welfare institutions. If that was the case, then we should expect that changes in the balance of power between workers and capitalists should produce frequent changes in welfare institutions. However, the above discussed incentives to acquire different types of skills imply that high employment and unemployment protection is supported not only by employees with specific skills, but also by employers. High employment and unemployment security is beneficial to the firms that pursue competitive strategies that rely on specific skills, by creating the incentives for employees to acquire such skills. As Estavez-Abe et. al. put it: “complementary welfare programs and policies reduce employers’ cost of providing adequate rewards to persuade workers to invest in the skills required for specific product market strategies”<sup>99</sup>. Hence, universal welfare institutions could constitute a positive sum game with stable outcomes.

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<sup>98</sup> See: Esping-Andersen, 1985. Esping-Andersen, 1990.

<sup>99</sup> Estavez-Abe, Iversen and Soskice, 2001, p. 160.

The second strength of the above argument is that it explains the apparent mismatches between supply and demand for skills. The twist is that demand for specific skills is a necessary, but not sufficient condition for future workers to acquire such skills. If the insurance against labor market risks is absent, we should expect high investment in general skills, irrespective of actual demand. Hence, this argument goes beyond simple supply and demand models. Furthermore, it is easily applicable in the CEE cases, where competitive strategies of firms – and demand for particular types of skills – seems to be mixed or at least hardly identifiable with the instruments proposed by the VoC literature (see subsection 2.2.3.).

To summarize the above discussion, I propose the following two hypotheses regarding individuals' decision to acquire general or specific skills:

*H1: High employment stability and high unemployment benefits create incentives for individuals to acquire specific skills.*

*H2: Low employment stability and low unemployment benefits foster acquisition of general skills.*

It should be noted that independent variables are defined not in terms of institutions (for instance, rigid labor market legislation), but in terms of effects these institutions produce (high employment stability). This is done in line with the discussion in subsection 2.2.3, which argued that instead of mechanically assuming that the institutions produce the same results in different cases, we should focus on, how institutions function and what results they produce within the context of national political economies. The indicators for measuring values of each of the variables are discussed in chapter 4 and the hypotheses are tested in chapter 5.

### **3.2. Provision of skills: solving collective action problems of training.**

The incentives of individuals to acquire specific or general skills are necessary, but not sufficient conditions for emergence of different types of skills formation systems. An adequate account should also explain what institutions ensure effective provision of different types of skills. This task is undertaken in the current section. The main argument is that effective provision of specific skills depends on the active involvement of firms, which directly and indirectly participate in training,

if there is coordinated wage bargaining as well as strong employers associations. Conversely, institutional structures for provision of general skills are more flexible.

### **3.2.1. What is the role of firms in provision of skills?**

Different types of skills formation systems (SFS) are based on completely different assumptions regarding future demand for skills. A general skills formation system is based on a premise that future demand is in principle unknown. This assumption is deeply rooted in the notions of “acceleration of time” or “compression of time and space”<sup>100</sup>, which emphasize that globalization, rapid advances of innovation and other factors have dramatically increased the pace of social, economic, technological, etc. changes. Hence, it is impossible to train future workers to work in sectors of the economy that have not yet emerged with the tools that have not yet been invented and in organizations that have yet been established. Therefore, the focus is on developing good general (analytic, social, cognitive, learning, etc.) skills, which enhance flexibility in adapting to fast economic, technological, organizational and similar changes.

What does this logic tell us about the institutional structure that is necessary for provision of general skills? Since general skills are commensurable, the institutional structure for their provision could be flexible: skills could be effectively provided by the market or state institutions or (most likely) some mixture of both. To illustrate this logic: universities are usually considered prime providers of general transferable skills. While there is an intense discussion on the factors behind the quality of academic education<sup>101</sup>, it seems that this task could be equally well achieved under different institutional settings. For example, while the US universities

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<sup>100</sup> For further discussion see: Timothy W. Luke, "Identity, Meaning and Globalization: Space-Time Compression and the Political Economy of Everyday Life." In eds. Scott Lash, Paul Heelas and Paul Morris, *Detraditionalization: Critical Reflections on Authority and Identity*. Oxford: Blackwell, 1996, pp. 109-133. Zygmunt Bauman, *Globalization: Human Consequences*, New York: Columbia University Press, 1998. Anthony Giddens, *The Consequences of Modernity*, Cambridge: Polity Press, 1990. Scott Lash and John Urry, *Economies of Signs and Space*, London: Sage Publications, 1994.

<sup>101</sup> For further discussion see: Guy Neave, Frans A. Van Vught, *Prometheus bound. The changing relationship between government and higher education in Western Europe*. Oxford: Pergamon, 1991. Paulo Santiago, Karine Tremblay, Ester Basri, Elena Arnal, *Tertiary education for the knowledge society volume 1: Governance, funding, quality*. Paris: OECD, 2008. Barbara M. Kehm, Jeroen Huisman, Bjørn Stensaker, *The European Higher Education Area: Perspectives on a moving target*. Rotterdam: Sense. 2008.

traditionally dominate in the world university rankings, the top 50<sup>102</sup> also include institutions from a very diverse range of countries, such as Australia France, Japan, Singapore and Switzerland. This clearly shows that different institutional and regulatory systems are capable of provision of high quality general skills. On the other hand, a specific skills formation system emphasizes the capacity of education institutions to keep up with the “real world” dynamics. The non-transferable nature of specific skills implies that they should closely match economic, technological, organizational and similar changes in order to be relevant in the labor market. This poses substantial problems of information asymmetry: how should the providers of education and training know what concrete skills are relevant in each of the sectors of economy? This problem is further exacerbated by increasing speed of change and long periods of training, i.e. skills that are relevant today could be outdated, when the training is completed. Hence, effectiveness of specific SFS crucially depends on the active engagement of firms in the provision of extraordinarily detailed information regarding current and future demand for skills in a fast changing environment. Empirically the involvement of firms in the provision of specific skills takes a number of forms<sup>103</sup>:

- Apprenticeships. Firms organize and cover part of the costs of apprenticeships, which provide the future workforce with hands-on experience of how a specific job in specific industries is carried out.
- Involvement in the development of curricular and certification of skills. In order to do this, firms must cooperate to identify (and continuously update) key knowledge and competences that the graduate of education and training should be able to demonstrate.
- Training of trainers and educators. Firms provide training or temporary employment to trainers and educators, who work in publicly funded education institutions. Such practices aim to introduce the educators of future workforce with newest technological, organizational, etc. developments.
- Continuous vocational training. In a fast changing environment specific skills can easily become out of date. Therefore, firms allocate substantial resources to continuous training of their employees.

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<sup>102</sup> See, for example Times Higher Education World University Rankings, <<http://www.timeshighereducation.co.uk/hybrid.asp?typeCode=438>> [2010 01 14]

<sup>103</sup> See: Müller, Jacob, 2008.

To sum-up, general and specific skills formation systems rest on two different sets of institutions. Since general SFS do not aim to mimic the trends in the labor market, they are founded on the institutions capable of fostering academic excellence. On the other hand, effectiveness of specific SFS heavily relies on the involvement of firms in direct and indirect provision of training. Hence within this context, the answer to the question – why do firms engage in training? – is crucial to understanding, why specific skills formation systems (fail to) emerge.

### **3.2.2. Why do firms invest in training?**

The previous subsection argued that specific skills formation systems can hardly function without active involvement of firms. Hence, below I discuss why and under what conditions firms are likely to invest their resources and participate in direct and indirect provision of training?

Let us start by assuming that education and training increase the productivity of workers<sup>104</sup>. Hence, all things being equal, firms should be willing to reap the benefits of higher productivity by investing in the training of their future and current employees. These incentives are further amplified, if the competitive strategies of the firms crucially depend on the specific skills of their employees. Since (in the absence of firms' involvement) publicly funded education institutions are not likely to produce relevant specific skills, it seems that firms have no other option, but to actively engage in provision of training and education.

These incentives, however, are easily undermined by the problems of collective action. To put it formally, the firms that invest in training contribute to the development of a common good: a pool of sector specific skills that are valuable to all firms in that particular sector. It is easy to see, that under these conditions the optimal strategy for each firm is to free-ride on the training efforts of other firms. As a result, the firms that did invest in training will seek to avoid the role of the “sucker”, which will eventually lead them to abandon training efforts. This leads to a

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<sup>104</sup> This assumption could be challenged by the so-called “signalling” or “screening” hypothesis, which basically argues that education does not necessarily leads to higher workers' productivity, but rather sends signals to employers about the superior capacities of the intellectually endowed persons. This counterargument, however, does not directly apply here because we are analysing incentives of firms, rather than individuals, to invest in education and training. For a more extensive discussion on “signalling” hypothesis see: Spence, 1974. Kelly Bedard, “Human Capital versus Signaling Models: University Access and High School Dropouts”, *Journal of Political Economy*, Vol. 109, 2001, pp. 749-775.

non-cooperative equilibrium: although all firms are better off, if they collectively trained, the threat of being an “exploited sucker” leads to non-training strategies. Hence, an explanation of firms’ involvement in training should focus on institutions, which are capable of solving the collective action problems.

Empirically the collective action problems in the provision of training emerge in two arenas. The first one refers to investment in continuous training of current employees. Since additional training increases marginal productivity of workers, their market wage also rises. This exposes the training firms to being a “sucker”: the non-training firms could poach trained workers by offering higher wages. This implies that the training firms will fail to capture the returns of such investment. A similarly “bad” outcome is reached, if firms seek to avoid poaching and in addition to investing in the skills of their employees also raise their wages. This problem lead Becker<sup>105</sup> to argue that (with the exception of a very narrow range of completely firm-specific nontransferable skills) firms will not invest in general or sector-specific skills of their employees.

As the VoC literature argues<sup>106</sup>, coordinated wage bargaining provides an institutional solution to the problem of poaching. Coordinated bargaining establishes standardized wages for the same professions across a sector. This secures investments incurred by the training firms, because it prevents the non-training firms from offering higher wages to the trained employees<sup>107</sup>. Furthermore, coordinated wage bargaining provides incentives to train, because it compresses wages, i.e. it reduces the differences in wages between highly skilled and unskilled workers<sup>108</sup>. This implies that investments in training increase workers’ productivity by more than workers’ (outside) wages. Hence, the presence of coordinated wage bargaining helps to solve collective action problems and provide incentives for firms to invest in the upgrading of the skills of their workforce, which is one of the elements of specific skills formation system.

The second arena for collective action problems in the provision of training refers to the organization of apprenticeships. Since apprenticeships provide on-the-job training, they increase the quality of specific skills of the pool of future

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<sup>105</sup> Becker, 1993.

<sup>106</sup> See, for instance, Hall and Soskice, 2001.

<sup>107</sup> Soskice and Hall 2001. Iversen, 2005.

<sup>108</sup> Christian Dustmann, Uta Schoenberg, “Why does the German Apprenticeship System work?” in eds. Karl Ulrich Mayer, Heike Solga, *Skill Formation: Interdisciplinary and Cross-National Perspectives*, Cambridge, New York: Cambridge University Press, 2008. Thelen, 2004.

workers. After completion of training, the apprentices may or may not be employed in the firm, where the training took place. This raises the above discussed free-riding problems. If free riding behavior is not restrained, we should expect firms to stop contributing to the quality of the sectoral pool of competences or degrade the system of apprenticeships by using apprentices as a source of cheap labor. Hence, there is a need for a body capable of solving the above problems by monitoring firms' intake of apprentices and assuring the quality of apprenticeships through the system of examination and certification. A number of authors argued that such a monitoring function is most effectively carried out by strong employers associations, which negotiate industry-wide skill categories, standards, training protocols, organize examination and certification of skills<sup>109</sup>. Accordingly, we should expect the existence of strong employers associations to be a necessary condition for firms to participate in direct and indirect provision of training.

To sum-up the argument presented in this section: specific skills formation systems rely on active involvement of firms in direct and indirect provision of training, but firms will get involved only if there is coordinated wage bargaining and strong employers associations. Hence, the argument is that coordinated wage bargaining and strong employers associations are necessary for effective provision of specific skills. This logic, however, does not directly imply that effectiveness of provision of specific skills has an impact on the propensity of future workers to acquire such skills. Therefore, the hypothesis regarding the institutions for provision of specific skills is formulated as follows:

*H3: Coordinated wage bargaining is necessary for high levels of continuous training.*

*H4: Strong employers associations are necessary for the effective functioning of apprenticeships.*

The apparent weakness of this argument is that it does not explain what institutions are necessary for provision of general skills, if the firms rely on the market as a main coordinating mechanism of supply and demand for skills. This,

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<sup>109</sup> Soskice and Hall 2001, Thelen 2004, Culppeper, Thelen 2008. Steffen Hillmert, "When Traditions Change and Virtues Become Obstacles: Skill Formation in Britain and Germany?" in eds. Karl Ulrich Mayer, Heike Solga, *Skill Formation: Interdisciplinary and Cross-National Perspectives*, Cambridge, New York: Cambridge University Press, 2008.



however, only reflects a rather flexible nature of institutional arrangements for provision of general skills.

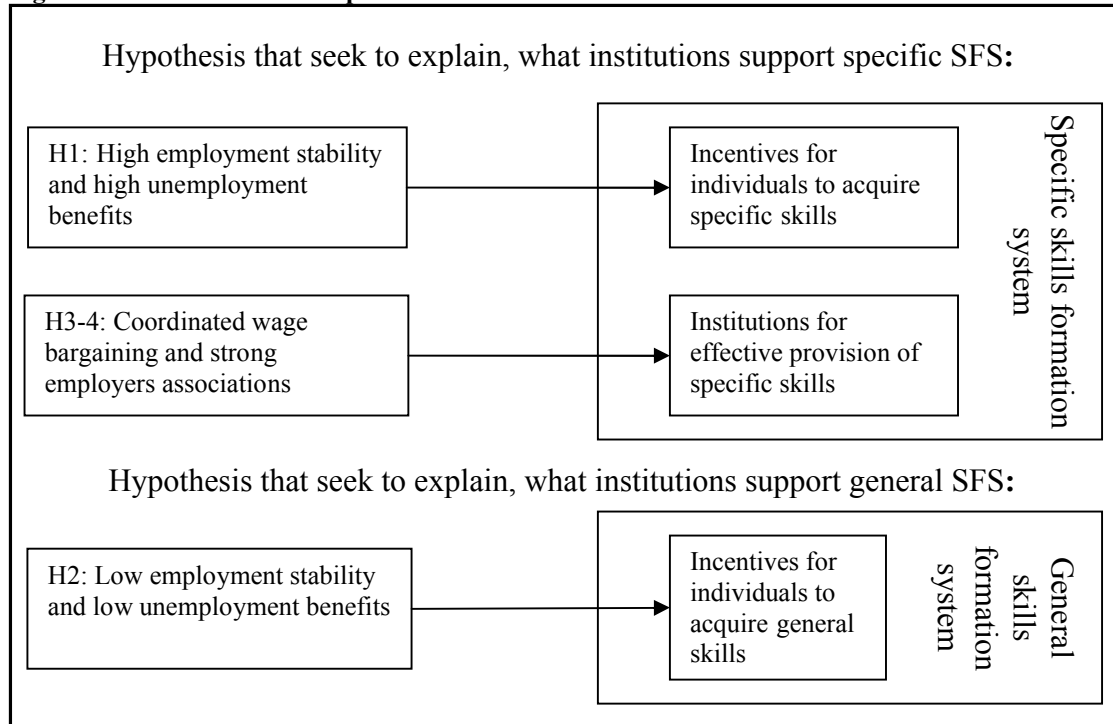
### **3.2.3. Interrelationships between the institutions**

The above developed hypotheses are schematically illustrated in Figure 3 below. Since the individual-level and firm-level hypotheses are based on two distinct logics, empirically the values of all independent variables should not necessarily cluster. For example, it is theoretically possible that a country could have generous unemployment benefits and employment stability, but lack coordinated wage bargaining. In this case we could expect an underdeveloped specific skills formation system: the one with high participation in initial vocational training, but low levels of continuous training.

This has two important implications. First, in contrast to the traditional VoC approach, it is not assumed that coordinated wage bargaining, strong employers' associations, employment stability and unemployment benefits complement and reinforce each other. Instead, the main purpose of developing separate hypotheses is to test, whether each of these institutions create the expected incentives for firms and individuals. Accordingly, rejection of one or several of the hypotheses does not “automatically” imply rejection of all other hypotheses.

Secondly, it is not assumed that countries should have either a specific or a general skills formation system. If the discussed hypotheses are correct, a mix of institutions could create different incentives for firms and individuals. For instance, institutions that create incentives to acquire general skills could co-exist with a well developed system of apprenticeships and high levels of continuous training (or vice versa). Hence, it is theoretically possible that a country could exhibit: a) general or specific SFS; b) mixture of general and specific SFS; c) neither a well developed general, nor specific SFS. This has further implications for operationalising the dependent variable (see chapter 4.3.1.).

**Figure 3. Institutions that shape the incentives of individuals and firms.**



Source: own compilation.

### **3.3. How institutions evolve?**

Above I discussed what factors encourage individuals to acquire different types of skills and what factors are necessary for the effective provision of skills. This argument, however, is static, i.e. it does not explain, how all these institutions emerged in the first place. As discussed in subsection 2.2.2. failure to explain institutional change is one of the most frequent criticisms of explanations based on the logic of institutional complementarities. This chapter tackles this challenge in several steps. First, I discuss other authors' explanations for the emergence of training systems in the rich OECD countries (see subsection 3.3.1). While these explanations are not directly applicable in the context of CEE, they theoretically enlighten the search for causal mechanisms. Second, I focus on the theoretical debate regarding the CEE specific factors – initial conditions before collapse of socialism and strategies of early economic reforms – which could explain, why different institutional frameworks have emerged in the CEE during early stages of transition. Furthermore, I discuss how the structure and tenure of the government affects the sustainability of institutions in question (see subsection 3.3.2).

### 3.3.1. Evolution of skills formation systems in rich OECD countries

Kathleen Thelen<sup>110</sup> has provided the most elaborate explanation of evolution of skills formation systems to date. She adopted a historical institutionalist approach and argued that differences in skill formation systems in Germany, Britain, the US and Japan could be traced back to the political settlements achieved in the second half of the XIXth century. Absence of cross-class conflict over skills was necessary for the evolution of specific skill formation systems, while the presence of such conflict lead to the subsequent evolution of a general skills system<sup>111</sup>. More specifically, in countries where the artisan sector was absent, the trade unions of skilled workers sought to increase their bargaining power *vis-à-vis* employers by attempting to control the supply of scarce specific skills. The employers, on the other hand, sought to defeat the unions by choosing competitive strategies, which relied more heavily on abundant general rather than scarce specific skills. Hence, the cross-class conflict lead to evolution of general skills formation systems in the US and Britain. The developments in Germany were considerably different: the strong artisan sector was endowed by the state to monitor provision of skills in the late XIXth century. Since, skill formation was monopolized by the organized craft sector, the trade unions did not have the opportunity to limit the supply of skills. Hence, cross class conflict was avoided. Instead, skill intensive industry joined forces with its trade unions against the monopoly of the artisans. This lead to strong in-plant training, which was monitored by employers associations and financed by the state and enterprises. During the XXth century these arrangements evolved towards modern specific skill formation systems<sup>112</sup>.

Such an explanation, of course, can not be directly applied to the CEE countries where the process of industrialization was protracted by the Soviet occupation and the current economic and political institutions were dramatically redesigned after the collapse of the Soviet empire. However, the theoretical work done by Thelen should enlighten analysis of skills formation systems in the CEE. Thelen powerfully argued that “<...> institutions created for one set of purposes

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<sup>110</sup> Thelen, 2004.

<sup>111</sup> Culppeper Thelen, 2008.

<sup>112</sup> Thelen, 2004.

come, in time, to be turned to wholly new ends <...>”<sup>113</sup> and that “<...> institutions created by one configuration of power or coalition of interests can be “carried forward” on the shoulders of some other coalition entirely <...>”<sup>114</sup>. This provides an interesting reinterpretation of the notion of institutional complementarities: while institutions tend to reinforce each other, it is likely that they have historically emerged for reasons different from the functions that these institutions currently perform. Hence, while effectiveness of skills formation systems rely on complementarities with other institutions, the emergence of these institutions should not necessarily be explained in terms of the functions they perform today. For instance, it would be dubious to argue that state offers high unemployment benefits with the view of promoting acquisition of specific skills. Instead, the explanation of evolution of institutions should aim to trace back temporal political and economic struggles within the context that they took place.

### **3.3.2. Explaining evolution of skills formation systems in CEE**

In order to provide a theoretical explanation of the emergence of institutions that support different types of skills formation systems, I draw on two strands of literature. The first one could be labeled as the “transitology of capitalisms”<sup>115</sup>. This group of authors analyzes the effects of different starting positions of the CEE countries in 1989 as well as different reform strategies on the types of political and economic institutions that emerged. The second strand of literature, which so far has largely focused on rich OECD countries<sup>116</sup>, seeks to explain how institutions change in a relatively stable environment, i.e. what is the impact of political institutions in reinforcing previously established institutions or changing them. Hence, the “transitology of capitalisms” helps to explain the emergence of institutions in early transition, while the latter strand of literature assesses why the outcomes of early transition have been maintained or changed.

#### Initial conditions and reform strategies

In comparison to the rich OECD countries, Central and Eastern Europe might look like a homogenous group of cases: prior to 1989 they were characterized

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<sup>113</sup> Thelen, 2004, 36.

<sup>114</sup> Thelen, 2004, 294.

<sup>115</sup> Feldmann, 2006, Bohle, Greskovits, 2007, Norkus, 2008.

<sup>116</sup> Lijphart, 1999. Molina, Rhodes, 2007. Iversen, 2005.

by planned economy and authoritarian regimes and all countries considered in this dissertation successfully transitioned to a market economy and democracy in mid 90s . Despite these broad similarities, however, a number of authors<sup>117</sup> have claimed that different initial conditions and chosen strategies of reform had huge impact on the different types of capitalist institutions that emerged in this region.

As Feldmann<sup>118</sup> argues, one of the key differences in the starting conditions was the degree of centralization and marketization of the economies. The countries that started market oriented reforms prior to 1989 had developed at least some institutions for decentralized coordination among enterprises. During early transition these institutions (such as Chambers of Commerce in Slovenia) could be remodeled to match the needs of market economy and serve as coordinators of firms activities in direct and indirect provision of specific skills. Conversely, if countries had not engaged in market oriented reforms prior to the collapse of communism, the institutions for decentralized coordination among enterprises were absent and had to be built *de novo*. The context of early transition, however, was not favorable for the establishment of institutions based on long term perspective and mutual trust. Radical restructuring of the economy, the process of privatization and other factors implied high uncertainty regarding the future<sup>119</sup>, which undercut long-term strategies such as investment in direct and indirect training of employees or the establishment of institutions for inter-firm cooperation. Therefore we should expect that countries, which inherited highly centralized economies, should exhibit market based inter-firm relations. This leads to the following two hypotheses:

*H5: The more the management of inherited economy was decentralized, the more scope there was for the emergence of cooperative institutions necessary for specific skills formation systems.*

*H6: Inheritance of highly centralized economies lead to the emergence of market based relationships among firms.*

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<sup>117</sup> Feldmann, 2006. Bohle, Greskovits, 2007, Bohle, Greskovits, 2007.

<sup>118</sup> Feldmann, 2006.

<sup>119</sup> For further discussion see: Gérard Roland, *Transition and Economics: Politics, Markets and Firms*, Cambridge, MA: The MIT Press, 2000. Janos Kornai, Laszlo Matyas, Gerard Roland, *Institutional Change And Economic Behaviour*, Houndmills, Basingstoke: Palgrave Macmillan, 2008. Andrej Sušjan, Tjaša Redek, "Uncertainty and Growth in Transition Economies", *Review of Social Economy*, Vol. 66 (2), 2008, pp. 209-234.

Reform strategies constitute the second factor that had considerable impact on the emergence of capitalist institutions during the early years of transition. The literature distinguishes two main types of reform strategies: shock-therapy (also called “big bang”) and incremental. The first one largely relies on the so-called neoliberal “Washington consensus”<sup>120</sup>: the transition from planned to market economy should be implemented in fast liberalization (of trade and prices), privatization of enterprises and stabilization (fighting inflation and budgetary deficits). The logic behind these reforms was that of Schumpeterian creative destruction: inefficient enterprises should be wedged out and free-up the resources for the efficient ones<sup>121</sup>. Furthermore, these reforms should be carried out fast, in order to reduce the costs reorganization and prevent the winners of partial reforms from blocking further reforms (or the losers of reforms from reversing the direction of change)<sup>122</sup>. In contrast, incremental reforms emphasized step by step reforms. It is based on the belief that the absence of market supporting institutions could lead to shock without therapy or destruction without creation. Hence, liberalization and privatization should be carried out gradually and accompanied by institutional building, whereas stabilization should be implemented only in the midst of the transition<sup>123</sup>.

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<sup>120</sup> The term was coined by John Williamson, who sought to summarize key policies that World Bank and IMF (both based in Washington) proposed to economically struggling Latin American countries. Later on the experience of economic reforms in Latin America was applied in CEE. Hence, the Washington consensus traveled from South to the East. The principles of Washington consensus are outlined in: John Williamson, “What Washington Means by Policy Reform”, in John Williamson (ed.), *Latin American Adjustment: How Much Has Happened?*, Washington: Institute for International Economics 1989.

<sup>121</sup> The literature on the subject is vast. The following sources provide a good overview: Nauro F. Campos and Fabrizio Coricelli, “Growth in Transition: What We Know, What We Don't, and What We Should,” *Journal of Economic Literature*, Vol. 40 (3), 2002, pp. 793 – 836. Anders Aslund, *How Capitalism Was Built: The Transformation of Central and Eastern Europe, Russia and Central Asia*, Cambridge: Cambridge University Press, 2007.

<sup>122</sup> See: Mathias Dewatripont, Gérard Roland “The Design of Reform Packages under Uncertainty”. *American Economic Review*, Vol. 85(5), 1995, pp. 1207-1223. Leszek Balcerowicz, *Socialism, Capitalism, Transformation*, Budapest: Central European University Press, 1995. Joel S.Hellman, “Winners Take All: The Politics of Partial Reform in Postcommunist Transitions”, *World Politics*, Vol. 50 (2), 1998, pp. 203 – 234.

<sup>123</sup> See: Holger C. Wolf, “Transition Strategies: Choices and Outcomes”. *Princeton Studies in International Finance*, No.85, 1999. Grzegorz W. Kolodko, *From Shock to Therapy: the Political Economy of Postsocialist Transformation*, Oxford, New York: Oxford University Press, 2007. Vladimir Popov, “Shock Therapy Versus Gradualism Reconsidered: Lessons from Transition Economies after 15 Years of Reforms”, *Comparative Economic Studies*, Vol. 49, 2007, pp. 1 – 31. Joseph E. Stiglitz, *Globalization and Its Discontents*, New York and London: W. W. Norton, 2002.

The logic of shock therapy strategy suggests that it should be favorable to the emergence of capitalist institutions that support general skills formation systems<sup>124</sup>. Since the focus of these reforms was on unleashing market forces, we should expect that this is exactly what emerged: market based relationships among firms and between firms and labor. Attempts to accelerate industrial restructuring and privatization strategies that favored outsiders rather than insiders further severed the inherited horizontal links between enterprises. Furthermore, attempts to restructure the economy initially led to a diminishing tax base and rocketing numbers of unemployed. This was simultaneously implemented with a tight fiscal policy. Such policy mix implied that the countries under shock therapy did not have the luxury of establishing a generous social safety net (including high levels of unemployment benefits)<sup>125</sup>. In line with this logic the following hypothesis is formulated:

*H7: Shock therapy reform strategies led to the emergence of institutions that support general skills formation systems.*

Conversely, incremental restructuring of the economy is closely associated with the evolution of institutions that support specific skills formation systems. Insider privatization – a strategy favored by the advocates of incremental restructuring – was favorable to the maintenance of old inter-firm relationships as well as stronger non-market inter-firm cooperation. Attempts to re-orientate the “old” firms to new markets and explicit avoidance of “creative destruction” resulted in higher levels of employment stability. This resulted in lower levels of unemployment and larger tax base in comparison to the countries under “shock therapy”. These favorable conditions in addition to looser fiscal policies created the capacities to establish more generous social safety nets. The incentives to do so were strengthened by the concerns that in the face of high costs of transition the society might backlash against market oriented reforms<sup>126</sup>. Furthermore, as Feldmann argues, the establishment of an independent monetary policy regime implied that collective wage bargaining faced the challenge of managing expectations and controlling

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<sup>124</sup> Feldmann, 2006, Norkus, 2008, Bohle, Greskovits, 2007 Bohle, Greskovits, 2007.

<sup>125</sup> For a similar argument see: Feldmann, 2006.

<sup>126</sup> See: Bob Deacon, “Eastern European welfare states: the impact of the politics of globalization”, *Journal of European Social Policy*, Vol. 10 (2), 2000, pp. 146 – 166.

sectoral wage drift, which led to higher levels of coordination. Accordingly, the following hypothesis:

*H8: Incremental reform strategies led to the emergence of institutions that support specific skills formation systems.*

### The politics of sustaining institutions

While the discussion above seeks to explain why the institutions that support different types of skills formations systems have emerged, it does not explain why these institutions were maintained or abandoned during the later stages of transition. Stability is particularly important when considering the effectiveness of institutions that support specific SFS. For example, in section 3.1. I hypothesized that high unemployment benefits provide insurance for investment in specific skills. What matters, however, is not only the level of benefits at a given time, but also the probability that this level will be maintained in the future, i.e. when an individual faces unemployment. Similar logic applies in the case of employers associations and collective bargaining: the establishment of these institutions has present costs that are worthwhile only, if it is likely that these institutions will be maintained long enough to reap the benefits. Hence, within this context, the question of factors behind the credibility of institutional stability (during “non-revolutionary times”) becomes particularly relevant.

My starting point is Lijphart’s<sup>127</sup> observation that multi-party consensual democracies are characterized by generous unemployment benefits and corporatism, while two-party majoritarian democracies exhibit liberal welfare states. Further research has provided two complementary theoretical explanations of this empirical finding. First, Lijphart and others<sup>128</sup> argue that (in line with the Duverger law<sup>129</sup>) the system of proportional representation (PR) leads to the election of larger number of parties and emergence of coalitional cabinets, while the electoral system based on single mandate districts (SMD) leads to smaller number of politically

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<sup>127</sup> Lijphart, 1999.

<sup>128</sup> Molina, Rhodes, 2007.

<sup>129</sup> Maurice Duverger, *Political Parties*, New York: John Wiley & Sons, 1954. For further discussion on the issue see: Ernard Grofman, Arend Lijphart, *Electoral Laws and their Political Consequences*, New York: Agathon Press, 1986.



effective parties and single party majority cabinets. Since the decisions of coalitional governments are subject to multiparty negotiations (there are multiple veto points<sup>130</sup>), the speed of decisions is relatively slow. However, once the decisions are taken, they tend to be stable, because they represent the broad consensus of all major political factions. Side-payments, which are used for “bribing the losers”, explain, why consensual democracies have more generous welfare states. Conversely, single party majority governments are capable of fast decision making. However, these decisions tend to be unstable: change in government could imply radical policy changes.

A somewhat different explanation of the relationship between type of political system, on the one hand, and stability of institutions and generosity of benefits, on the other hand, was proposed by Iversen<sup>131</sup>. He modeled these relationships by explicitly outlining the incentives of voters, who have acquired general or specific skills. The starting point is that individuals with specific skills face time a inconsistency problem: how to commit future voters to vote for and future parties to maintain welfare state institutions<sup>132</sup>. More specifically, the problem is that the current median voter can commit parties elected only in current elections. On an ideological left-right scale the current median voter is always employed, however, he/she does not know whether he/she will be unemployed or not in the future. In a short run the optimal choice for the median voter is to vote for policy with low taxes and low redistribution. However in the long term, his optimal choice would be to vote for a policy that offers higher taxes and higher unemployment benefits in order to insure against loss of investment in specific skills. This is optimal only, if higher taxes today mean unemployment benefits in the future, i.e. future median voter will also vote the same. That is not necessarily true: if the current median voter will turn unemployed during the next elections, he will no longer be the future median voter.

Iversen<sup>133</sup> argues that electoral rules have a profound impact on the extent to which the time inconsistency problem can be solved. Under SMD rules the median voter is pivotal and the prize of winning a majority is very high. Therefore the party leaders have large incentives to provide shortsighted platforms to capture

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<sup>130</sup> This explanation in fact well corresponds to Tsebelis veto players theory. See: George Tsebelis, *Veto Players: How Political Institutions Work*, Princeton, New York: Princeton University Press, 2002.

<sup>131</sup> Iversen, Soskice, 2001, Iversen, 2005.

<sup>132</sup> Iversen, 2005.

<sup>133</sup> Iversen, 2005.

the preferences of current median voter and do not have incentives to develop corporatist relationships with interest groups. Hence, SMD fails to solve time inconsistency problems. Conversely, in PR systems the median voter is not pivotal. Hence, the parties do not have incentives to adopt a platform that is different from the optimal policies of the social class that the party represents. Furthermore, in PR systems centrist parties have incentives to ally with the left, because the poor and the middle class have incentives to tax the rich and redistribute the revenues among themselves. Such a configuration of power and incentives of the parties imply that under PR rules the time inconsistency problems faced by the voters are “softer” and the assurance that high employment and unemployment benefits will be maintained in the future is more credible. Furthermore, under PR rules parties have higher incentives to develop long term corporatist relationships with trade unions and employers’ associations. As Iversen argues: “If parties offer a set of public goods that can not be provided efficiently without support from private actors – vocational training, for example, requires information and sponsorship by unions and employer associations <...> – the groups whose cooperation is required can gain influence over policy” (Iversen 2005, 163). Hence, SMD tends to support institutions that are associated with general SFS, while PR is favorable for maintaining institutions that support specific SFS. While this seems like a long causal chain, Iversen<sup>134</sup> in fact finds that empirically there is a close relationship between the type of electoral system and type of skills in rich OECD countries.

In line with the above discussion, I hypothesize that:

*H 9: The higher the proportionality of electoral systems, the more likely it is that institutions, which support specific skills formations systems – high unemployment benefits, strong employers associations and collective bargaining –will be maintained.*

A possible weakness of the above hypothesis, however, is that it assumes government stability: it is a feasible assumption when considering rich OECD states, but it could be misleading in analysis of policy making in relatively unstable governments in the CEE. The key issue here is that duration of government tenure has an impact on the type of feasible policy alternatives. Short tenure implies

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<sup>134</sup> Iversen, 2005.

that the government does not have an option of engaging in lengthy processes of building institutions, securing cooperation with other political parties and social partners. Furthermore, past policy instability diminishes the credibility of the current government's resolve to target long term objectives. This implies that (a) the social partners are not likely to commit resources to the provision of semi-public goods (such as training); and (b) individuals are not likely to trust that the institutions that provide insurance against labor market risks will be maintained in the future. Hence, short government tenure limits the number of available policy alternatives to the "fast and easy" reforms: unleashing the market forces by deregulating, privatizing and strengthening of competition. Conversely, long government tenure is necessary in order to engage in building non-market coordinating institutions, which require consensus and commitment for a large number of actors. Accordingly, I hypothesize that:

*H 10: Government stability is necessary for cooperative institutions that support specific skills formation systems, while high instability is sufficient to undermine credibility of such institutions and should lead to emergence of general skills formation systems.*

### **3.4. Summary: putting the pieces together**

The discussion above sought to identify what institutions support different types of SFS and why these institutions have emerged. This led to development of eleven hypotheses, which are summarized in Table 5. Hypotheses 1 to 4 argue that individuals will seek to acquire specific skills if there is high employment stability and high unemployment benefits, and specific skills will be effectively provided if there are strong employers associations and coordinated wage bargaining. Conversely individuals will seek to acquire general skills, if employment and unemployment security is low. These hypotheses are of general nature and therefore could be applicable to a broad range of capitalist countries. Therefore they will be tested in the CEE as well as in other EU Member States (for a methodological discussion see part 4).

**Table 5. Hypotheses**

<b>Question.</b>	<b>No.</b>	<b>Hypotheses</b>
Why do individuals acquire different types of skills?	H1	High employment stability and high unemployment benefits create incentives for individuals to acquire specific skills.
	H2	Low employment stability and low unemployment benefits foster acquisition of general skills.
What institutions are necessary for the provision of skills?	H3	Coordinated wage bargaining is necessary for high levels of continuous training.
	H4	Strong employers associations are necessary for effective functioning of apprenticeships.
Why have different institutions evolved during early transition?	H5	The more the management of inherited economy was decentralized, the more scope was there for emergence of cooperative institutions necessary for specific skills formation systems.
	H6	
	H7	Shock therapy reform strategies led to the emergence of institutions that support general skills formation systems.
	H8	Incremental reform strategies led to emergence of institutions, which support specific skills formation system.
Why are institutions maintained or abandoned during later stages of transition?	H9	The higher the proportionality of electoral systems, the more likely it is that institutions, which support specific skills formations systems – high unemployment benefits, strong employers associations and collective bargaining – will be maintained.
	H10	Government stability is necessary for cooperative institutions that support specific skills formation systems, while high instability is sufficient to undermine credibility of such institutions and should lead to emergence of general skills formation systems.

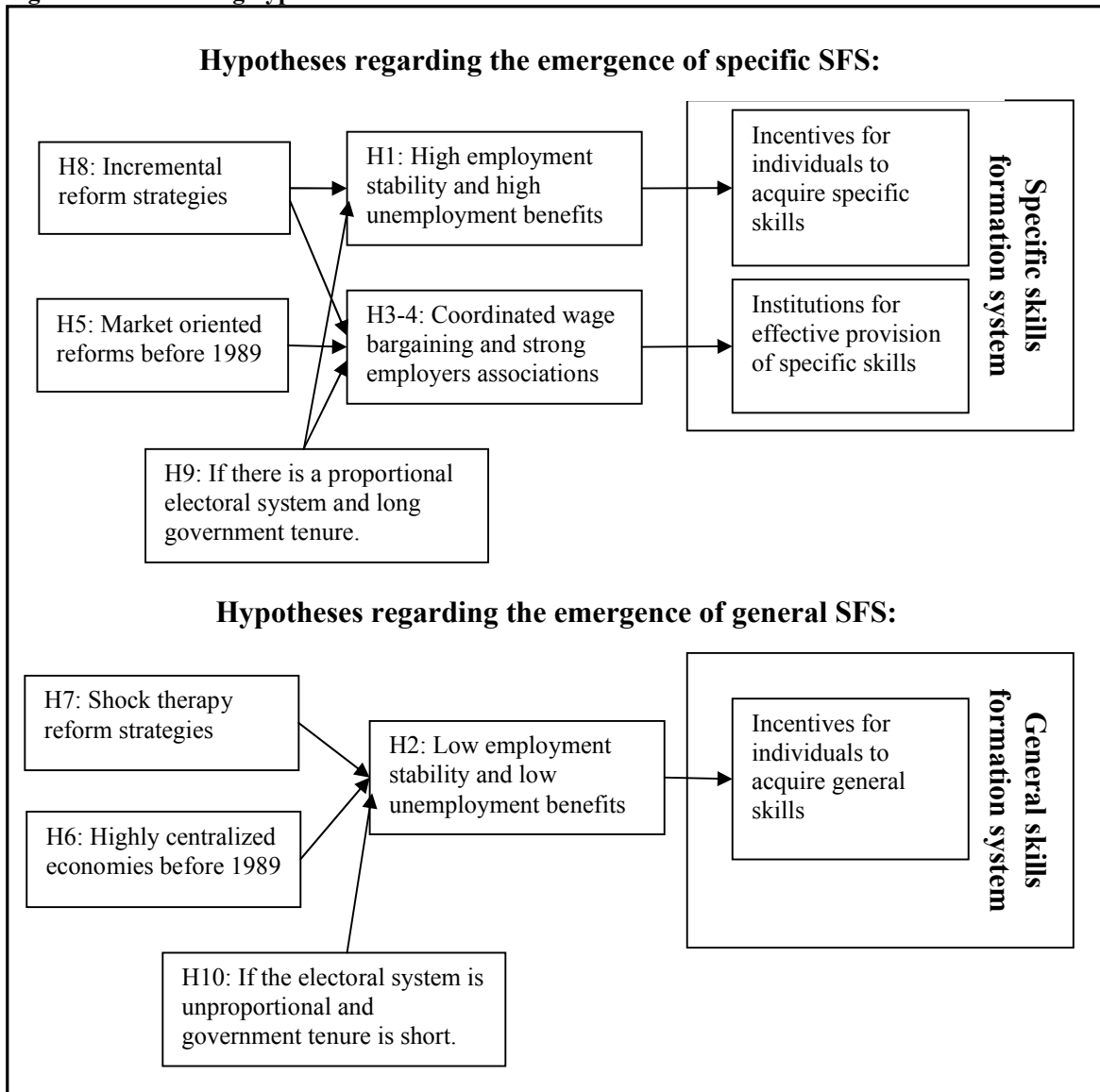
Hypotheses 6 to 10 seek to explain, how different institutions emerged in the CEE. Overall, we should expect that market oriented reforms before the collapse of the socialism and gradual economic reforms afterwards should lead to emergence of coordinated wage bargaining, strong employers associations, high employment security and generous unemployment benefits, which all support specific SFS. Conversely, the CEE countries that inherited highly centralized economies and engaged in shock therapy during early stages of transition should exhibit low employment and unemployment security and firms' reliance on markets to provide skills, which should lead to emergence of general SFS.

The expected impact of initial conditions and reform strategies on the institutions, which support different SFS is far from deterministic. As hypotheses 9 and 10 argue, even if cooperative institutions, which support specific SFS, have emerged during early transition, they could be undermined by policy instability, which results from unproportional electoral systems and short government tenure. Conversely, if the institutions associated with specific SFS failed to emerge during early transition, proportional electoral systems and long tenure could provide the necessary conditions for government to engage in building institutions for non-market coordination.

Hypotheses 6 to 10 focus on the factors that were prevalent only in the CEE countries. Since other countries (for instance, in the Western Europe) had different developmental paths, it is not likely that the said hypotheses could be applicable outside the CEE. Hence, hypotheses 6 to 10 will only be tested for the selected CEE countries (for a methodological discussion see part 4).

The hypotheses are graphically illustrated in Figure 4.

**Figure 4. Overarching hypotheses.**



Source: own compilation.

## 4. Methods and data

This part discusses the methods for testing the above hypotheses. It is divided in four chapters. The first chapter provides a broad discussion of the adopted methods. The second chapter discusses the qualitative methods – fuzzy set techniques – for testing the hypotheses. Chapter three operationalizes the variables for qualitative tests. Chapter four discusses the main quantitative method: robust regression.

### ***4.1. Methods for testing the hypotheses: qualitative and quantitative approaches***

The hypotheses discussed in part 3 are tested using a combination of qualitative and quantitative approaches. The qualitative assessment of all hypotheses is based on fuzzy set techniques, which were developed by Charles Ragin<sup>135</sup>. While this method has a number of merits (see chapter 4.2.), it is particularly useful when testing the hypotheses in a larger number of cases (8 CEE countries). Conventionally qualitative comparative analysis is not performed, when the number of observations exceeds three, due to problems in organizing rich data for systemic comparison. Fuzzy set techniques were purposely designed to meet this challenge: rich case-specific data can be summarized by the membership scores that reveal the extent to which a case has the properties in question (for example, the extent to which a country has a well developed or an under-developed specific SFS).

Qualitative methods are sometimes criticized that they do not provide robust tests and their findings cannot be generalised across a larger set of cases. Hence, qualitative comparisons are supplemented with robust regression analysis. This quantitative technique, however, is adopted with two caveats in mind. First, in order to overcome problems related to small n-size, the sample of countries in quantitative analysis is expanded to include all EU Member States. Second, quantitative methods can not be applied to testing all hypotheses. More specifically, hypotheses no. 5 to 10 were developed explicitly taking into account the case-specific properties of postcommunist countries and therefore could not be expected to hold in cases that do not share communist experience and successful transition to

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<sup>135</sup> Ragin, 2000.

market economy and democracy (see subsection 3.3). However, hypotheses no. 1 to 4 are of general nature and therefore they could hold for all capitalist states. Hence, regression analysis with all EU Member States is applied only for testing the first four hypotheses.

Such combination of qualitative and quantitative methods has several important benefits. First, this design helps overcoming problems related to testing the hypotheses in 8 cases. Conventionally it is considered that 8 observations is not sufficient for reliable use of quantitative techniques, but is too large for rich qualitative accounts. This problem is partially solved by using fuzzy set techniques as the main qualitative method and expanding the number of cases for regression analysis. Second, combination of methods allows to cross-check the findings, which increases confidence in the results of empirical tests. This is particularly important for the purposes of this paper, which engages in theory testing. Lastly, adoption of quantitative analysis for testing the first four hypotheses in all EU Member States is instrumental in assessing the extent to which these hypotheses hold true outside the CEE. This is particularly useful in tackling one of the criticisms addressed towards the VoC literature – low capacity to test the theoretical statements outside a handful of countries (see section 2.2.2).

Several potential criticisms should be addressed before moving on to a more in depth discussion of adopted methods. First, the choice of cases could be subject to discussion: why does quantitative analysis include the EU Member States rather than other set of cases, such as the other transition countries or all OECD members? The Former Soviet Union countries (with the exception of the Baltic States) as well as the Asian transition countries (such as China and Vietnam) are not included in the analysis due to risk of comparing “apples with oranges”, i.e. doubts regarding the extent to which the said group of countries have free capitalist economies. Furthermore, the remaining OECD countries are not included due to lack of comparable data: some CEE countries (for instance, Latvia and Lithuania) are not members of the OECD.

Secondly, one could argue that a considerable weakness of the proposed methodological design is that it includes 9 independent variables and only 8 observations (in case of qualitative test). Conventional solution to this problem would focus on reducing the number of hypotheses and variables. This, however, would contradict the attempts of the dissertation to: a) test the arguments and



explanations provided in the literature; b) assess long causal chains with several intervening variables, i.e. to assess the role of institutions that support different SFS as well as historical factors that facilitated the emergence of the former institutions. In order to tackle the problem related to a large number of variables, this dissertation uses the logic of theory-testing in several steps. First, each hypothesis is tested separately. This is plausible since it is not assumed that the institutions should necessarily complement each other to produce the expected results (see section 3.2.3). If a hypothesis is rejected, it is not further assessed in combination with other variables. Secondly, if several of the hypotheses are correct, then the dissertation utilises the benefits of fuzzy set techniques (see chapter 4.2.) to assess, whether a combination of several factors provide a better explanation, than taken individually. This helps to avoid the problems that arise when a large number of variables are inserted into a single model.

The third area of potential criticism refers to the choice of fuzzy set techniques. The proponents of quantitative approaches could argue that the problem of small n-size (8 CEE countries) could be “fixed” by using Bayesian methods<sup>136</sup>. The main merit of such approach is that in contrast to fuzzy set techniques, Bayesian analysis provides a probabilistic assessment of the hypotheses, which increases the potential for generalizations. This approach was not chosen due to several reasons. First, as discussed above, the potential for generalizing the first four hypotheses outside the CEE will be tested with the help of robust regression analysis, while the remaining hypotheses are not relevant outside the 8 CEE cases. Secondly, since the primary purpose of the dissertation is to explain differences in the 8 CEE countries, these cases represent the total population rather than its sample. Hence, probabilistic methods are less relevant here.

To sum up the discussion so far: the overall objectives of this dissertation imply that qualitative methods should be the main instrument for testing the hypotheses in the CEE countries. In order to increase the confidence in the results of the test, I will also use quantitative methods to assess, if the hypotheses regarding institutions, which support different skills formation systems, hold true not only in the CEE, but also in other EU Member States. Such combination of methods is based

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<sup>136</sup> For an excellent introduction see: Gudmund R. Iversen, “Bayesian statistical inference”, *Sage Series in Quantitative Applications in the Social Sciences*, No. 43, Newbury Park, London, New Delhi: Sage Publications, 1984. and William M. Bolstad, *Introduction to Bayesian Statistics*, Hoboken, New Jersey: John Wiley & Sons, 2004.

on the overall design of the current research and is expected to increase the robustness of results. The following chapters discuss the proposed qualitative and quantitative methods in more depth.

## **4.2. Qualitative methods: the merits of fuzzy set techniques**

For the purposes of qualitative comparative analysis this paper adopts the fuzzy set techniques, which were developed by Charles Ragin<sup>137</sup>. Since fuzzy sets have not been extensively used in comparative research yet, I discuss them in more detail. First, I provide an overview of the logic of qualitative comparative method. Second, I review the weaknesses of comparative analysis and how the fuzzy set techniques cope with them. Lastly, I discuss the overall logic of using fuzzy set techniques for testing the hypotheses.

The overall logic of qualitative comparisons in social sciences largely relies on the method of agreement and method of difference, which were proposed by John Stuart Mill<sup>138</sup> in the mid-nineteenth century. The logic of the method of agreement is as follows: if the cases under comparison differ in all respects, except for the value of the dependent variable and one other circumstance, then that circumstance is the cause of the outcome. The reverse logic applies in the method of difference: if the cases are similar in all respects except for the value of dependent variable, then one should look for an additional variation in independent variable, which should explain the differences in outcomes.

These methods have been criticized from several positions. First, if the comparative methods are used inductively, then the findings merely indicate that there is a correlation between several phenomena. It is only in the light of the theory that the correlation is interpreted as a causal relationship. However, the qualitative (and quantitative) comparisons still fail to indicate, whether the cause is necessary or sufficient for the outcome to occur.

The second criticism refers not to the logic of comparative method, but rather to the way it is commonly applied. If qualitative comparisons involve a larger number of cases, then the hypotheses are usually tested with the help of truth tables, which summarize qualitative information into binary variables (for instance, 1 =

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<sup>137</sup> Ragin, 2000.

<sup>138</sup> John S. Mill, *A System of Logic: Ratiocinative and Inductive*, Honolulu: University Press of the Pacific, 2002 (1843).

presence of phenomenon; 0 = absence of phenomenon). This, however, undermines one of the most important benefits of qualitative analysis: capacity to draw on rich information in providing causal explanations. More specifically, one of the most important benefits of the qualitative methods refers to their capacity to account for subtle differences in the variation of the phenomenon across cases. However, if one limits the empirical investigation only to the analysis of absence or presence of the phenomenon, then one ignores these subtle differences and forfeits the richness of empirical data. For instance, the theoretical framework of this paper argued that skills formation systems differ in type: there are general and specific SFS. Accordingly, the standard approach would be to assess, whether the dependent variable in each case equals 1 (specific SFS) or 0 (general SFS). This however, would ignore differences in the level to which SFS are developed in each case. Hence, the country, that has only some elements of general SFS would be assigned the same value as the country that has an extensive system for general skills formation.

The fuzzy set techniques largely rely on the logic of qualitative comparisons, but also provide remedies to the above discussed weaknesses. A set is defined as a group of instances that share the theoretically predefined characteristics under investigation. For example, all countries that have general skill formation systems belong to a set of “general skill formation systems”. A standard Boolean algebra would make categorical distinctions between all cases: the ones that have general skills formation systems are said to be completely in the set (a set membership score equals 1) and cases that do not have the characteristic in question are completely out of the set (set membership scores equal 0). The fuzzy set theory extends this idea by arguing that empirical reality is more complicated than crisp sets suggest: a number of cases are neither in, nor out of the set, while still others are more in, than out. Hence, fuzzy set theory makes categorical distinctions between cases being in and out of the set and also assigns values to cases, which are somewhere in between. This allows comparing cases, which are different in degree as well as in kind. As a result it allows for a comparison of bigger number of cases without losing an emphasis on the complexity.

Furthermore, fuzzy set techniques allow for interplay between theory and evidence. The properties of the sets are defined theoretically. So every case, which is in the set, should match the theoretically defined properties of that set. This

allows for multidimensional analysis of cases. Furthermore, since not all variation could be important, the theoretically defined rules for set inclusion allow compression or decompression of within-case variation, depending on the theoretically derived criteria.

Another benefit of fuzzy set techniques is that it allows assessment of sophisticated causal statements. Instruments of Boolean algebra (logical “and”, logical “or”, negation, etc.) allows to combine different causes in order to test, whether they collectively provide a better explanation than individually.

The fuzzy set techniques in this paper are applied in two steps. The first step includes construction of fuzzy sets. The overall objective is to identify, to what extent the cases are in or out of the set of properties under investigation. For instance, this paper aims to identify, to what extent the countries are in the set of cases, which have specific skills formation system. Construction of sets is based on at least three qualitative anchors, which define: (a) a point, when full membership in a set is reached; (b) a point, when full nonmembership in the set is reached, i.e. a case is fully out of set of specific skill formation systems; (c) a crossover point, when a country is neither in the set, nor out of it. The above three anchors are used in a three value logic, where each case is assigned a set membership score of 1, 0.5 or 0. However, five or seven value logic is also possible. Then additional two or four anchors have to be defined in order to identify cases, which are more in the set than not (or *vice versa*). Overall, a larger number of anchor points (for instance, seven value logic) is preferable, because it allows making more sophisticated distinctions between cases. However, the higher precision of measurements imposes high demands on data, which is not always available. Taking this trade-off into consideration, I will use five value logic, whenever there is sufficient data.

The second step includes assessment of necessary and sufficient causal relationships. Stated formally, a condition is necessary, if the outcome is the subset of the cause<sup>139</sup>. For example, if we find that all cases with specific SFS have generous unemployment benefits, but not all cases with generous unemployment benefits have specific SFS, then generosity of unemployment benefits is a necessary, but not sufficient condition for specific SFS. A “technical” way to check for necessity is this: the fuzzy set values of the cause for all of the cases should be equal

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<sup>139</sup> Ragin, 2000.

to or larger than the corresponding fuzzy set values of the outcome. If the fuzzy set value of the cause in at least one case is smaller than the corresponding fuzzy value of the outcome, then the hypothesis is rejected.

Conversely, a condition is sufficient, but not necessary, if the cause is the subset of the outcome. For instance, if we find that all countries that exhibit short government tenure have general SFS, but not all countries with general SFS have short government tenure, then tenure is a sufficient, but not a necessary condition for emergence of general SFS. Accordingly, sufficiency is established, when the fuzzy set values of the cause for all of the cases should be equal to or smaller than the corresponding fuzzy set values of the outcome. If the fuzzy set value of the cause in at least one case is larger than the corresponding fuzzy value of the outcome, then hypothesis is rejected.

It follows that, if a single case deviates from the hypothesized relationships of necessity and/or sufficiency, then the hypothesis should be rejected. This represents the strength and the weakness of fuzzy set techniques. On the one hand, the deviation could occur due to imprecise measurement. It is also possible to argue that the mere existence of outlier cases should not be sufficient to reject a hypothesis, which holds true for the other cases. On the other hand, this also represents the strength of the fuzzy set tests, because it imposes rigor on qualitative analysis.

The following chapter presents the indicators for testing the hypotheses and discusses construction of fuzzy sets for each of the variable. I start with the dependent variables: fuzzy sets of general and specific skills formation systems.

### ***4.3. Indicators and fuzzy sets***

#### **4.3.1. Measuring differences in skill formation systems in Central and Eastern Europe**

Despite the centrality of skills in the political economy literature, there is no consensus on the methods for identifying general and specific skill formation systems (SFS). While a number of approaches have been developed, they provide

largely inconsistent results<sup>140</sup>. The main reason is that it is hardly possible to measure expertise, abilities and competences of the workforce directly. Hence, the standard approach is to apply indirect measures, which capture only one of the few aspects of SFS.

Another problem is that the literature assumes that the dependent variable is dichotomous<sup>141</sup>, i.e. countries either have general or specific SFS. This allows focusing only on the bias towards specific skills by assuming that the bias towards general skills is an inverse value of the former variable. The practical implication is that the literature assumed that the absence of specific skills equals presence of general skills and vice versa. This is, however, farfetched and could distort the results of analysis: absence of some skills could imply presence of different type of skills, but it also could mean that the labor force is unskilled, i.e. there are low levels of specific and general skills.

In order to solve the above problems, my approach towards measuring SFS rests on two main principles. First, since there is no single best indicator for the direct assessment of SFS, we should triangulate existing measures. Ideally the indicators should measure: (a) what type of skills does the future labor force acquire in initial formal education; (b) what type of skills does the current labor force acquire while in the labor market; (c) how portable are the skills. In line with the principle of triangulation<sup>142</sup>, all three measures should be consistent in each empirical case. Also, instead of assuming that absence of some properties of specific SFS implies presence of general SFS (and *vice versa*), we should construct two measures: one for specific SFS and the other for general SFS.

### Measuring specific skills formation systems

The literature has used the following methods to measure the extent to which countries have developed specific SFS: surveys of employers, assessments of wage differentials, assessment of occupational structure, assessment of medium job tenure, measurement of proportion of youth in vocational training and assessment of

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<sup>140</sup> For an assessment of results of different approaches to measuring skill specificity see: Jens Hainmueller, Michael J. Hiscox, "Being Specific: Measuring Asset Specificity for Political Economy", Prepared for the 2007 Annual APSA Meeting Chicago August 30 - September 2, 2007.

<sup>141</sup> Torben Iversen, 2005. Estavez-Abe Margarita, Torben Iversen, David Soskice, 2001.

<sup>142</sup> For a more extensive discussion on triangulation see: Todd D. Jick, "Mixing Qualitative and Quantitative Methods: Triangulation in Action", *Administrative Science Quarterly*, Vol. 24 (4), 1979, pp. 602-611.

the type of vocational training. Below I discuss each of these approaches and seek to assess their validity.

A number of authors have used surveys of employees and employers to determine skill specificity<sup>143</sup>. If employees find it difficult switching between jobs and employers find it difficult to recruit substitutes for their current workers, then one can reasonably argue that the skills of the workforce are specific and not easily transferable. A somewhat similar approach involves analysis of skill requirements, which are listed in the job-openings advertisements<sup>144</sup>. These approaches, however, are not feasible in the present study: such comparative data for eight countries is absent.

Some authors<sup>145</sup> proposed to measure wage differentials before and after moving to a different job. The core assumption is that the holders of specific skills should suffer higher decreases in wages or experience lower increases in wages after moving to a different job, because the specific skills are not easily transferable. However, as Iversen<sup>146</sup> argues, this measure is not appropriate for cross-national comparisons, because differences in wage setting systems make such measurements highly imprecise.

Iversen and Soskice<sup>147</sup> and Iversen<sup>148</sup> proposed measuring skill specificity by assessing the occupational structure of the labor force. The underlying idea is that ISCO-88 classification of occupations conveys information on the specificity of skills of different occupations. Hence, if there is a large proportion of work force in the occupations, which require specific skills, then we could assume that specific skills are more abundant than general ones. This approach, however, has several weaknesses. First, the identification of occupations, which require specific skills, is biased: all occupations that require low levels of skills (for example, doorkeeper, street vendors) are classified as being biased towards general skills,

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<sup>143</sup> Uschi Backes-Gellner, U. and Johannes Mure, "The Skill-Weights Approach on Firm Specific Human Capital: Empirical Results for Germany", Institute for Strategy and Business Economics University of Zurich Working Paper Series ISSN, Working paper no. 56, 2004. Bjoern Frank, "Location Decisions in a Changing Labor Market Environment". German Institute for Economic Research Discussion Paper No.380, 2003.

<sup>144</sup> Kristjan-Olari Leping, "Measuring the Specificity of Human Capital: a Skill-based Approach", *Working Papers in Economics, School of Economics and Business Administration, Tallinn University of Technology (TUTWPE)*, Vol. 17, 2005, pp. 21 – 37.

<sup>145</sup> Brunello, Garibaldi, Wasmer, 2007.

<sup>146</sup> Iversen, 2005.

<sup>147</sup> Iversen, Soskice, 2001.

<sup>148</sup> See: Iversen, 2005.

while occupations associated with higher educational requirements (plant machine operators) are classified as being biased towards specific skills. Second, it faces problems, when applied to small countries (like Estonia or Slovenia). In order to increase the precision of this measurement instrument, we need to consider the smallest possible occupational subgroups. However, since data on the occupational structure is collected during surveys, smaller samples in small countries imply that the more detailed is the unit of analysis, the higher are the statistical errors. Therefore, this approach will not be applied in this paper.

Estevez-Abe et. al.<sup>149</sup> proposed that a median tenure rate should also show skill specificity of the labor force. This indicator measures the median number of years that the employees have worked for their current employer. High tenure rates indicate that neither employers, nor employees have incentives to sever their long term relationships. This indirectly shows that: (a) employees are not willing to quit, because they have specific skills, which are not easily portable; (b) firms restrain from firing, because the specific skills of their employees are not easily substitutable. Conversely, low median tenure indirectly indicates that employees can easily apply their general skills in a wide number of jobs, while employers can easily substitute the skills of their employees. The problem with this indicator is that it reflects “not just the specificity of labor skills and how this specificity affects decisions by workers to remain in their current job rather than seek an alternative, they also reflect the rate at which firms are laying off workers and thus the location of each economy in terms of the business cycle, the various regulations that affect firms propensities to layoff workers in recessions, the age and gender composition of the workforce, and differences in wages and conditions across industries which affect the incentives workers have to actually seek alternative employment”<sup>150</sup>.

A more direct approach to assessing cross-national variation in SFS, is to measure, what type of skills the future workforce seeks to obtain and what type of institutions are there for providing these skills. Hence, a number of authors<sup>151</sup> focused on the proportion of an age cohort, which is studying in vocational schools. The underlying logic is that vocational schools aim to provide specific (occupational)

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<sup>149</sup> Estavez-Abe, Iversen, Soskice, 2001.

<sup>150</sup> Hainmueller, Hiscox, 2007, 16.

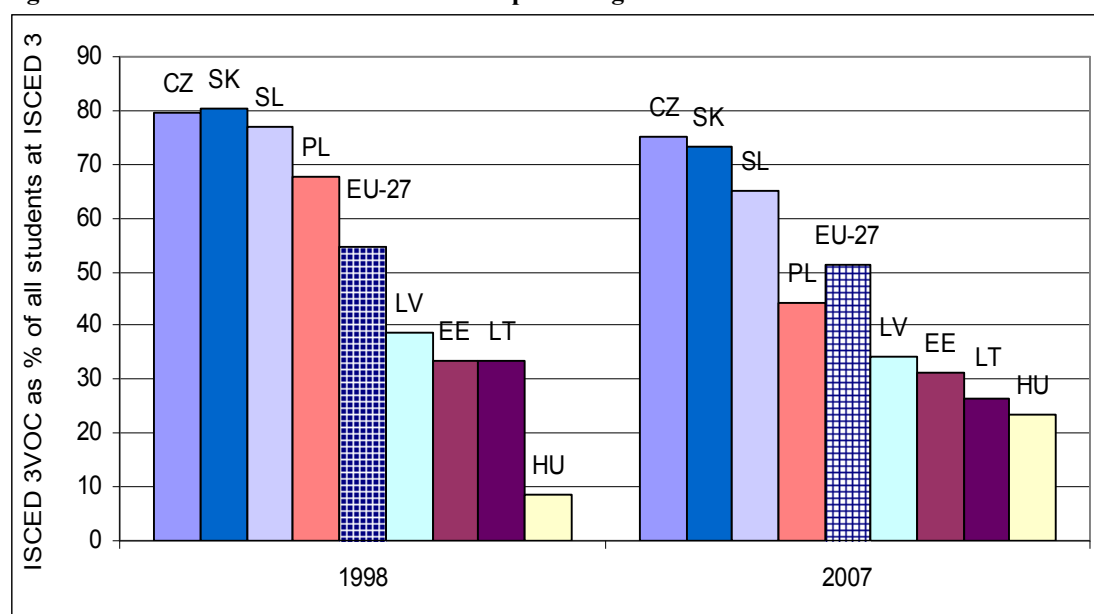
<sup>151</sup> Estavez-, Iversen, Soskice, 2001. Pepper D. Culpepper, „Small States and Skill Specificity Austria, Switzerland, and Interemployer Cleavages in Coordinated Capitalism“. *Comparative Political Studies*, 40(6), 2007, pp. 611-637. European Foundation for the Improvement of Living and Working Conditions, *Occupational mobility in Europe*, Dublin, 2008.



skills, which are directly relevant in the labor market, while the more academically oriented secondary education focuses on fostering the general skills. This is captured by the ISCED 3 VOC indicator, which measures students in vocationally oriented secondary education (ISCED 3B and 3C) as proportion of all students in secondary education (ISCED 3) <sup>152</sup>.

Figure 5 below provides historical data on the participation in ISCED 3 VOC in all CEE countries. It shows that in the Czech Republic, Slovakia and Slovenia substantially more than half of students at the level of secondary education participate in vocational training. Furthermore, the rates of participation in these countries have substantially exceeded the EU-27 average and have remained high throughout 1998 – 2007. Poland comprises the second group. It had relatively high level of participation in initial vocational training in 1998, but it has decreased dramatically throughout the past decade. The Baltic States and Hungary comprise the third group, which is characterised by low levels of participation in vocational training. While the level of participation in the Baltic States remained largely the same throughout 1998 – 2007, it has substantially increased in Hungary. The literature, however, does not provide any clear-cut explanations of such an increase.

**Figure 5. Students at ISCED level 3-VOC as percentage of all students at ISCED level 3.**



Source: Eurostat, 2009.

<sup>152</sup> ISCED level 3B provides access only to vocationally oriented tertiary education. ISCED level 3C does not provide access to tertiary education. For description of classifications see: UNESCO, *International Standard Classification of Education: ISCED, 1997*, UNESCO, 2006.

In order to gain a more detailed understanding of skills acquired in vocational training, we should also assess the type of training<sup>153</sup>. The “encyclopedic” case of German specific skills formation system is characterized by an extensive use of apprenticeships. The latter is combined with a more general classroom-based education to provide in-firm training on how the work in concrete sectors is done. Hence, we could expect that countries, which have this dual system, will produce more specific skills. Absence of apprenticeships, however, does not imply that the education system fails to produce specific skills. A number of countries successfully substitute apprenticeships by strong in-school practical training. Hence, absence or presence of apprenticeships should be considered as an additional rather than the main indicator in portraying the quality of specific SFS.

Cedefop<sup>154</sup>, an agency of the EU Commission, provides rich qualitative information on the system of apprenticeships in the CEE countries. Slovenia is the only country in our sample that has relatively extensively developed system of apprenticeships. Poland and Hungary also have a system of apprenticeships; however, they are usually limited to some sectors, training programs or availability of employers, who are willing to take-in apprentices. The Baltic States and the Czech and Slovak Republics do not have the system of apprenticeships or they are negligible.

Table 6 compares data on participation in vocational training with the qualitative assessment of the system of apprenticeships. This yields several important insights into initial training systems, which compose an important part of the specific skill formation systems. First, Slovenia is the only case that comes very close to the ideal type of specific skill formation system. It has highly developed system of apprenticeships and high levels of participation in vocational training. Second, the Czech and Slovak Republics also have very high levels of participation, but these cases rely on in-school based training. This suggests that overall the skill specificity

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<sup>153</sup> For a more extensive discussion, how apprenticeships affect skill specificity see: Karen M. Anderson, Anke Hassel, “Pathways of Change in CMEs: Training Regimes in Germany and the Netherlands”, Conference paper prepared for American Political Science Association meeting, in Chicago, Aug. 27 - Sept. 1, 2007. Iversen, Stephens, 2008.

<sup>154</sup> European Centre for the Development of Vocational Training, Thematic Country Reviews: Apprenticeship Training, CEDEFOP, 2008.  
<[http://www.cedefop.europa.eu/etv/Information\\_resources/NationalVet/Thematic/criteria\\_reply.asp](http://www.cedefop.europa.eu/etv/Information_resources/NationalVet/Thematic/criteria_reply.asp)>, [2009-10-05]. Also see: Ellu Saar, Marge Unt, Irena Kogan, “Transition from Educational System to Labor Market in the European Union. A Comparison between New and Old Members”, *International Journal of Comparative Sociology*, Vol 49 (1), 2008, pp. 31–59.

of the labor force in these countries is high, but not as high as in Slovenia. Third, the Baltic States perform poorly on both indicators, which suggest that specific skill formation systems in these cases are rather limited. Poland and Hungary are ambiguous cases. Clearly, Poland has more elements of specific SFS than the Baltic States, but its declining level of participation in vocational training suggest that it falls short of the Czech and Slovak Republics. Lastly, Hungary has some elements of the system of apprenticeships, but its extremely low levels of participation in vocational training suggest that it is rather similar to the Baltic States, i.e. Hungary largely lacks the system of specific skills formation.

**Table 6. Acquisition of specific skills in the CEE.**

Levels of participation in Vocational training	Is there a well developed system of apprenticeships?		
	Yes, full scale	Yes, some elements exist	None or negligible
High	Slovenia		Czech Republic, Slovakia
Medium		Poland	
Low		Hungary	Estonia, Latvia, Lithuania

Source: compiled by the author.

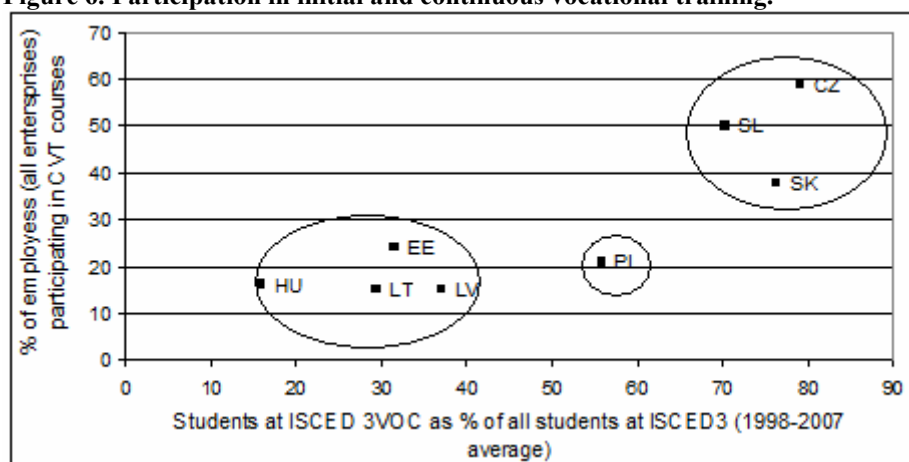
While the above indicators deal with qualities of the initial educational system, the next one examines the extent to which specificity of the skills of workers is furthered in the labor market. This is captured by the percentage of employees that participate in continuing vocational training (CVT) courses<sup>155</sup>. High levels of participation in CVT indicate that: (a) high proportion of employees upgrade their specific-vocational skills; (b) it also shows the propensity of firms to invest in specific skills, because the costs of CVT courses are usually covered by the employers.

Figure 6 shows that the levels of participation in initial vocational training are highly related to participation in continuous vocational training. A very high proportion of the workers in the Czech and Slovak Republics as well as

<sup>155</sup> In-firm training as one of the key dimensions of skill-specificity was discussed by: Marius R. Busemeyer, "Asset specificity, institutional complementarities and variety of skill regimes in coordinated market economies", *Socio-Economic Review*, Vol. 7, 2009, pp. 375 – 406.

Slovenia participate in CVT courses. Yet these are the same countries that also have the highest rates of participation in vocational training. This clearly shows that these cases exhibit a well developed and comprehensive specific SFS. It encompasses both: initial training in vocational schools as well as continuous training throughout the working careers of employees. On the other hand, Hungary and the Baltic States exhibit low levels of participation in both: initial vocational training and continuous vocational training. This suggests that specific SFS is largely underdeveloped in these countries. The case of Poland rather ambiguous, since it is in between the above described groups of cases.

**Figure 6. Participation in initial and continuous vocational training.**



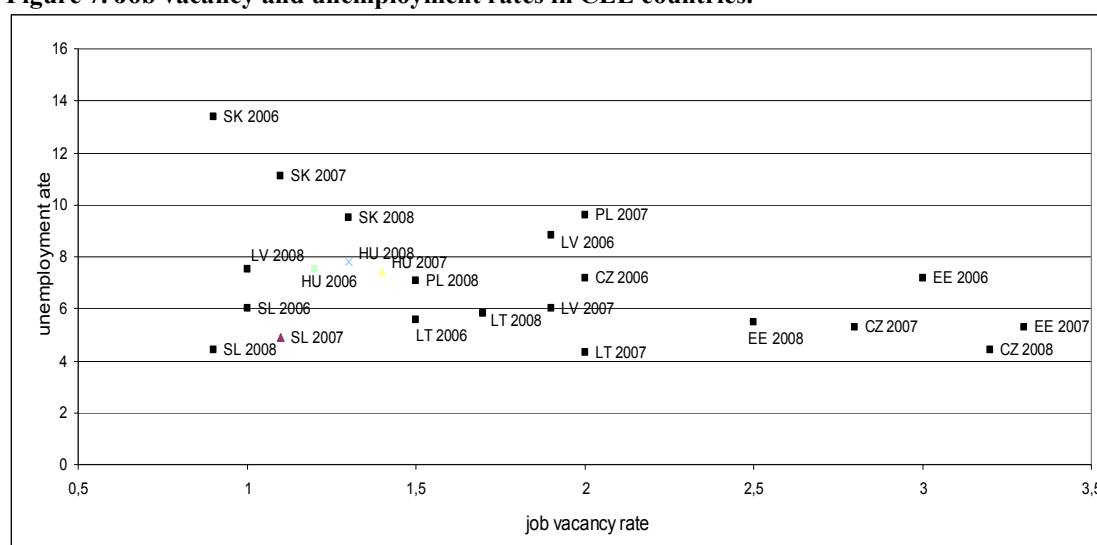
Source: own calculations based on Eurostat 2009, data. Note: CVT indicator refers to the year 2005.

In addition to the above indicators, we need to measure the “quality” of specific SFS, i.e. the extent to which the supply of skills developed in the training system match the demand in the labor market. Since specific skills are not easily transferable across sectors, we could expect that poorly functioning systems of specific skill formation could produce substantial imbalances between the supply and demand. This can be measured by the ratio between job vacancy and unemployment rates. Job vacancy rates measures the proportion of jobs in the economy that are open, but have not been filled, while unemployment rates measure the proportion of the economically active labor force, which is unemployed. Hence, if there is mismatch in the supply and demand of specific skills, we could see that high levels of unemployment are compatible with high job vacancy rates. This would indicate that while there is a large number of unemployed, they can not move into

employment, because the types of skills they have do not match the demand for skills. Conversely, if the skills are general or there is a close match between the supply and demand for specific skills, then high unemployment should be associated with low job vacancy rate (and *vice versa*).

Figure 7 maps job vacancy rates against unemployment rates in the countries under consideration. If there was a considerable level of skills mismatch, we should see a number of countries in the top right corner of the graph, i.e. they should have high levels of unemployment and high number of job vacancies. This, however, is not the case. Overall, only Poland in 2007, Latvia in 2006 and Estonia in 2006 exhibited somewhat higher levels of job vacancy rates in comparison with other cases, which had similar levels of unemployment. This, however, could be explained by other factors. The imbalances in the supply and demand of labor force in Poland could have resulted from limited regional mobility of the labor force within country. Similar explanation applies to the two Baltic States: language barriers faced by the Russian speaking minorities in Estonia and Latvia could explain why these countries exhibited a somewhat imbalanced labor market. With the exception of the above discussed cases of Poland, Latvia and Estonia, however, the cases in the sample do not exhibit substantial mismatch in skills. Therefore, countries with specific SFS (Czech Republic, Slovakia, Slovenia and to some extent Poland) have achieved a good balance between the type of skills provided by the training systems and the type of skills needed in the labor market.

**Figure 7. Job vacancy and unemployment rates in CEE countries.**



Source: own calculations on the basis of Eurostat 2009, data.

To sum-up the discussion, there is considerable variation in the extent to which CEE countries have a developed specific SFS (see Table 7). Slovenia comes closest to the ideal type of specific skills formation system: it exhibits high levels of participation in initial and continuous vocational training, it has an extensive system of apprenticeships and the type of skills developed in the training system seems to match the demand for skills. Hence, it is considered as being fully in the set of specific skills formation system. The Czech Republic and Slovakia are very similar to Slovenia, except for one aspect: these cases rely on in-school practical training rather than the system of apprenticeships. Therefore, they are considered as being more in than out of the set of specific SFS. Poland, has declining levels of participation in initial training and rather low levels of participation in CVT. Furthermore, it has some elements of apprenticeship training, but also exhibits some mismatches in the supply and demand of skills. Therefore, it is allocated a membership score of 0,5 in the set of specific skills formation system. The Baltic States and Hungary very few characteristics of specific skills formation system and therefore these cases are considered as being more out than in the set.

**Table 7. Fuzzy membership scores in the set of “specific skills formation system”.**

Cases	Membership in the subset “high participation in vocational training”.	Membership in the subset “developed system of apprenticeships”.	Membership in the subset “high employers’ investment in continuous vocational training”. <sup>a</sup>	Membership in the set “specific skills formation system”.
Czech Republic	1	0	1	0,75
Estonia	0,25	0	0,5	0,25
Hungary	0,25	0,5	0,25	0,25
Latvia	0,25	0	0,25	0,25
Lithuania	0,25	0	0,25	0,25
Poland	0,5	0,5	0,5	0,5
Slovak Republic	1	0	0,75	0,75
Slovenia	1	1	1	1

Source: compiled by the author. Note: a. since employers covers most of the costs of continuous vocational training, membership scores in this subset were assigned on the basis of the percentage of employees that participate in continuing vocational training.

### Measuring general skills formation systems

Assumption that the type of skills formation system is a dichotomous variable, led the existing literature to focus on measurements of specific SFS, while the discussion on measuring general SFS has been largely absent. However, following the above discussed logic of measuring the extent to which countries have developed specific SFS, I propose to focus on the type of skills that the future labor force acquire in initial formal education; the type of skills the current labor force acquires while in the labor market and indirect indicators of transferability of skills in the labor market.

The first indicator aims to measure, what proportion of future labor force seeks to obtain broadly transferable academic qualifications in comparison to narrower vocational skills. European higher education systems generally have two tracks: the first one (ISCED 5B) focuses on programs, which are occupation-specific and lead directly to the labor market, while the second track (ISCED 5A) includes academic, theoretically based programs, which provide access to postgraduate studies or the labor market<sup>156</sup>. Hence, in order to capture only the general skills I propose the following indicator: students at academically oriented higher education programs (ISCED 5A) as percentage of all persons aged between 18 and 26. In order to account for short time fluctuations, I use the average for 1998 (the earliest year available) and 2007 (the latest years available).

The above discussed indicator, however, has a weakness – some of the fields of study (for example medicine, architecture, and engineering) contribute to the development of specific skills in addition to the general ones. In order to account for this, the second indicator measures the proportion of students (at ISCED 5A level) enrolled in social science, business and law fields. These fields are considered as being the closest to representing the idea of widely applicable general skills. As in the case of previous indicator, the average of 1998 and 2007 is used.

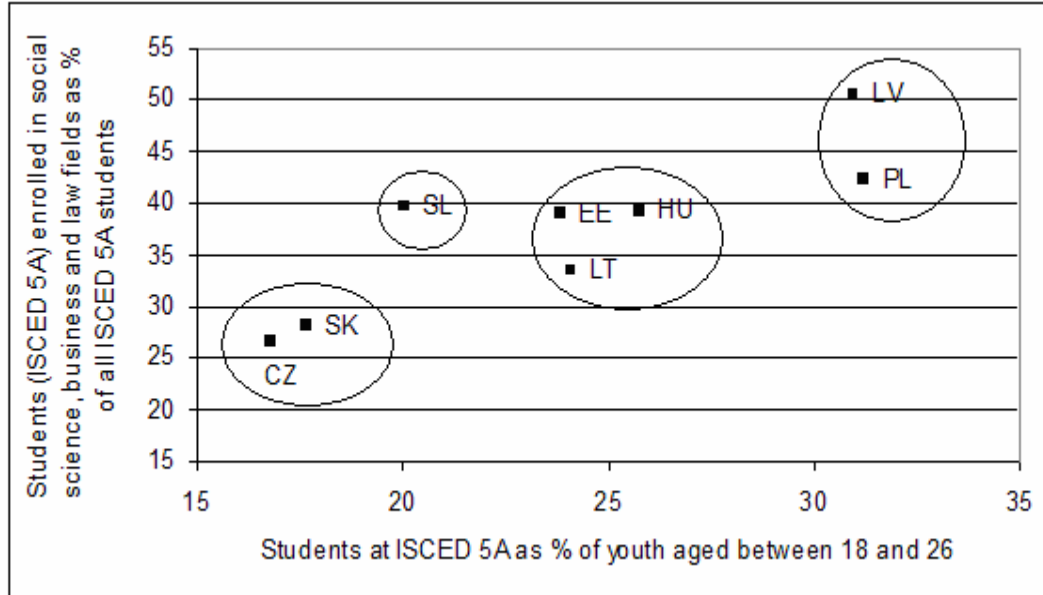
Figure 8 maps the CEE countries according to the two indicators. It shows that a very large proportion of the future labor force in Latvia and Poland is keen on acquiring general academic skills, while the reverse holds true for the Czech and Slovak Republics. Estonia, Hungary and Lithuania represent the group of cases with intermediate high levels of acquisition of general academic skills. This group is

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<sup>156</sup> UNESCO, *International Standart Classification of Education: ISCED, 1997*, UNESCO, 2006.

followed by Slovenia, where a large proportion of students study in the fields of social science, business and law, but the overall number of students in universities is considerably smaller.

**Figure 8. General skills in higher education.**



Source: own calculations on the basis of Eurostat, 2009 data. Note: data refers to 1998 – 2007 averages.

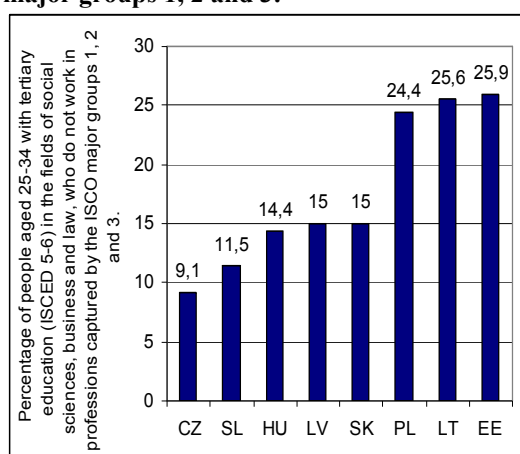
The above indicators, however, have a weakness. It is possible, that tertiary education in social science, business and law could differ in terms of generality or specificity of provided skills. For instance, it could be argued, that law studies could differ across countries: some programs could be aimed at providing a set of rather narrow occupational skills (for instance, the law of mergers and acquisitions), while other could be focused towards more transferable general legal skills. Hence, the third indicator seeks to capture the extent to which the skills acquired in higher education are applicable in a wide range of occupations. It measures the percentage of people aged 24 – 35 with tertiary education in social science, business and law, who are not employed in ISCO-88 major groups 1, 2 (legislators, senior officials, managers and professionals), or 3 (technicians and associate professionals). The overall logic behind this indicator is as follows: if persons with tertiary education have widely transferable general skills, we could expect them to work in a wide range of professions. Conversely, if skills formation system is biased towards more specific/occupational skills, we could expect such



persons to be channeled to a narrow range of professions, which closely match acquired skills, i.e. persons with tertiary education in the fields of social science, business and law should mainly work as corporate and general managers, senior officials, business and legal professionals, administrative, finance and sales professionals and similar professions captured by major occupational group 1, 2 and 3 in International Standard Classification of Occupations (ISCO-88).

Comparisons of data in Figure 9 and Figure 10 provides interesting insights into the general SFS in CEE. In Estonia, Lithuania and Poland around a quarter of graduates, who studied social science, business and law, work in professions that are not even remotely related with the field of acquired education. This, in addition to high number of students in ISCED 5A level and a relatively high proportion of students, who study in the fields of social science, business and law, indicate that skills formation systems in Estonia, Lithuania and Poland are strongly biased towards general skills. The reverse holds true for the Czech Republic and to some extent to Slovenia. A relatively large proportion of graduates of social science, business and law fields in Hungary, Latvia and Slovakia do work in a wide range of occupations, however, that proportion is substantially smaller than in the case of Estonia or Lithuania.

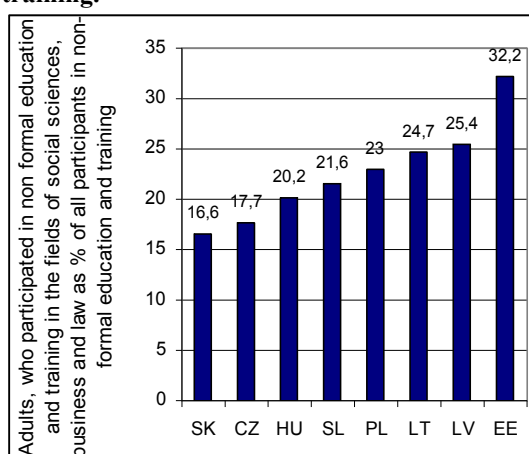
**Figure 9. Percentage of people aged 25-34 with tertiary education (ISCED 5-6) in the fields of social sciences, business and law, who do not work in professions captured by the ISCO major groups 1, 2 and 3.**



Source: Eurostat, *The Bologna Process in Higher Education in Europe. Key Indicators on the social dimension and mobility*, Luxembourg: Office for Official Publications of the European Communities, 2009.

Note: the data refers to 2003 – 2007 averages.

**Figure 10. Adults, who participated in non formal education and training in the fields of social sciences, business and law as % of all participants in non-formal education and training.**



Source: Eurostat, 2009.

Note: data refers to 2007.

The fourth indicator seeks to capture, what type of skills the adults seek to develop once they are in the labor market. Hence, it measures the percentage of all adults engaged in non-formal education and training<sup>157</sup>, that studied social science, business and law. As data in Figure 10 indicates, social sciences, business and law are the most popular among adults in the Baltic States, while these fields are the least popular in the Czech and Slovak Republics. These findings are largely consistent with the data presented in Figure 8.

What conclusions should be drawn regarding the extent to which the CEE countries are in the set of general SFS? The Baltic States and Poland seem to exhibit the properties of general SFS: they have large number of students in the academic track of tertiary education, a large proportion of the students and adults in these countries seek to acquire broadly transferable education in the fields of social science, business and law and the graduates work in a wide number of occupations. Therefore, these countries are considered as fully in the set of SFS. The indicators on tertiary education show that the future workers are rather keen on acquiring general academic skills in Hungary and Slovenia. However, once in the labor market, the workers tend to be channeled to specific professions, which indicate a somewhat limited transferability of acquired skills. Therefore, these countries are considered as being neither in, nor out of the set of general SFS. Lastly, the Czech and Slovak Republics performed “poorly” in respect to all indicators and are considered as being more out than in the set. These findings are summarized in Table 8.

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<sup>157</sup> The fields of study in formal education are not included, because the proportion of adults participating in formal education in all CEE countries is very small, hence, even large relative variation would imply small differences in absolute numbers.

**Table 8. Membership in the fuzzy set “General skills formation system”.**

Cases	Students at ISCED 5A level as % of youth aged between 18 and 26. <sup>a</sup>	Students (ISCED 5A) enrolled in social science, business and law fields as % of all students <sup>b</sup>	% of people aged 25-34 with tertiary education (ISCED 5-6) in social science, business and law that are not employed in ISCO-88 major groups 1, 2 or 3	% of adults engaged in non-formal education and training, that studied social science, business and law. <sup>c</sup>	Membership in the set “general skills formation system”
Czech Republic	16,81	25,6	9,1	17,7	<b>0,25</b>
Estonia	23,86	38,9	25,9	32,2	<b>1</b>
Hungary	25,75	39,1	14,4	20,2	<b>0,5</b>
Latvia	30,94	50,5	15	25,4	<b>1</b>
Lithuania	24,09	33,5	25,6	24,7	<b>1</b>
Poland	31,23	42,1	24,4	23	<b>1</b>
Slovak Republic	17,7	28,1	15	16,6	<b>0,25</b>
Slovenia	20,06	39,5	11,5	21,6	<b>0,5</b>

Notes: a. Data refers to the 1998-2007 average. Source: Eurostat, 2009.

b. Data for 1998-2007 average; Source: Eurostat, 2009.

c. Data refers to 2007; Source: Adult education survey, Eurostat, 2009.

#### 4.3.2. Measuring generosity of unemployment benefits.

There are immense difficulties in measuring the level of unemployment benefits. On the one hand, generosity of benefits is a multidimensional notion: it is “typically defined by waiting periods, eligibility, duration, benefit levels and asset tests when eligible, which makes intertemporal or international comparisons difficult”<sup>158</sup>. The expenditure on unemployment benefits also tends to fluctuate due to policy changes or overall situation in the labor markets, which inhibits efforts in establishing a “typical” level of generosity. To make things worse, there is a lack of consensus regarding methodology for aggregating various indices into one composite measure and the reliability of data still seems to pose a threat to the precision of assessments<sup>159</sup>. Taking these issues into consideration, I seek to triangulate a number

<sup>158</sup> Stephane Pallage, Lyle Scruggs, Christian Zimmermann, “Measuring Unemployment Insurance Generosity”, *University of Connecticut, Department of Economics Working Paper Series*, No. 42, 2008, p. 1.

<sup>159</sup> In fact there is a paper on generosity of unemployment benefits in CEE, which explicitly uses fuzzy sets approach; however, its findings are not discussed here precisely because of relatively low reliability of the presented data. See: Michal Polakowski, Dorota Szelewa, “A Comparative study of

of indicators, which fall in three broad categories: access, duration and level of benefits.

There are two approaches in measuring the extent to which unemployment benefits are accessible. The first one focuses on formal restrictions: waiting periods (benefits provided immediately or after some time), eligibility conditions (such as work experience) and clauses, when benefits are withdrawn (such as participation in active labor market policies, acceptance of the first job offer, etc.). Since the impact of different eligibility conditions and sanctions on the accessibility of benefits is not commensurable<sup>160</sup>, they are not further considered. The second approach in measuring access to unemployment benefits focuses on the proportion of unemployed, who receive benefits. The problem with this indicator is that the literature usually calculates it by using a narrow definition of “unemployed”: the ones, who have registered at the labor exchanges as actively seeking for a job. This could provide biased results. There are substantial cross-national differences in the proportion of unemployed who register at labor market exchanges. Restrictive rules regarding accessibility of benefits could work as a self selection mechanism by diminishing the incentives to register. In such cases the indicator of the percentage of registered unemployed who receive benefits could be highly biased upwards. Hence, I suggest measuring the percentage of all unemployed, who receive benefits.

Table 9 reports data on the waiting periods and proportion of unemployed, who received benefits (according to both measures). It indicates that accessibility of benefits is very high in the Czech Republic: it does not have any waiting periods and the proportion of unemployed receiving benefits is among the highest in this sample. On the other side of the spectrum there is Poland, which imposes waiting periods to all unemployed and also demonstrates the lowest proportion of unemployed, who receive benefits. The other cases fall in between these two extremes (see the last column in Table 9).

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unemployment compensation in Central and Eastern Europe”, Paper presented in the 5<sup>th</sup> International Research Conference on Social Security “Social Security and the labor market: a mismatch?” in Warsaw, 5-7 March 2007.

<sup>160</sup> i.e. they could have very different effects for different types of unemployed. This impedes any generalization regarding their effects.

**Table 9. Evaluation of access to unemployment benefits.**

Cases	Waiting periods (in days) <sup>a</sup>		Coverage of unemployment benefits		Summary: accessibility of benefits
	2004	2009	% of registered unemployed receiving benefits (in 2002 – 2003) <sup>b</sup>	% of all unemployed receiving benefits (in 2007) <sup>c</sup>	
Czech Republic	none	none	34	42	<b>Very high</b>
Estonia	From 7 to 60	From 7 to 60	50	27	<b>Medium- low</b>
Hungary	From 0 up to 60	From 0 up to 60	34	44	<b>High</b>
Latvia	From 7 up to 90	From 7 up to 90	44	46	<b>Medium-high</b>
Lithuania	From 0 up to 90	From 0 up to 90	11	26	<b>Medium-low</b>
Poland	6	7	19	15	<b>Low</b>
Slovak Republic	none	none	17	36	<b>Medium - high</b>
Slovenia	none	none	24	28	<b>Medium-high</b>

Notes: a. Source: Mutual Information System on Social Protection (MISSOC), 2009.

b. Source: Cazes Sandrine, Alena Nesporova, "Labor Markets in Central and South – Eastern Europe: from Transition to Stabilization", in eds Sandrine Cazes, Alena Nesporova., *Flexicurity: a Relevant Approach in Central and Eastern Europe*, Geneva: International Labor Office, 2007.

c. Own calculations on the basis of: Eurostat, 2009 and Sabine Gagel, "Labor Market Policies -- expenditure and participants 2007", *Eurostat Data in focus: population and social conditions*, Vol. 23, 2009.

The second aspect of the generosity of benefits refers to their duration. National regulations usually stipulate that the duration of benefits should differ according to the age or work experience of the unemployed. Therefore I calculated minimum and maximum duration of unemployment benefits. Table 10 provides the data on duration of benefits in the CEE countries. Despite some variation, the data overall indicates that the unemployment benefits are provided for similar number of months across different CEE countries.

**Table 10. Duration of unemployment benefits**

Cases	2004		2009	
	Minimum duration (no of months)	Maximum duration (no of months)	Minimum duration (no of months)	Maximum duration (no of months)
Czech Republic	6	6	5	11
Estonia	6	12	6	9
Hungary	9	9	4	9
Latvia	6	6	6	9
Lithuania	1 day per every 5 days of insurance contribution	9	1 day per every 5 days of insurance contribution	6
Poland	6	18	6	18
Slovak Republic	3	24	3	24
Slovenia	6	6	6	6

Source: Mutual Information System on Social Protection (MISSOC), 2009.

For the purposes of this paper the levels of benefits is by far the most important aspect of unemployment safety nets. It is usually measured by unemployment replacement rate, which shows the proportion of in-work income that is maintained, when a person becomes unemployed, i.e. net income while out of work is divided by net income while in-work<sup>161</sup> (OECD 2007). The problem with this indicator, however, is that reliable estimates are available only for a half of the CEE countries (OECD members). Hence, I use estimates of replacement ratios, which were produced by previous research (see column 2 and 3 in Table 11). The problem with these indicators, however, is that they were calculated using slightly different methodology, which implies that the results are not comparable. To complement these measures I also calculated two additional indicators. The first one measures, how much was spent on unemployment benefits (in euros in purchasing power parity) per one unemployed. Since this indicator takes into account total number of unemployed persons, it is not sensitive to cross-national differences in eligibility rules. This is useful in providing aggregate estimates in eligibility. However, the drawback of this indicator is that it is extremely sensitive to the levels of unemployment. Since the total levels of spending on unemployment is usually sticky (i.e. does not substantially fluctuate over the years), then dramatic changes in the level of unemployment has perverse impact on the measured amount of spending per one unemployed. In order to account for this weakness, I provided a measure of the expenditure on unemployment as percentage of GDP (see column 6 in Table 11). From a policy maker's perspective, this indicator could be interpreted as a measure of commitment to provision of benefits. On the flip side the drawback of this indicator is that it does not take into account aggregate levels of unemployment: if government allocates high proportion of GDP to unemployment benefits, but the level of unemployment is high, then actual amount received per unemployed would be rather low.

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<sup>161</sup> OECD, *Benefits and Wages 2007. OECD indicators*. Paris: OECD Publishing, 2007.

**Table 11. Measures of the level of unemployment benefits.**

Cases	Unemployment benefits as % of average wage replacement ratio (2002 – 2003) <sup>a</sup>	Unemployment benefits as % of average post tax wage (2004) <sup>b</sup>	Total cash unemployment benefits (thousands EUR in PPP) per 1 unemployed. <sup>c</sup>		Expenditure on unemployment benefits as % of GDP (average 2000 – 2006). <sup>d</sup>	Summary: level of benefits
			2000	2007		
Czech Republic	22	50	1,9	4,5	0,7	High
Estonia	7	50	0,2	0,7	0,2	Low
Hungary	26	64	2,8	3,4	0,6	High
Latvia	21	50	0,5	1,4	0,5	Medium-low
Lithuania	16	25	0,2	1,3	0,2	Low
Poland	22	40	1,1	1,2	0,8	Medium-high
Slovak Republic	26	60	0,9	1,7	0,8	High
Slovenia	39	63	4,2	3,6	0,8	Very high

Notes: a. Source: Sandrine Cazes, Alena Nesporova, "Labor Markets in Central and South – Eastern Europe: from Transition to Stabilization", in eds Sandrine Cazes, Alena Nesporova., *Flexicurity: a Relevant Approach in Central and Eastern Europe*, Geneva: International Labor Office, 2007.

b. Source: Tito Boeri, Pietro Garibaldi, "Are labor markets in the new member states sufficiently flexible for EMU", *Journal of Banking and Finance*, Vol. 30 (5), 2006, pp. 1393-1407.

c. Own calculations on the basis of Eurostat, 2009 data.

d. Source: Eurostat, 2009.

Since all indicators on the level of unemployment benefits have strengths and weaknesses I triangulated them in order to provide holistic estimates. As the data in Table 11 reveals, the Czech Republic, Hungary, Slovakia and Slovenia are the "best performers" according to most of the indicators. Therefore, the level of unemployment benefits in these countries is considered as high. The reverse holds true for Estonia and Lithuania. In fact these countries spend the smallest proportion of GDP on unemployment benefits among all of the EU-27 members. The case of Poland is contentious: while it spends a considerable proportion of GDP on the unemployment benefits, historically high levels of unemployment implied that the amount received per person is lower than in the most generous countries in our sample. Therefore, the level of benefits in Poland is considered as medium-high.

The membership scores in the set of "generous unemployment benefits" summarize the above discussion (see Table 12)<sup>162</sup>. A country is considered

<sup>162</sup> Since the duration of benefits was largely similar in all countries, this group of indices was not taken into consideration when assigning membership scores.

as being fully in the set, if the level of unemployment benefits was high and accessibility was at least medium-high<sup>163</sup>. Four countries fall in this group: Czech Republic, Hungary, Slovenia and Slovakia. On the other side of the spectrum we find Estonia and Lithuania, which restrict access to benefits and the level of expenditure on unemployment benefits is low. Therefore, these cases are considered as being more out of the set of generous benefits than in. Lastly, Poland and Latvia are two rather different cases: the former restricts access to benefits, but their level is moderately high, while the reverse holds true for Latvia. However, in comparison benefits in these cases are clearly more generous than in Lithuania and Estonia and considerably less generous than in “leading group”. Taking this into account, Poland and Latvia are considered as neither in nor out of the set. Overall such ranking of cases adheres to the findings of previous studies<sup>164</sup>, which increases the confidence in assigned membership scores.

**Table 12. Membership scores in the set of generous unemployment benefits.**

Cases	Accessibility of benefits	Level of benefits	Membership in the set “Generous unemployment benefits”
Czech Republic	Very high	High	1
Estonia	Medium- low	Low	0,25
Hungary	High	High	1
Latvia	Medium-high	Medium-low	0,5
Lithuania	Medium-low	Low	0,25
Poland	Low	Medium-high	0,5
Slovak Republic	Medium - high	High	1
Slovenia	Medium-high	Very high	1

Source: see Tables 9 and 11.

<sup>163</sup> The level of benefits is given more weight because it measures the generosity of benefits in a more direct manner.

<sup>164</sup> The only exception is Latvia, which is usually grouped with other Baltic States. See: Alfio Cerami, *Social Policy in Central and Eastern Europe: The Emergence of New European Welfare Regime*, New Brunswick and London: Transaction Publishers, 2006. Cazes Sandrine, Alena Nesporova, “Labor Markets in Central and South – Eastern Europe: from Transition to Stabilization“, in eds Sandrine Cazes, Alena Nesporova., *Flexicurity: a Relevant Approach in Central and Eastern Europe*, Geneva: International Labor Office, 2007. Tito Boeri, Pietro Garibaldi, "Are labor markets in the new member states sufficiently flexible for EMU", *Journal of Banking and Finance*, Vol. 30 (5), 2006, pp. 1393-1407. Milan Vodopivec, Andreas Wörgötter, Dhushyanth Raju, “Unemployment Benefit Systems in Central and Eastern Europe: A Review of the 1990s”, *Comparative Economic Studies*, Vol. 47 (4), 2005, pp. 615 – 651. Wayne Vroman, Vera Brusentsev, *Unemployment Compensation Throughout the World. A Comparative Analysis*, Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2005.



### 4.3.3. Measuring employment stability

In the literature a standard approach to measuring employment stability and overall labor market flexibility usually includes assessments of the rigidity of labor market regulation. The World Bank rigidity of employment index<sup>165</sup> is based on the opinions of lawyers and civil servants from the respective countries regarding the regulation of working time as well as formal restrictions on hiring and firing workers. The OECD employment protection legislation index assess legislation in order to compare the costs and difficulties imposed on employers in: a) firing workers with permanent contracts; b) firing and hiring of temporary workers; c) executing mass lay-offs<sup>166</sup>. However, a number of studies<sup>167</sup> pointed out a paradox of using these measures: while labor market regulation in the Baltic States is very rigid, they also exhibit extremely flexible labor markets. This is explained by low levels of implementation of legal regulations. Hence, instead of using rigidity of regulation as a proxy for labor market flexibility and employment stability, we should look at the actual levels of employment, occupational and job stability.

This is measured by the average job mobility index, which was developed by Andersen et. al.<sup>168</sup> It captures three relevant elements. First, the share of employed persons, who experienced occupational class mobility, i.e. changed their occupations. The second component measures the share of persons, who have been unemployed for more than 12 months and share of persons, who have moved from employment to unemployment and *vice versa*. Third, the index also includes average job duration, i.e. the average number of month the employed have been in their present jobs. Andersen et. al. normalized these measures so that 1 represents highest mobility and 0 represents lowest mobility in the EU-27. However, I have reversed the scales, so that the higher the job mobility index, the less likely is a person to

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<sup>165</sup> More detailed discussion on the methodology is provided in: Juan Botero et. al. „Regulation of Labor“, *Quarterly Journal of Economics*, Vol. 119, 2004, pp. 1340-1382. Also see: <<http://www.doingbusiness.org/MethodologySurveys/EmployingWorkers.aspx>>, [2008 03 26].

<sup>166</sup> For a more detailed discussion on methodology see: OECD, *Employment Outlook*, Paris, 1999, p. 51 – 68.

<sup>167</sup> Jaan Masso, Raul Eamets, „Macro – level Labor Market Flexibility in the Baltic States“, in Tiit Paas, Raul Eamets, *Labor Market Flexibility, Flexicurity and Employment: Lessons of the Baltic States*, New York: Nova Science Publishers, 2006. Boguslavas Gruževskis, Inga Blažienė, „Lithuania“ in eds Sandrine Cazes, Alena Nesporova., *Flexicurity: a Relevant Approach in Central and Eastern Europe*, Geneva: International Labor Office, 2007. Martinaitis, 2008.

<sup>168</sup> Tine Andersen, Jens Henrik Haahr, Martin Eggert Hansen and Mikkel Holm-Pedersen, *Job Mobility in the European Union: Optimising Its Social and Economic Benefits*, Danish Technological Institute, 2008.

change occupations, become unemployed and change employers, i.e. higher values of index represent high stability.

The values for the composite job mobility index and for each of its component are provided in Table 13. The data reveals that there is huge bifurcation in terms of employment stability among the CEE countries. The Czech Republic, Poland, Slovakia and Slovenia (and Belgium) exhibit the lowest job mobility in the EU-27. Therefore, these cases are considered as being fully in the set of “high employment stability”. On the other side of the spectrum, the three Baltic States exhibit extremely high levels of job mobility. Only Sweden, the UK and Denmark exhibit higher levels of labor mobility. Therefore, the Baltic States are considered as being more out than in the set. Lastly, Hungary is considered as being at the crossover point, because the levels of mobility of its labor force are exactly at the median of the EU=27.

**Table 13. Membership in the fuzzy set “high employment stability”.**

Cases	Inverse values of occupational mobility index	Inverse values of employment mobility index	Inverse values of job-to-job mobility index	Inverse values of composite job mobility index.	Membership in the set “high employment stability”.
Czech Republic	0,93	0,47	0,73	0,72	1
Estonia	0,19	0,47	0,40	0,35	0,25
Hungary	0,89	0,32	0,5	0,57	0,75
Latvia	0,28	0,33	0,26	0,29	0,25
Lithuania	0,32	0,42	0,32	0,35	0,25
Poland	0,8	0,63	0,77	0,74	1
Slovak Republic	1	0,7	0,92	0,88	1
Slovenia	0,91	0,33	0,89	0,72	1

Source: Tine Andersen et al., 2008.

#### 4.3.4. Measuring the strength of employers associations

The strength of employers associations is captured by an index in the “Database on institutional characteristics of trade unions, wage setting, state intervention and social pacts”, which is maintained by Amsterdam institute for advanced labor studies<sup>169</sup>. The index is based on qualitative assessment of the

<sup>169</sup> Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 34 countries between 1960 and 2007; <<http://www.uva-aias.net/208>>.

strength of associations in 34 countries (including the ones relevant for current analysis). The index is based on three value scale:

- 2 = sectoral organizations of employers and unions, or joint bodies for negotiation, dispute settlement, training and/or recruitment exist throughout the (market or private) economy;
- 1 = sectoral organizations of employers and unions, or joint bodies for negotiation, dispute settlement, training and/or recruitment (micro-management) exist in some sectors only, or are limited to the public sector;
- 0 = none of above.

I transformed this ranking into a three-value set, as shown in Table 14. Overall the results show that Slovenia is fully in the set of “strong industry level employers associations”, while Hungary, Poland and Slovak Republics are neither in the set, nor out of it. The remaining four countries do not have strong industry level associations.

**Table 14. Membership in the fuzzy set “strong industry level employers associations”.**

Cases	Membership in the set “strong industry level employers associations”
Czech Republic	0
Estonia	0
Hungary	0,5
Latvia	0
Lithuania	0
Poland	0,5
Slovak Republic	0,5
Slovenia	1

Notes: Data refers to 2007. Source: Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 34 countries between 1960 and 2007; <<http://www.uva-aias.net/208>>.

#### **4.3.5. Measuring coordination of wage bargaining**

Lane Kenworthy<sup>170</sup> proposed a widely used scale to measure coordination of wage bargaining. The scale focuses on the institutional arrangements (preconditions) for wage coordination, rather than the actual outcomes of wage coordination. However, it is rather accurate in comparison to attempts to measure actual coordination, which

<sup>170</sup> Lane Kenworthy, “Wage-Setting Institutions: A survey and assessment”. *World Politics*, Vol. 54, 2001, pp. 57-98.

suffers from methodological and data problems. The scale seeks to identify the level – national, industry or firm – at which the wages are set and the extent to which agreements are enforceable. The scale has five categories:

- 5 = economy-wide bargaining, based on a) enforceable agreements between the central organizations of unions and employers affecting the entire economy or entire private sector, or on b) government imposition of a wage schedule, freeze, or ceiling.
- 4 = mixed industry and economy-wide bargaining: a) central organizations negotiate non-enforceable central agreements (guidelines) and/or b) key unions and employers associations set pattern for the entire economy.
- 3 = industry bargaining with no or irregular pattern setting, limited involvement of central organizations and limited freedoms for company bargaining.
- 2 = mixed industry- and firm level bargaining, with weak enforceability of industry agreements.
- 1 = none of the above, fragmented bargaining, mostly at company level.

This scale was used to assess coordination of wage bargaining in 34 countries by the Amsterdam institute for advanced labor studies<sup>171</sup>. I used this data to convert country rankings into five-value set (see Table 15). Overall the results indicate that Slovak Republic and Slovenia are more in the set of “coordinated wage bargaining” than out of it, while the Czech Republic and Hungary are more out than in. The other countries are completely out of the set.

**Table 15. Membership in the fuzzy set “coordinated wage bargaining”.**

Cases	Membership in the set “coordinated wage bargaining”
Czech Republic	0,25
Estonia	0
Hungary	0,25
Latvia	0
Lithuania	0
Poland	0
Slovak Republic	0,75
Slovenia	0,75

Notes: Data refers to 2007. Source: Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 34 countries between 1960 and 2007; <<http://www.uva-aias.net/208>>.

<sup>171</sup> Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 34 countries between 1960 and 2007; <<http://www.uva-aias.net/208>>.

#### 4.3.6. The level of centralization of inherited economies

The objective of this subsection is to assess the degree of decentralization of the economies that the CEE countries inherited in 1989-1990. It is true that in comparison to the market based economies, the planned economies were extremely centralized. This observation, however, obscures substantial differences in the type of the economies that the CEE countries inherited. Since the late 1950s Yugoslavia experimented with its own version of socialism, which was based on the idea of workers' self management. In practice this meant that that a considerable number of economic decisions were delegated to the works councils, which operated at the level of the enterprise. Higher autonomy at the operational level, on the one hand, weakened vertical lines of command between enterprise and the central planning authorities, and on the other hand, contributed to strengthening strategic horizontal coordination between enterprises<sup>172</sup>. Furthermore, "the Slovene economy was not only the most liberalised but also the most developed and western-oriented economy of former Yugoslavia and of the whole Soviet bloc"<sup>173</sup>. Hence, while the economy was still based on the principles of planning, Slovenia inherited the most liberal, decentralized and Westwards oriented economy among the post-Soviet states.

The inherited economies of the Visegrád countries also considerably differed. Hungary, which since 1960s engaged in long and protracted gradual reforms of planned economy, allowed for a small scale private ownership, increased the decision making autonomy of state enterprises and liberalised prices. In fact, by 1989 Hungary already had a two-tier banking sector and a system resembling that of corporate governance found in the market economies. Furthermore, before the collapse of Berlin Wall, only 15 percent of prices were administratively controlled<sup>174</sup>. Hence, while liberalization have not reached the levels found in Slovenia, Hungary's economy stood out as the most decentralized among the other members of the COMECON.

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<sup>172</sup> Feldmann, 2006.

<sup>173</sup> Bohle, Greskovits, 2007.

<sup>174</sup> Michael Bruno, *Crisis, Stabilization and Economic Reform: Therapy by Consensus*, Oxford, New York: Oxford University Press, 1993.

While Poland always had a private agricultural sector, more substantial reforms, which weakened the grip of central planners over the economy, started only in 1981. These reforms are associated with the passage of two Solidarity sponsored laws, which were aimed at increasing the autonomy and self management of firms and allowed creation of small private enterprises in trade, services and construction<sup>175</sup>. The scale and impact of these reforms, however, was substantially smaller than the ones in Hungary or Slovenia.

Since 1960s Czechoslovakia, just like Hungary, also had engaged in gradual reforms aimed at partial decentralization of the economy. However, after the Prague Spring of 1968 Czechoslovakia reverted to the orthodox system of central planning. This implied that Czechoslovakia inherited the most centralized economy among the Visegrád countries.

The Baltic States were in an even worse position than Czechoslovakia in 1989-1990. Extreme levels of centralization of the economies inherited by Estonia, Latvia and Lithuania are illustrated by the fact that the most important planning decisions were made in Moscow rather than in Tallinn, Riga or Vilnius. Furthermore, the economies of the Baltic States were highly integrated with those of the USSR and the economic links with the other Western market economies were virtually absent. Therefore, the Baltic States are considered as being fully out of the set of countries that inherited decentralized socialist economies (see Table 16 for a summary of the above discussion).

**Table 16. The extent to which inherited socialist economies were decentralized.**

Cases	Membership in the set “inherited decentralized socialist economies”.
Czech Republic	0,25
Estonia	0
Hungary	0,75
Latvia	0
Lithuania	0
Poland	0,5
Slovak Republic	0,25
Slovenia	1

Source: own compilation.

#### **4.3.7. Strategies of economic reforms**

The main aim of this subsection is to examine the variation in the speed and depth of economic reforms, which CEE countries undertook in the early-mid

<sup>175</sup> Ibid.

1990s with the view of establishing market economies. Fast liberalization, privatization and stabilization are associated with radical reforms (or shock therapy), whereas focus on creating institutions and step-by-step implementation of reforms are the properties of gradual (or incremental) reforms (see subsection 3.3.2. for a more extensive discussion). In order to distinguish between different reform strategies implemented in the CEE countries I discuss the findings of previous research and provide quantitative indicators, which were used for measuring the progress of economic transition.

There is substantial consensus in the literature<sup>176</sup> that Slovenia and to some extent Hungary are paradigmatic cases of gradual economic reforms. Both countries inherited decentralized socialist economies (see subsection 4.3.6). This allowed for careful sequencing of reforms and a step-by-step approach towards further liberalization and stabilization. Hungary, however, was more decisive reformer than Slovenia. The former engaged in negotiated reforms by introducing corporatist style negotiations with the social partners, while in the latter the reforms were implemented in a top-down manner. Furthermore, the strategies of privatization also substantially differed. Hungary sought to attract investments and know-how by direct sale of its enterprises to (mostly foreign) outsiders, while Slovenia adopted a consensual approach to reform and favored insider privatization (management – employee buyout)<sup>177</sup>. Hence, while reforms in both countries represent the gradualist approach, there were also nuanced differences in the speed and type of reforms. Therefore, Slovenia is considered as being fully in the set of cases that pursued incremental reform strategies, while Hungary is considered as more in than out, i.e. its membership score is 0,75.

Reforms in Poland and the Czech Republic are usually considered<sup>178</sup> as examples of radical shock therapy. Poland liberalized with one "big bang," freeing 90 percent of prices, eliminating most trade barriers, abolishing state trading monopolies, and making its currency convertible for current transactions at once in

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<sup>176</sup> EBRD, *Transition report 1999: Ten years of transition*, London: EBRD, 2000. World Bank, *World Development Report 1996: From Plan to Market*. Washington, D.C.: World Bank, 1996. Matija Rojec, Janez Šušteršič, Boštjan Vasle, Marijana Bednaš, Slavica Jurančič, "The rise and decline of gradualism in Slovenia", *Post-Communist Economies*, Vol.16 (4), 2004, pp 459 – 482. The World Bank, *Slovenia: Economic Transformation and EU Accession. World Bank Country Study*, Vol. 2, Washington DC: The World Bank, 1999.

<sup>177</sup> The World Bank, *Transition: The First Ten Years. Analysis and Lessons for Central and Eastern Europe and Former Soviet Union*, Washington D. C.: The World Bank, 2002.

<sup>178</sup> World Bank, 1996, EBRD, 2000.

January 1990<sup>179</sup>. Hence, at the very start of transition Poland was the forerunner in terms of speed and depth of reforms, which rewarded Leszek Balcerowicz, the master-mind of the reforms, with world-wide glory among neoliberal economists. The reforms substantially slowed down after the change in Polish government in August 1991. It was originally planned that liberalization should be followed by comprehensive stabilization program and fast privatization of enterprises through voucher scheme. However, subsequent governments were not as decisive in stabilizing the economy. Furthermore, privatization was delayed: majority of large and medium sized enterprises were privatized through a lengthy process of direct sales to outside investors. Hence, while initially the Polish reforms represented paradigmatic case of shock therapy, subsequent stages of reform were gradualist in their speed and character.

In comparison with other Visegrád countries Czechoslovakia implemented its reforms rather late – liberalization and privatization strategy was launched only in 1991<sup>180</sup>. Unreformed state of the inherited socialist economy, rather late start of the reforms and considerable stability of governments (despite partition of the country) implied that Czechoslovakia until 1993 and the Czech Republic afterwards pursued consistent strategies associated with fast liberalization, stabilization and voucher-based privatization schemes. Hence, after the reforms in Poland lost momentum, the Czech Republic emerged as the most radical reformer<sup>181</sup>. The reforms of the Slovak Republic, however, took a different turn after 1993. The government of Vladimír Mečiar was reluctant to carry out a comprehensive program of liberalization and stabilization, while privatization moved at slow speeds with numerous reversals and setbacks<sup>182</sup>. Hence, despite fast liberalization, which occurred between 1991 and 1993, the economic transition of Slovakia overall adheres to the principles of protracted (populist?) gradualism.

The reforms in the Baltic States did not follow a uniform pattern: the sequencing of different elements differed substantially. Furthermore, reforms in

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<sup>179</sup> EBRD, 2000.

<sup>180</sup> For a more extensive discussion of early reform strategy see: Bijan B. Aghevli, Eduardo Borensztein, Tessa van der Willigen, “Stabilization and Structural Reform in Czechoslovakia - An Assessment of the First Stage”, *IMF staff working paper* No. WP/92/2-EA, 1992.

<sup>181</sup> World Bank, 1996, EBRD, 2000.

<sup>182</sup> For a detailed account of political and economic policies pursued in Slovakia between 1994 and 1997 see: Michael Carpenter, “Slovakia and the Triumph of Nationalist Populism”, *Communist and Post-Communist Studies*, Vol. 30 (2), 1997, pp. 205 – 220.



Estonia were the most comprehensive and ambitious, while Lithuania and Latvia experienced several set-backs along the transition from planned to market economy. Nevertheless, there are several important similarities. In comparison to other above discussed countries the starting conditions were the least favorable in the Baltics: they inherited a very centralized economy, state and nation-building issues dominated the political agenda of early transition, the output virtually collapsed, long term trading relationships with the other parts of the USSR broke down due to economic sanctions (such as economic blockage of Lithuania in 1990 and 1991) and subsequent dissolution of USSR. However, despite unfavorable initial conditions and late start of reforms, by 1994 the Baltic States have achieved the levels of liberalization, privatization and stabilization, which were comparable to those in other successful reformers in CEE. This indicates extreme speed and depth of reforms aimed at creating market economies<sup>183</sup>.

The transition indicators developed by the World Bank<sup>184</sup> and European Bank for Reconstruction and Development (EBRD)<sup>185</sup> provide a quantitative summary of the speed and depth of reforms in the region<sup>186</sup>. The indicators are based on the evaluation of EBRD economists regarding progress towards establishing market economies: 1 indicates little progress and score 4+ indicates that a country has reached the standards found in developed industrial market economies. In order to illustrate the above discussion on the initial conditions and results achieved during early transition I present the transition scores on several key indicators for 1989 and 1994 (see Table 17).

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<sup>183</sup> Bohle, Greskovits, 2007.

<sup>184</sup> For methodological notes see: Martha de Melo, Cevdet Denizer, and Alan Gelb, "Patterns of Transition from Plan To Market", World Bank Economic Review, Vol. 10 (3), 1996, pp. 397 – 424.

<sup>185</sup> For a full list of indicators see: <http://www.ebrd.com/country/sector/econo/stats/index.htm>.

<sup>186</sup> These indicators reflect subjective judgments made by EBRD economists and have been criticized on a number of occasions. For criticisms see: Andzej Rzońca, and Piotr Cizkowicz, "A Comment on the Relationship between Policies and Growth in Transition Countries", *Economics of Transition*, Vol. 11 (4), 2003, pp. 743-748. Elisabetta Falcetti, Tatiana Lysenko, Peter Sanfey "Reforms and growth in transition: re-examining the evidence", *Journal of Comparative Economics*, Vol. 34 (3), 2006, pp. 421-445.

**Table 17. Selected transition indicators.**

Country	Year	Large Scale privatization	Small scale privatization	Banking reform & interest rate liberalization	Price liberalization	Trade and Forex system
Czech Republic	1989	1	1	1	1	1
	1994	4	4	3	4	4
Estonia	1989	1	1	1	1	1
	1994	3	4	3	4,33	4
Hungary	1989	1	1	1	2,67	2
	1994	3	3,67	3	4,33	4,33
Latvia	1989	1	1	1	1	1
	1994	2	4	3	4,33	4
Lithuania	1989	1	1	1	1	1
	1994	3	4	2	4	4
Poland	1989	1	2	1	2,33	1
	1994	3	4	3	4	4
Slovakia	1989	1	1	1	1	1
	1994	3	4	2,67	4	4
Slovenia	1989	1	3	1	2,67	2
	1994	2	4	3	3,67	4

Source: EBRD database of transition indicators: <http://www.ebrd.com/country/sector/econo/stats/index.htm> [2009-10-22].

Table 18 summarizes the above discussion by estimating the extent to which countries are in the set of “incremental economic reforms”. Due to consistent implementation of incremental reforms Slovenia is fully in the set. Hungary and Slovakia are more in the set than out due to the protracted nature of reforms in the latter and gradual reforms “with the spice of neoliberalism” in the former. A mix of early big-bang and subsequent gradualism in Poland implies that this country is at the crossover point. Lastly, the radical reforms in the Czech Republic and even larger “big bang” in the Baltic States led to conclusion that these countries are, accordingly, more out than in and completely out of the set of “incremental economic reforms”.

**Table 18. The extent to which the strategies of economic transition were gradual.**

Cases	Membership in the set “incremental economic reforms”.
Czech Republic	0,25
Estonia	0
Hungary	0,75
Latvia	0
Lithuania	0
Poland	0,5
Slovak Republic	0,75
Slovenia	1

Source: own compilation.

#### 4.3.8. Measuring proportionality of electoral systems

One of the approaches in estimating the proportionality of electoral systems involves analysis of institutions: whether a country has PR or SMD or some mix of electoral rules. However, this approach has two weaknesses. First, almost all countries (with the exception of Hungary and Lithuania) in the sample have PR systems; hence analysis of formal institutions could mask delicate cross-country differences. Second, previous research indicates that the electoral institutions in CEE sometimes fail to produce outcomes in line with the Duverger law. For instance in Lithuania SMD tends to produce higher number of parties than the PR tier<sup>187</sup>.

Therefore this paper focuses on the actual (dis)proportionality of elections. The Gallagher (least squares) index measures disproportionality of the outcomes of elections by estimating the difference between percentage of received votes and allocated parliamentary seats<sup>188</sup>. The higher the value of the index, the higher is the disproportionality. I use the averages of the least squares indices for the CEE countries, which were calculated by Gallagher<sup>189</sup>. The very first parliamentary elections were excluded, because they produced extremely high disproportionality across all CEE countries<sup>190</sup>. Furthermore, in case of the mixed systems (Hungary and Lithuania) I calculated the averages of overall disproportionality rather than separate ones for PR and SMD tier.

The results for the CEE countries are provided in Table 19. Overall they are rather consistent with international benchmarks. For instance the average index for Sweden (1991 – 2006), which is generally considered as the prime example of proportional representation equals 1,9, while the average index for the UK (a prime example of disproportional representation) it was equal to 16,1. Among the CEE countries, the electoral results in Slovenia are the most proportional and therefore it is considered as fully in the set of “proportional electoral systems”. The

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<sup>187</sup> See: Robert Moser, "Electoral Systems and the Number of Parties in Postcommunist States". *World Politics*, Vol 51 (2), 1999, pp. 359-384. Terry Clark, Žilvinas Martinaitis, "Electoral and Electoral System Effects in Lithuania", Paper prepared for the EPOP annual conference, Manchester, 12th - 14th September, 2008.

<sup>188</sup> For a more extensive discussion on the index see: Michael Gallagher, "Proportionality, disproportionality and electoral systems", *Electoral Studies*, Vol. 10 (1), 1991, pp. 33–51.

<sup>189</sup> See: [http://www.tcd.ie/Political\\_Science/staff/michael\\_gallagher/ElSystems/](http://www.tcd.ie/Political_Science/staff/michael_gallagher/ElSystems/) [2009-12-04]

<sup>190</sup> The literature argues that this is due to the learning effects: during first elections neither the parties and nor the voters took into account the mechanical effects of different electoral system. For a more extensive discussion on the subject see: Moser, 1999.

electoral results in the Czech Republic, Estonia, Latvia and Slovakia are less proportional and therefore these countries are more in than out. Poland demonstrates an interesting case: it has a PR system, but the results are substantially less proportional than in the other PR countries. Lastly, Hungary and Lithuania – the only two countries with a mixed electoral system – are more out than in the set of “proportional electoral system”.

**Table 19. Proportionality of electoral systems.**

Cases	Average of Gallagher index: disproportionality of electoral results (reference years) <sup>a</sup>	Membership in the set “proportional electoral systems”.
Czech Republic	6,25	0,75
Estonia	5,21	0,75
Hungary	10,12	0,25
Latvia	5,2	0,75
Lithuania	10,27	0,25
Poland	9,28	0,5
Slovak Republic	6,5	0,75
Slovenia	3,8	1

Source: own calculations using indices provided in: [http://www.tcd.ie/Political\\_Science/staff/michael\\_gallagher/EISystems/](http://www.tcd.ie/Political_Science/staff/michael_gallagher/EISystems/) [2009-12-04]

#### 4.3.9. Measuring government stability

The most straightforward approach to the assessment of government stability is to measure average number of months a government has been in office. Since the overall objective is to assess the impact of government tenure on sustaining the reforms and institutions, the averages are calculated since full establishment of countries’ independence or dissolution of the Soviet Union (whichever is later). This eliminates the statistical impact of early unstable governments, which acted under the circumstances of extraordinary politics. Furthermore, a change of government due to parliamentary elections is also considered as a change (even though, the same Prime Minister could lead the government).

All countries under consideration are parliamentary or semi-presidential Republics. Since the parliamentary elections in all countries take place every 4 years, the theoretical highest government tenure equals 48 months. The results in Table 20 show, however, that overall the governments in the CEE are rather short-lived. Taking this into account I propose that countries with an average tenure of more than 30 months should be considered as completely in the set, while

countries with average tenure shorter than 12 months should be considered as completely out of the set of “high government stability”. In line with this rule of calibration, Table 20 provides fuzzy membership scores for the CEE countries.

**Table 20. Measuring the stability of governments.**

Cases	Average government tenure in months (reference years)	Membership in the set “high government stability”.
Czech Republic	25,8 (1993 – 2009)	0,75
Estonia	19,7 (1992 – 2005)	0,25
Hungary	34,6 (1994 – 2009)	1
Latvia	14,5 (1993 – 2009)	0,25
Lithuania	18,3 (1992 – 2008)	0,25
Poland	21,1 (1993 – 2007)	0,5
Slovak Republic	33,2 (1993 – 2006)	1
Slovenia	32,3 (1992 – 2008)	1

Source: own calculations according to various national sources.

#### 4.4. Quantitative methods

Robust regression will be used for quantitative test of the first four hypotheses. The choice of robust regression is motivated by a small number of observations: n equals 27 EU Member States. Such small sample is inadequate for a reliable use of ordinary least squares (OLS) regression models. The main problem with small n-size is that a single discrepant case can substantially distort the results of regression, since there is a small number of observations to counter the discrepant case. Therefore, robust regression models were initially developed to counter potential distortions caused by the outliers in the data<sup>191</sup>. These same properties led to increased popularity of robust methods in testing the hypotheses with small n-size<sup>192</sup>. The robust regression is performed using STATA statistical package.

The subsections below discuss operationalisation of dependent and independent variables for the purposes of robust regression analysis.

<sup>191</sup> Robert Andersen, *Modern Methods for Robust Regression*, Thousand Oaks, New Delhi, London, Singapore: Sage Publications, 2008.

<sup>192</sup> James E. Mays, Jeffrey B. Birch, Richard L. Einsporn, “An Overview of Model-Robust Regression”, *Journal of statistical computation and simulation*, Vol. 66 (1), 2000, pp. 79 – 100.

## Dependent variables

The operationalisation of dependent and independent variables for the purposes of quantitative testing is very similar to the above discussed fuzzy variables. The properties of skills formation systems in the EU-27 are measured by two indices. The index measuring specific SFS is based on the same indicators as a corresponding fuzzy-set variable: a) students at ISCED level 3-VOC - as percentage of all students at ISCED level 3 (data refers to 2007)<sup>193</sup>; b) qualitative assessment of the extensiveness of the system of apprenticeships, based on 2009 CEDEFOP data<sup>194</sup>; c) percentage of employees (all enterprises) participating in CVT courses (data refers to 2005). For the purposes of aggregating this data into a single index, the data was normalized. The specific SFS index is an arithmetic average of the three indicators for each of the EU Member State (see Table 21).

The test of internal consistency, showed that the three indicators comprising the specific SFS index are moderately consistent: Cronbach's alpha equals 0,604. This result is in fact surprisingly high, since the different indicators were purposely chosen so that they reflected *different* dimensions of specific SFS. Hence, the results of consistency test show that the index is of high quality.

**Table 21. The components of index measuring specificity of skills.**

Cases	Vocational training		Qualitative assessment of the system of apprenticeships **	Continuous vocational education and training		Specific SFS index
	% of students at ISCED 3 VOC*	Normalized values		% of employees in CVT***	Normalized values	
EU-27	51,5	0,60	N/A	33	0,42	0,5
BE	69,6	0,88	N/A	40	0,58	0,7
BG	53,4	0,63	N/A	15	0,02	0,3
CZ	75,3	0,97	0	59	1,00	0,7
DK	47,7	0,54	1	35	0,47	0,7
DE	57,4	0,69	1	30	0,36	0,7
EE	31,3	0,28	0	24	0,22	0,2
IE	33,5	0,32	0,5	49	0,78	0,5
EL	31,7	0,29	0,25	14	0,00	0,2
ES	43,4	0,47	0,5	33	0,42	0,5

<sup>193</sup> ISCED level 3B provides access only to vocationally oriented tertiary education. ISCED level 3C does not provide access to tertiary education. For description of classifications see: UNESCO, 2006.

<sup>194</sup> European Centre for the Development of Vocational Training, Thematic Country Reviews: Apprenticeship Training, CEDEFOP, 2008.  
<[http://www.cedefop.europa.eu/etv/Information\\_resources/NationalVet/Thematic/criteria\\_reply.asp](http://www.cedefop.europa.eu/etv/Information_resources/NationalVet/Thematic/criteria_reply.asp)>, [2009-10-05]. Also see: Saar, Unt, Kogan, 2008.

FR	43,8	0,48	0,5	46	0,71	0,6
IT	59,8	0,73	0,5	29	0,33	0,5
CY	13,0	0,00	0,5	30	0,36	0,3
LV	34,4	0,33	0	15	0,02	0,1
LT	26,4	0,21	0	15	0,02	0,1
LU	62,3	0,77	N/A	49	0,78	0,8
HU	23,6	0,16	0,5	16	0,04	0,2
MT	48,5	0,55	N/A	32	0,40	0,5
NL	67,6	0,85	0,75	34	0,44	0,7
AT	77,3	1,00	1	33	0,42	0,8
PL	44,3	0,49	0,5	21	0,16	0,4
PT	31,6	0,29	0,25	28	0,31	0,3
RO	64,9	0,81	N/A	17	0,07	0,4
SL	64,9	0,81	1	50	0,80	0,9
SK	73,2	0,94	0	38	0,53	0,5
FI	66,7	0,84	0,5	39	0,56	0,6
SE	57,1	0,69	0,25	46	0,71	0,5
UK	41,4	0,44	0,25	33	0,42	0,4

Notes: \* Data refers to 2007; Source: Eurostat, 2009. \*\*Data refers to 2008; Source: Own assessment based on data provided by CEDEFOP. \*\*\* Data refers to 2005; Source: Eurostat, 2009.

The general SFS index is comprised of four indicators: a) students at ISCED 5A level as percentage of youth aged between 18 and 26; b) students (ISCED 5A) enrolled in social science, bussiness and law fields as % of all ISCED 5A students; c) percentage of people aged 25-34 with tertiary education (ISCED 5-6) in the fields of social sciences, business and law, who do not work in professions captured by the ISCO major groups 1, 2 and 3; d) percentage of adults engaged in non-formal education and training, that studied social science, business and law. The same indicators were used for construction of the general SFS fuzzy set variables (see section 4.3.1.). For the purposes of quantitative analysis the data was normalised and the general SFS index represents the arithmetic average of its components (see Table 22).

The Cronbach's alpha for the four indicators comprising general SFS index equals 0,058. This indicates that the four components are rather inconsistent, i.e. measure different dimensions of the general SFS. On the one hand, one might argue that the index is of poor quality and therefore the indicators should be altered. On the other hand, however, there is no theoretical justification for doing this (for a more extensive discussion on the choice of indicators see section 4.3.1.). Furthermore, the skills formation system has a number of dimensions and the indicators were purposefully chosen to reflect this. Hence, while the composition of

the index is subject to further discussion, the index is a sufficiently good measure of general SFS.

**Table 22. The components of index measuring general skills.**

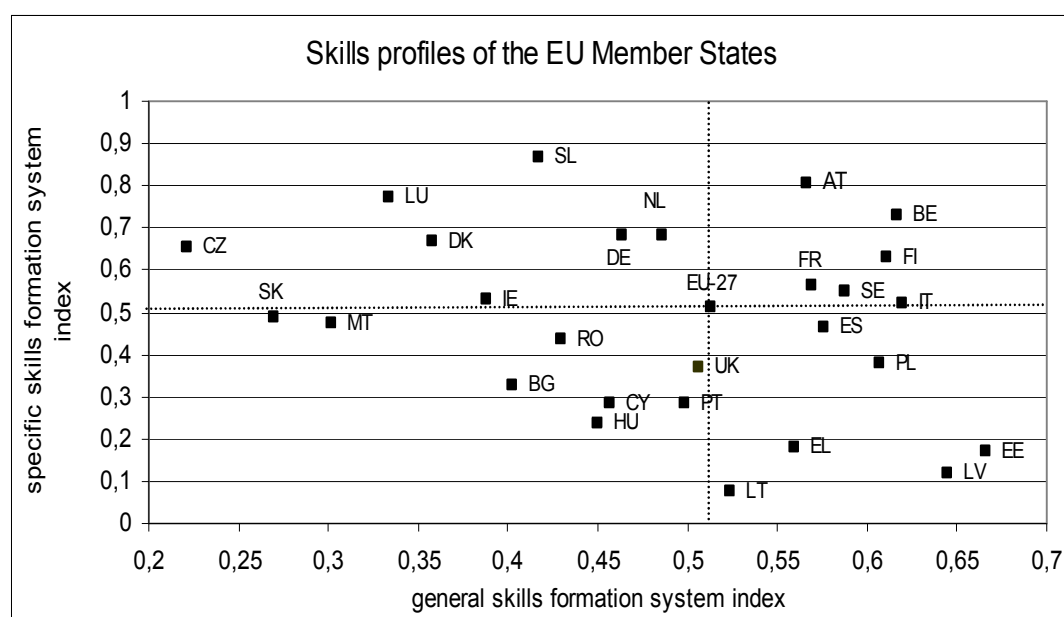
Cases	Academic education		Students in social science, business and law fields		Graduates of social sciences, business and law, who do not work in professions captured by the ISCO major groups 1, 2 and 3.		adults in non-formal education and training that studied social science, business and law		General SFS index
	Students at ISCED 5A level as % of youth aged between 18 and 26*	Normalized values	As % of all ISCED 5A students **	Normalized values	As % of persons aged 25-35 with tertiary education (ISCED 5-6) in these fields***	Normalized values	As % of all adults in nonformal education and training ****	Normalized values	
EU-27	24,1	0,53	32,35	0,30	28,9	0,61	22,6	0,62	0,51
BE	15,3	0,31	37,10	0,45	38	0,84	27,6	0,87	0,62
BG	21,3	0,46	41,44	0,59	27,2	0,57	10,4	0,00	0,40
CZ	16,0	0,33	25,59	0,08	9,1	0,11	17,7	0,37	0,22
DK	27,3	0,61	27,86	0,15	17,1	0,31			0,36
DE	21,8	0,47	29,14	0,19	21,7	0,43	25,5	0,76	0,46
EE	24,0	0,53	38,93	0,51	25,9	0,53	32,2	1,10	0,67
IE	18,6	0,39	23,75	0,02	34,4	0,75			0,39
EL	23,4	0,51	35,21	0,39	27,9	0,58	25,4	0,76	0,56
ES	27,6	0,62	36,37	0,42	44,4	1,00	15,6	0,26	0,58
FR	20,8	0,45	35,97	0,41	35,2	0,77	23,3	0,65	0,57
IT	29,3	0,66	39,40	0,52	29,4	0,62	23,8	0,68	0,62
CY	3,4	0,01	28,35	0,17	39	0,86	25,8	0,78	0,46
LV	30,6	0,69	50,51	0,87	15	0,26	25,4	0,76	0,64
LT	23,4	0,51	33,53	0,33	25,6	0,53	24,7	0,72	0,52
LU	2,8	0,00	54,51	1,00	4,8	0,00			0,33
HU	25,0	0,55	39,12	0,51	14,4	0,24	20,2	0,49	0,45
MT	12,2	0,23	37,55	0,46	13,1	0,21			0,30
NL	28,7	0,64	39,99	0,54	15,7	0,28			0,49
AT	22,5	0,49	45,45	0,71	18,1	0,34	24,8	0,73	0,57
PL	30,6	0,69	42,09	0,61	24,4	0,49	23	0,64	0,61
PT	25,4	0,56	29,87	0,22	23,9	0,48	24,9	0,73	0,50
RO	16,8	0,35	46,64	0,75	12,4	0,19			0,43
SL	19,3	0,41	39,46	0,52	11,5	0,17	21,6	0,57	0,42
SK	16,8	0,35	28,10	0,16	15	0,26	16,6	0,31	0,27
FI	43,1	1,00	23,01	0,00	31,3	0,67	25,7	0,77	0,61
SE	35,9	0,82	26,80	0,12	21	0,41	30,2	1,00	0,59
UK	22,1	0,48	30,04	0,22	26	0,54	26	0,79	0,51

Notes: \* Data refers to 1999-2007 averages; Source: Eurostat, 2009. \*\* Data refers to 1998-2007 averages, Source: Eurostat, 2009. \*\*\* data refers to 2003-2007 averages; Source: Eurostat, *The Bologna Process in Higher Education in Europe. Key Indicators on the social dimension and mobility*, Luxembourg: Office for Official Publications of the European Communities, 2009, p. 229. \*\*\*\* data refers to 2007; Source: Eurostat, 2009.



Section 4.3.1. argued that theoretically skills formation system should not be a dichotomous variable, i.e. it is not correct to assume that presence of specific skills implies absence of general skills. In fact it was argued that countries could have a mix of different types of skills. Figure 11 supports this theoretical argument empirically. Overall there is a negative relationship ( $r^2 = -0,281$ ) between presence of specific and general SFSs. Cases in the south-east side of Figure 11 exhibit abundance of general and lack of specific skills, while countries on the north-west of the figure exhibit the reverse combination of skills. However, there is also a number of cases in the north-east corner. These countries exhibit abundance of both: specific and general skills.

**Figure 11. Skills profiles of the EU Member States**



Source: own compilation based on the data provided in Table 21 and Table 22.

### Independent variables

In order to test the first four hypotheses, we should assess the impact of the level of unemployment benefits, employment stability, coordination of wage bargaining and strength of employers associations. The generosity of unemployment benefits is measured as the percentage of GDP spent on unemployment benefits. This is a far from perfect indicator, since it does not account to different accessibility issues, minimum wage and tax levels, duration of payments and other issues, which

were discussed when constructing the respective fuzzy-set variable. However, due to the lack of the comparative statistics, the said aspects of generosity of benefits are not included. In order to avoid biases resulting from short term fluctuations, the percentage of GDP spent on unemployment benefits is calculated as an average for 2000-2007. For the purposes of quantitative analysis, the averages were normalised.

The employment stability is measured by the inverse job mobility index, which was developed by Andersen et. al<sup>195</sup>. and discussed in more detail in subsection 4.3.3. Coordination of wage bargaining and strength of employers associations are measured by indices provided in the “Database on institutional characteristics of trade unions, wage setting, state intervention and social pacts”, which is maintained by Amsterdam institute for advanced labor studies<sup>196</sup>. The scales were readjusted so that the highest (logically possible) score equals 1 and the lowest score equals 0. The data on all independent variables is provided in Table 23.

**Table 23. The values of independent variables.**

Cases	Generosity of unemployment benefits		Employment stability: inverse job mobility index**	Strenght of industry level employers associations (2007).***	Coordination of wage bargaining (2007).****
	% of GDP spent on unemployment benefits (2000-2007 averages)*	Normalized values			
EU-27	1,43	0,41			
BE	3,26	1,00	0,74	1	0,75
BG	0,30	0,05		0	0,25
CZ	0,68	0,15	0,72	0	0,25
DK	2,56	0,89	0,17	1	0,5
DE	2,04	0,63	0,7	1	0,75
EE	0,16	0,00	0,35	0	0
IE	1,30	0,45	0,38	0	1
EL	1,30	0,34	0,61	0,5	0,75
ES	2,44	0,76	0,4	0,5	0,75
FR	2,09	0,64	0,37	0,5	0,25
IT	0,46	0,11	0,68	1	0,75
CY	0,99	0,27	0,57	0	0,25
LV	0,44	0,10	0,29	0	0
LT	0,24	0,02	0,35	0	0
LU	0,88	0,21	0,7	0,5	0,25

<sup>195</sup> Andersen et. al. 2008.

<sup>196</sup> Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 34 countries between 1960 and 2007; <<http://www.uva-aias.net/208>>.

HU	0,66	0,17	0,57	0,5	0,25
MT	0,60	0,13	0,5	0	0
NL	1,41	0,48	0,41	1	0,75
AT	1,53	0,45	0,61	1	0,75
PL	0,73	0,18	0,74	0,5	0
PT	1,09	0,28	0,67	0,5	0,5
RO	0,53	0,12		0,5	0,5
SL	0,75	0,23	0,71	1	0,75
SK	0,75	0,21	0,88	0,5	0,75
FI	2,36	0,84	0,31	1	0,5
SE	1,75	0,65	0,14	1	0,5
UK	0,70	0,20	0,14	0	0

Notes: \* Source: Eurostat, 2010. \*\*Source: Andersen et. al., 2008. \*\*\* 1= sectoral organisations of employers and unions, or joint bodies for negotiation, dispute settlement, training and/or recruitment exist throughout the (market or private) economy; 0,5 = sectoral organisations of employers and unions, or joint bodies for negotiation, dispute settlement, training and/or recruitment (micro-management) exist in some sectors only, or are limited to the public sector; 0 = none of above. Source: Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 34 countries between 1960 and 2007; <<http://www.uva-aias.net/208>>. \*\*\*\* 1 = economy-wide bargaining, based on a) enforceable agreements between the central organizations of unions and employers affecting the entire economy or entire private sector, or on b) government imposition of a wage schedule, freeze, or ceiling. 0,75 = mixed industry and economy-wide bargaining: a) central organisations negotiate non-enforceable central agreements (guidelines) and/or b) key unions and employers associations set pattern for the entire economy; 0,5 = industry bargaining with no or irregular pattern setting, limited involvement of central organizations and limited freedoms for company bargaining; 0,25 = mixed industry- and firm level bargaining, with weak enforceability of industry agreements; 0 = none of the above, fragmented bargaining, mostly at company level.

## 5. Empirical tests of the hypotheses

This part tests the hypotheses developed in part 3. The tests use methods and indicators discussed in part 4. The results of the tests are discussed as follows: chapter 5.1 provides the results of robust regressions, which were used to test the first four hypotheses for all EU Member States. Chapter 5.2. discusses results of qualitative comparisons (fuzzy sets), which were used to assess all of the hypotheses for the eight CEE countries. Lastly, chapter 5.3. summarises the results of the tests and provides a theoretical interpretation of the findings and their implications for further development of the VoC approach. In the light of the theoretical findings and results of the empirical tests of the hypotheses, chapter 5.3. also provides a coherent narrative of the different SFS in the CEE countries.

### 5.1. Robust regression results

#### 5.1.1. Explaining acquisition of specific skills

The first hypothesis argued that high employment stability and high unemployment benefits create incentives for individuals to acquire specific skills. The results of robust regression are provided in Table 24. It indicates that generosity of unemployment benefits and employment stability are statistically significant and explain 34 percent of the variation in the levels of participation in vocational education, which is a proxy for measuring the extent to which the labor force seeks to acquire specific skills. Furthermore, both independent variables are also statistically significant and have moderately high coefficients.

**Table 24. Testing the first hypothesis: results of robust regression.**

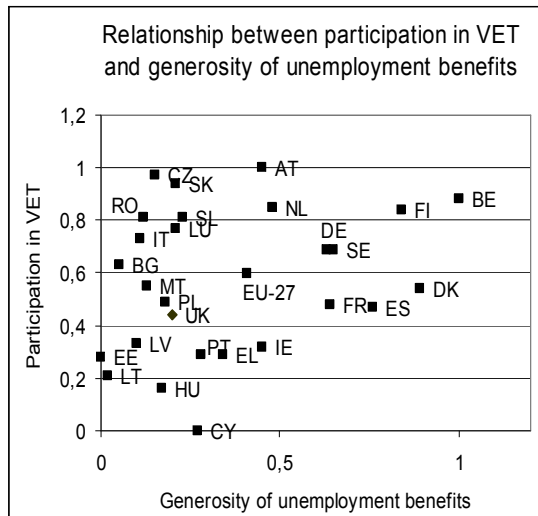
Linear regression: robust standard errors.				Number of observations = 25	
				F ( 2, 22) = 8.88	
				Prob. > F = 0.0015	
				R-squared = 0.3397	
				Root MSE = 0.19366	
VOC	Coefficient	Robust standard error	t.	P> t	Beta
GUB	0.4406595	0.1123491	3.92	0.001	0.5415213
EMPL_STAB	0.4183453	0.1663938	2.51	0.020	0.386815
_cons	0.1146288	0.1054153	1.09	0.289	.

Notes: VOC=percentage of students at ISCED 3 VOC (normalised values); GUB=Generous unemployment benefits, measured as percentage of GDP spent on unemployment benefits (normalised values); EMPL\_STAB=employment stability, measured as an inverse job mobility index.

A closer look at the data provides a more in-depth understanding of these findings. Figure 12 outlines the relationship between the generosity of unemployment benefits and participation in VET. One should note that all new EU Member States (MS) exhibit relatively low unemployment benefits in comparison to the old MSs. This could imply that the levels of unemployment benefits might not be very comparable between old and new MSs. Such intuition is supported by the following findings: a) the new MSs, that have the most generous unemployment benefits (the Czech and Slovak Republics and Slovenia) also demonstrate the highest levels of acquisition of specific skills; b) conversely, the new MSs, that are characterized by extremely low unemployment benefits (Estonia and Lithuania) also exhibit very low levels of acquisition of specific skills. Hence, it seems that the relationship in question is very strong within each group of cases (old and new MSs). However, due to limited inter-group comparability of the levels of unemployment benefits, the strength of the relationship for all of the EU MSs declines.

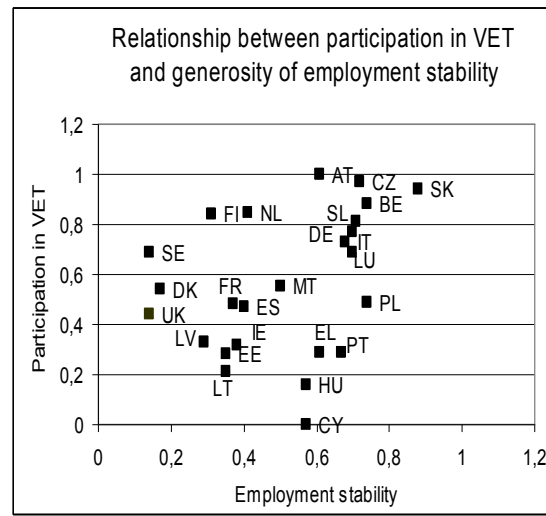
As expected, Figure 13 shows that there is a strong relationship between employment stability and acquisition of specific skills. It is interesting to note that the position of Sweden, Finland and the Netherlands seems to contradict the hypothesis: these cases exhibit very high levels of acquisition of specific skill, but only moderate employment stability. However, one should remember that theoretically, high unemployment benefits could compensate for the lack of employment stability in creating incentives to acquire specific skills (for a more extensive discussion see chapter 3.1). The said cases seem to illustrate and support this logic: Sweden and Finland have moderate employment stability, but very generous unemployment benefits, while the Netherlands exhibit somewhat more stringent unemployment benefits, but higher employment stability (compare data in Figure 12 and Figure 13).

**Figure 12. Relationship between acquisition of specific skills and generosity of unemployment benefits.**



Source: own compilation.

**Figure 13. Relationship between acquisition of specific skills and employment stability.**



Source: own compilation.

To conclude, the first hypothesis is confirmed. Employment stability and unemployment benefits explain a substantial proportion of variation in incentives for individuals to acquire specific skills.

### 5.1.2. Explaining acquisition of general skills

The second hypothesis argued that low employment stability and low unemployment benefits foster acquisition of general skills. Since general SFS index seeks to capture different aspects of acquired general skills, it was used as the dependent variable in robust regression analysis. The results are provided in Table 25. They indicate that there is no statistically significant relationship between the dependent and independent variables. Furthermore, the coefficients are very low and one of them (generosity of unemployment benefits) is pointing towards the opposite direction than expected. All of this leads to a conclusion that the second hypothesis does not hold for all EU Member States. Qualitative analysis is needed in order to gain a more in-depth understanding, why the hypothesized relationship did not pass the quantitative test.

**Table 25. Testing the second hypothesis: results of robust regression.**

Linear regression: robust standard errors				Number of observations = 25	
				F ( 2, 22) = 0.98	
				Prob. > F = 0.3895	
				R-squared = 0.1068	
				Root MSE = 0.12301	
GEN_SKILLS	Coefficient	Robust standard error	t.	P> t	Beta
GUB	0.0526346	0.1041384	0.51	0.618	0.1184369
EMPL_STAB	-0.1635088	0.1276084	-1.28	0.213	-0.2768299
_cons	0.5557793	0.0809291	6.87	0.000	.

Notes: GEN\_SKILLS = General skills formation system index. GUB=Generous unemployment benefits, measured as percentage of GDP spent on unemployment benefits (normalized values); EMPL\_STAB=employment stability, measured as an inverse job mobility index.

### 5.1.3. Explaining the levels of continuous VET

The third hypothesis argued that coordinated wage bargaining is necessary for high levels of continuous training. The results of the test (see Table 26) are indecisive. On the one hand, statistical significance of the model and its independent variable is above 0.05 (Prob. >F=0.0602). Furthermore, the coefficient of the independent variable is rather small. On the other hand, one might argue that the test of statistical significance “missed” the consensual levels of 0.05 by a very small margin, which could be explained by a relatively small sample.

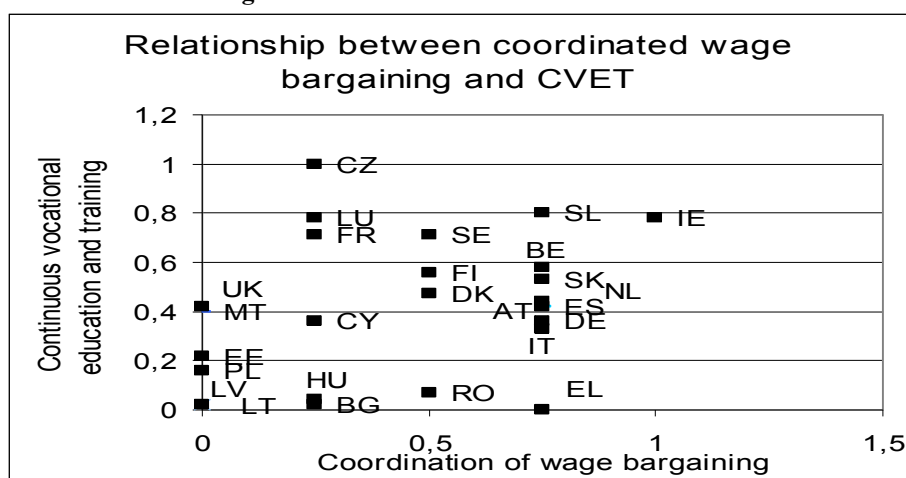
**Table 26. Relationships between coordinated wage bargaining and continuous vocational education and training.**

Linear regression: robust standard errors				Number of observations = 27	
				F( 1, 25) = 3.88	
				Prob. > F = 0.0602	
				R-squared = 0.0999	
				Root MSE = 0.26974	
CVET	Coefficient	Robust standard error	t.	P> t	Beta
COORD	0.2800719	0.1422622	1.97	0.060	0.3160898
_cons	0.2829317	0.0877616	3.22	0.004	.

Notes: CVET=continuous vocational education and training, measured as percentage of employees that have participated in CVT (normalised values). COORD=Coordination of wage bargaining index.

A closer inspection of the data (see Figure 14) reveals that the relationship between the two variables is very weak at best. For instance, Greece and Italy demonstrate considerable levels of coordination in wage bargaining, but also very low levels of CVET. On the other hand, the Czech Republic exhibit moderate coordination of wage bargaining, but also very high levels of CVET. It seems that quantitative analysis is necessary in order to gain a better understanding of the hypothesized relationship between the two variables.

**Figure 14. Relationship between coordinated wage bargaining and continuous vocational education and training.**



Source: own compilation.

#### 5.1.4. Explaining the functioning of apprenticeships

The fourth hypothesis argued that strong employers associations are necessary for effective functioning of apprenticeships. The results of the robust regression (see Table 27) reveal that the relationship between these two variables is statistically significant and rather strong. The model explains 50 percent of the variation and the coefficient of the independent variable is high. This leads to a conclusion that the fourth hypothesis holds for the EU Member States.



**Table 27. Relationships between strength of employers associations and extensiveness of the system of apprenticeships.**

Linear regression: robust standard errors				Number of observations = 22	
				F( 1, 25) = 17.59	
				Prob > F = 0.0004	
				R-squared = 0.4978	
				Root MSE = 0.25011	
Apprenticeships	Coefficient	Robust standard error	t.	P>> t	Beta
Associations	0.5759878	0.1373223	4.19	0.000	0.7055722
_cons	0.1420973	0.080028	1.78	0.091	.

Notes: Apprenticeships = extensiveness of the system of apprenticeships; Associations = strength of industry level employers associations

## 5.2 Fuzzy set test of the hypotheses

### 5.2.1. Explaining specific skills formation systems

This section focuses on the institutions that support specific skills formation systems: why individuals seek to acquire specific skills? What institutions support the functioning of the system of apprenticeships and what institutions create incentives for employers to invest in their employees' acquisition of skills? Accordingly, the following hypotheses are tested:

*H1: high employment stability and high unemployment benefits create incentives for individuals to acquire specific skills;*

*H3: coordinated wage bargaining is necessary for high levels of continuous training;*

*H4: strong employers associations are necessary for effective functioning of apprenticeships.*

How do we test, whether the institutions are necessary for the functioning of specific skills formation systems? The cause is a necessary condition, if the outcome is the subset of the cause. For instance, all membership scores in the fuzzy subset of high participation in vocational training should be lower or equal to

the membership scores in fuzzy sets associated with the causes. For an extensive discussion on the construction of the sets for each variable see chapter 4.3.

The truth table for discussing the first hypothesis is provided in Table 28. The analysis of the truth table reveals that generous unemployment benefits and high employment stability are necessary although insufficient for creating the incentives for individuals to acquire specific skills. The Czech and Slovak Republics and Slovenia are fully in the set of “high participation in vocational training”, i.e. very high proportion of the (future) labor force in these cases seeks to acquire specific skills. As hypothesized, these countries are also characterized by generous unemployment benefits and high employment stability. Exactly the opposite holds true for Estonia and Lithuania, while Poland is in between these two groups. Accordingly, the outcomes of the test of necessity: all cases that exhibit high levels of acquisition of specific skills also demonstrate employment stability and high unemployment security.

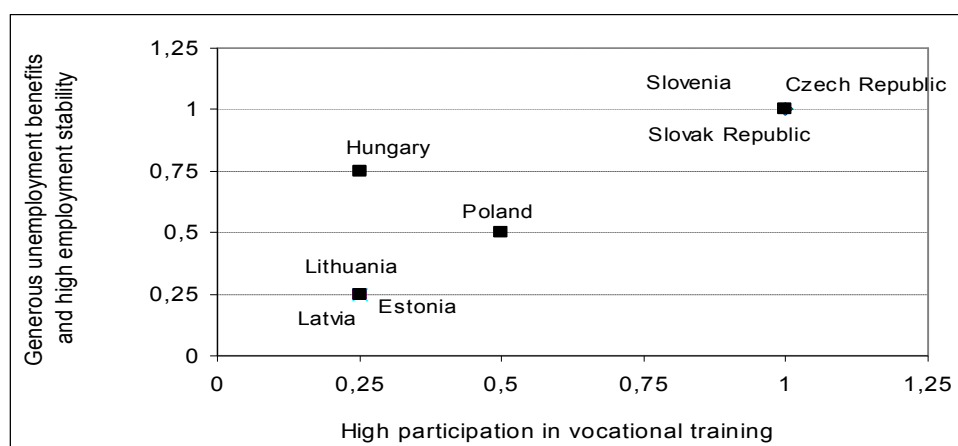
Does this imply that the labor market institutions are also sufficient, i.e. does existence of generous unemployment benefits and high employment stability “automatically” lead to acquisition of specific skills? The answer is no. Consider the case of Hungary (the same logic also applies to Latvia). Hungary is characterized by low levels of participation in vocational training, but relatively high employment stability and generous unemployment benefits. This clearly shows that the presence of the discussed labor market institutions is not sufficient for creating the incentives for the labor force to acquire specific skills.

**Table 28. The truth table for assessing the necessary causes behind the participation in vocational training.**

Cases	Dependent variable: membership in the subset “high participation in vocational training”.	Intervening variable: membership in a set “Generous unemployment benefits”.	Intervening variable: membership in the set “high employment stability”.	Intersection of two sets denoting intervening variables: "generous unemployment benefits" and "high employment stability".
Czech Republic	1	1	1	1
Estonia	0,25	0,25	0,25	0,25
Hungary	0,25	1	0,75	0,75
Latvia	0,25	0,5	0,25	0,25
Lithuania	0,25	0,25	0,25	0,25
Poland	0,5	0,5	1	0,5
Slovak Republic	1	1	1	1
Slovenia	1	1	1	1

So far the analysis revealed that generous unemployment benefits and high employment stability are necessary although insufficient for creating incentives for individuals to acquire specific skills. However, are they jointly necessary, i.e. does their interaction matter? In order to answer this question, I used logical “and”<sup>197</sup> to find the intersection of the sets, characterizing the independent variables. The results (see Figure 15) show that: both labor market institutions collectively provide a better explanation of acquisition of specific skills that taken separately.

**Figure 15. Joint necessity of generous unemployment benefits and high employment stability**



Source: own compilation.

<sup>197</sup> In Boolean algebra logical “and” is used as follows: the minimum membership score of the two sets represents their intersection.

The third hypothesis argued that employers should invest in the continuous vocational education and training (CVET) of their employees, if there exists coordinated wage bargaining. The truth table containing relevant fuzzy membership scores is provided in Table 29 and Figure 16 maps these sets. Technical analysis of the membership scores of the sets revealed that coordinated wage bargaining is sufficient<sup>198</sup>, but not necessary for employers to invest in the CVET of their employees. Hence, while there is a relationship, it does not make sense theoretically.

The comparison of the Czech and Slovak Republics provides a good illustration of this finding. As hypothesized, the Slovak Republic is characterized by moderately high levels of coordinated wage bargaining and employers investment in CVET. However, the Czech Republic demonstrate even higher employers investment in CVET, but very moderate levels of coordination in wage bargaining. This empirically implies that whenever the level of coordination is high, employers' investment in the specific skills of their employees is also very high. However, the reverse does not hold: as the case of the Czech Republic shows, high levels of CVET are possible without considerable coordination in wage bargaining. This directly contradicts the theoretical argument that in the absence of coordinated wage bargaining the employers would never invest in the skills of their employees because of the fears that the other companies would poach the trained labor force. The empirical analysis shows that the employers in Poland, Estonia, the Czech Republic and (most likely Slovenia) have other means of coordination and there are other institutions that secure investments in the employees' skills. To conclude: results of qualitative comparisons and robust regressions (see section 5.1.3) do not support the third hypothesis.

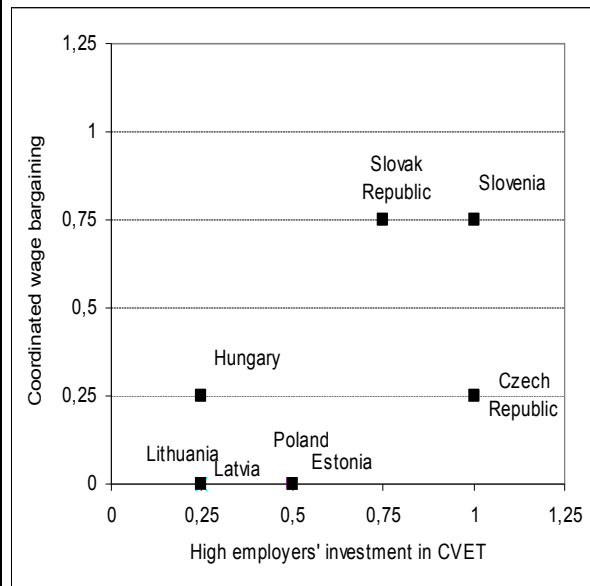
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<sup>198</sup> The cause is the subset of the outcome: the membership scores of all cases in the set "high employers' investment in continuous vocational training" are higher or equal to the membership scores in the set coordinated wage bargaining.

**Table 29. The truth table for assessing the necessary causes behind the participation in vocational training**

Cases	Dependent variable: membership in the subset “high employers’ investment in continuous vocational training”.	Independent variable: membership in the set “coordinated wage bargaining”.
Czech Republic	1	0,25
Estonia	0,5	0
Hungary	0,25	0,25
Latvia	0,25	0
Lithuania	0,25	0
Poland	0,5	0
Slovak Republic	0,75	0,75
Slovenia	1	0,75

**Figure 16. Relationship between coordinated wage bargaining and employers investment in CVET.**



The fourth hypothesis argued that strong employers associations are necessary for a well developed system of apprenticeships. The truth table for testing this hypothesis is provided in Table 30. It shows that strong industry level associations are necessary, but not sufficient for a developed system of apprenticeships. All cases that have at least some elements of apprenticeships also have at least moderately strong employers associations. Hence, as hypothesized, apprenticeships can not function without the employers associations, which could aggregate the information and act as an external enforcer of employers own commitments for cooperation in training the future labor force. However, the reverse does not hold: as the case of the Slovak Republic shows, employers associations do not “guarantee” emergence of the system of apprenticeships.

**Table 30. The truth table for assessing the necessary causes behind existence of a developed system of apprenticeships.**

Cases	Dependent variable: membership in the subset “developed system of apprenticeships”.	Intervening variable: membership in the set “strong industry level employers associations”
Czech Republic	0	0
Estonia	0	0
Hungary	0,5	0,5
Latvia	0	0
Lithuania	0	0
Poland	0,5	0,5
Slovak Republic	0	0,5
Slovenia	1	1

To sum-up the results of the tests: the first and the fourth hypotheses were confirmed, while the third one was rejected. The results of the robust regression are exactly the same, which increases the confidence in the conclusions.

### **5.2.2 Explaining general skills formation systems**

The second hypothesis argued that low unemployment benefits and low employment stability create the incentives for individuals to insure themselves against future labor market turbulences by acquiring transferable general skills. All of the elements of the set “general skills formation system” sought to measure different aspects of the transferability of acquired skills. Hence, this set is used as a measure of the dependent variable. The independent variables are the inverse of the corresponding sets: “generous unemployment benefits” and “high employment stability”.

The analysis of the sets (see the truth table below) indicates that lack of institutions that provide insurance against labor market risks is sufficient cause for high levels of acquisition of specific skills. All cases (the Baltic States in particular) that lack generous unemployment benefits or employment stability are fully in the set of general skills formation system. Conversely, the Czech and Slovak Republics have high unemployment benefits and employment stability and, as hypothesized largely lack the properties of general SFS. Lastly, the cases of Poland, Hungary and Slovenia

indicate that the independent variables are sufficient, but not necessary conditions for individuals to acquire general skills.

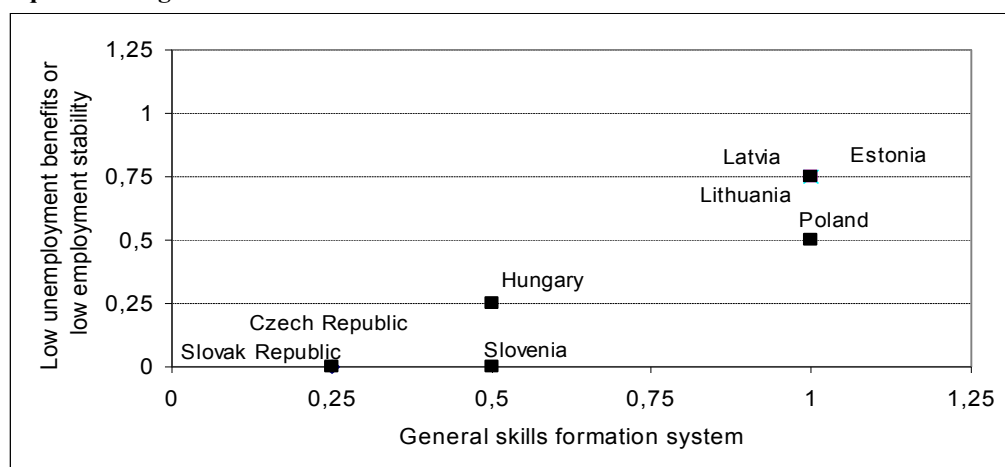
**Table 31. The truth table for assessing the causes for emergence of general SFS.**

Cases	Dependent variable: membership in the set “general skills formation system”.	Independent /intervening variable: membership in a set “Low unemployment benefits”	Independent / intervening variable: membership in the set “low employment stability”.	Intersection of two sets denoting independent / intervening variables: "low unemployment benefits" or "low employment stability".
Czech Republic	<b>0,25</b>	0	0	0
Estonia	<b>1</b>	0,75	0,75	0,75
Hungary	<b>0,5</b>	0	0,25	0,25
Latvia	<b>1</b>	0,5	0,75	0,75
Lithuania	<b>1</b>	0,75	0,75	0,75
Poland	<b>1</b>	0,5	0	0,5
Slovak Republic	<b>0,25</b>	0	0	0
Slovenia	<b>0,5</b>	0	0	0

In order to test for joint sufficiency, I used the logical “or”<sup>199</sup> to find the intersection of the two sets: low unemployment benefits and low employment stability. The results provided in Figure 17 should be interpreted as follows: either low unemployment benefits, or low employment stability are sufficient to motivate individuals to acquire general skills. The case of the Baltic States on the one side of the spectrum, Hungary in the middle and the Czech and Slovak Republics on the other side are the clearest examples of this argument. Furthermore, the position of Slovenia does not contradict the hypothesis in question: it shows that lack of employment or unemployment security is not the only reason, why individuals seek to acquire general skills. In the case of Slovenia other factors, which were not captured by the tested hypothesis must have played a significant role. This could also explain, why the second hypothesis was not confirmed by the robust regression test: quantitative tests tend to perform well when testing for necessity, but are not designed to assess sufficiency.

<sup>199</sup> In Boolean algebra logical “or” is used as follows: the maximum membership score of the two sets represents their intersection.

**Figure 17. Joint sufficiency of low unemployment benefits and employment stability for acquisition of general skills.**



Source: own compilation.

### 5.2.3 Explaining emergence of skills formation systems.

The two previous sections argued that generous unemployment benefits, employment stability and strong employers associations are necessary for the emergence of specific SFS, while absence of the first two labor market institutions is sufficient for emergence of general SFS. This section seeks to assess, why these labor market and economic institutions emerged or failed to emerge in the CEE countries. First, I discuss the role of inherited conditions (centralization of inherited economy) and chosen reform strategies and then proceed to the analysis of the impact of electoral systems and government stability.

#### The role of initial conditions and economic reform strategies

Section 3.3.2 argued that the CEE countries, which started market oriented reforms prior to 1989 should have developed at least some institutions for decentralized coordination among enterprises. This should have subsequently led to establishment of strong employers' associations. Conversely, if countries have not engaged in market oriented reforms prior to the collapse of communism, the institutions for decentralized coordination among enterprises were absent, which in addition to the transition related challenges lead towards emergence of market-based inter-firm coordination. Such logic suggested two hypotheses:



*H5: The more the management of inherited economy was decentralized, the more scope was there for emergence of cooperative institutions, which were necessary for specific skills formation system.*

*H6: Inheritance of highly centralized economies lead to emergence of market based relationships among firms.*

The truth table for testing the above hypotheses is provided in Table 32. Slovenia inherited the most decentralized economy, which was favorable for subsequent evolution of strong employers' associations. On the other side of the spectrum, the Baltic States inherited the most centralized economies, which, as hypothesized, should have contributed to the development of market-based rather than institutional coordination among firms. The cases of Hungary and Poland also support the above hypotheses. However, the Czech and Slovak Republics contradict the theoretical expectations: although the structure of the economies of these two cases was largely identical, the outcomes differ considerably. If the above hypotheses were correct, the Czech Republic, given high centralization of inherited economy, should have developed stronger employers associations or the Slovak Republic should have developed weaker employers' associations. Hence, while the H5 and H6 explain the strength of employers associations in a majority of the CEE cases, these hypotheses fall short in explaining the cases of the Czech and Slovak Republics.

**Table 32. Assessing the importance of the type of inherited economy.**

Cases	Independent variable: membership in the set "inherited decentralized socialist economies".	Intervening variable: membership in the set "strong industry level employers associations".
Czech Republic	0,25	0
Estonia	0	0
Hungary	0,75	0,5
Latvia	0	0
Lithuania	0	0
Poland	0,5	0,5
Slovak Republic	0,25	0,5
Slovenia	1	1

Section 3.3.2 also argued that in addition to the inherited centralization of the economy, chosen reform strategies are also important in explaining the emergence of institutions that support different SFS. Since the focus of the shock therapy reforms was on unleashing market forces, we should expect that this is exactly what emerged: market based relationships among firms and between firms and labor. Furthermore, attempts to simultaneously restructure the economy (which initially led to diminishing tax base and rocketing numbers of unemployed) and keep the fiscal deficits small, implied that the countries under shock therapy did not have the luxury of establishing generous social safety net (including unemployment benefits). Conversely, incremental restructuring of the economy and insider privatization should be favorable to the development of inter-firm cooperation and higher levels of employment stability as well as create room for establishing more generous unemployment benefits. Hence, the two hypotheses were formulated:

*H7: Shock therapy reform strategies lead to emergence of institutions, which support general skills formation system.*

*H8: Incremental reform strategies lead to emergence of institutions, which support specific skills formation system.*

The description of the reform strategies in the CEE countries and the expected outcomes are provided in Table 33. It yields four important insights. First, the countries that inherited a relatively decentralized economy chose incremental reform strategies, while countries that inherited a centralized economy adopted radical reform strategies: the Czech and Slovak Republics are the only exceptions from this trend (compare membership scores in the set “inherited decentralized socialist economies” in Table 32 with membership scores in the set “incremental economic reforms” in Table 33). Second, incremental reforms are necessary for emergence of strong industry level associations, while radical reforms are sufficient to undermine such associations (see Figure 18). As expected, Slovenia, which was a prime example of incremental reforms, also exhibit strong employers’ associations; while the Baltic States – the most radical reformers – lack such associations. Poland, which initially adopted shock therapy, but later on engaged in incremental restructuring, is characterized by employers associations, which are considerably

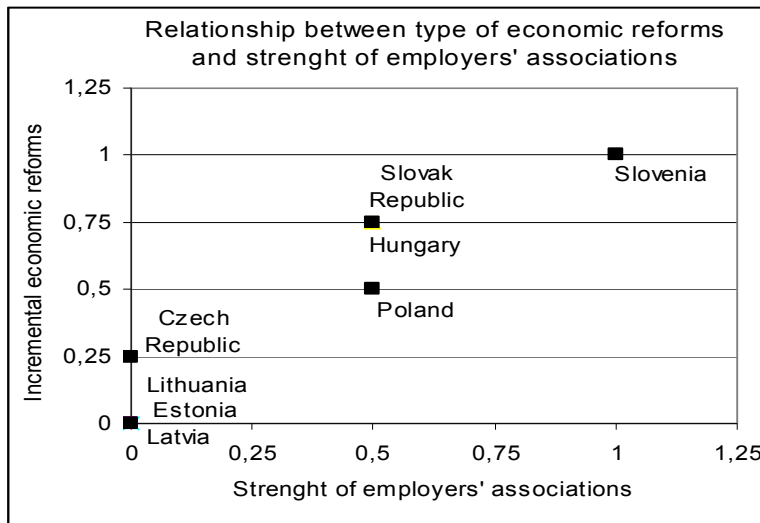
weaker than in Slovenia, but nevertheless significantly stronger than in the Baltic States. Lastly, incremental reforms in Hungary were necessary, but not sufficient for emergence of employers associations: there should have been other factors at play, which weakened the employers associations in this case.

**Table 33. Assessing the role of economic reforms.**

Cases	Independent variable: membership in the set "incremental economic reforms".	Intervening variable: membership in the set "strong industry level employers associations".	Intervening variables denoted by the intersection of two sets: "generous unemployment benefits" and "high employment stability".
Czech Republic	0,25	0	1
Estonia	0	0	0,25
Hungary	0,75	0,5	0,75
Latvia	0	0	0,25
Lithuania	0	0	0,25
Poland	0,5	0,5	0,5
Slovak Republic	0,75	0,5	1
Slovenia	1	1	1

Third, the different styles of adopted economic reforms in the Czech and Slovak Republics explain, why the two countries with similar types of inherited economy diverged later on. The reforms in the Czech Republic are usually considered as a prototype of the shock therapy, which was sufficient to undermine emergence of employers associations. The Slovak Republic on the other hand opted for incremental reforms, which was necessary for the institutional coordination between firms to emerge.

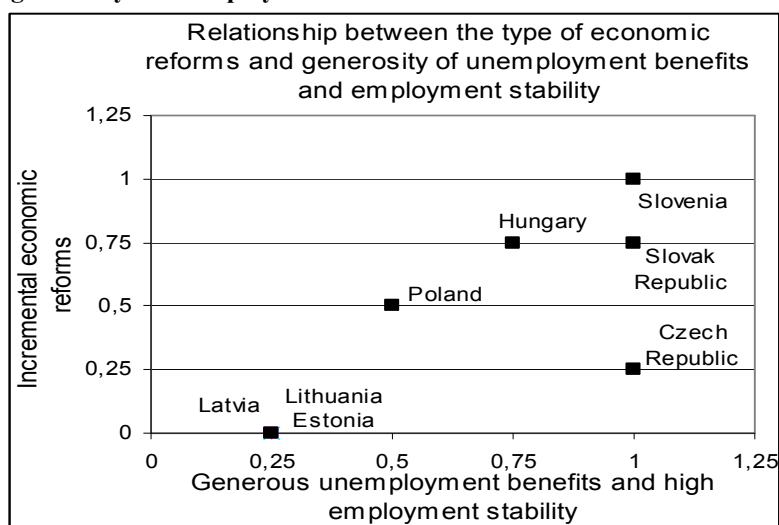
**Figure 18. Relationship between type of economic reforms and strength of employers' associations.**



Source: own compilation.

Fourth, there is a co-variation between the types of economic reforms on the one hand and employment stability and generosity of unemployment benefits on the other hand (see Figure 19). Technical analysis would indicate that the incremental reforms of the early transition are sufficient rather than necessary for subsequent establishment of generous unemployment benefits and employment stability, i.e. all countries that engaged in incremental reforms subsequently established these labor market institutions, while the reverse does not hold. Such explanation, however, seems questionable: To what extent is it feasible to argue that incremental reforms carried out in the early 90's "automatically" lead towards generous unemployment benefits and employment stability ten years later? Instead, the logic behind H8 was that of necessity: incremental reforms were expected to be one of few necessary factors behind establishment of these labor market institutions. Conversely, the logic behind H7 was that of sufficiency rather than necessity.

**Figure 19. Relationship between type of economic reforms and generosity of unemployment benefits.**



Source: own compilation.

To sum up the discussion so far: hypotheses H5 and H6 were rejected, while H7 and H8 were partially confirmed. The level of centralization of the inherited economies seems to be related with the strength of employers' associations in the majority of the CEE countries. However, these initial conditions failed to explain the divergence of the Czech and Slovak Republics: while both inherited relatively centralized economies, employers associations emerged in the latter, but not in the former. Therefore, H5 and H6 were rejected. Such divergence is explained by the different types of adopted reform strategies: gradualism and shock therapy (H7 and H8). The reform strategies, however, explain only the strength of employers associations, but not the generosity of unemployment benefits or employment stability.

#### The role of political institutions

Since the initial conditions and reform strategies of early transition provide only a very limited explanation, this subsection focuses on the role of political institutions in shaping different types of skills formation systems and the institutions, which support these systems. Two political institutions are considered here: the proportionality of electoral systems and government stability.

Lijphart<sup>200</sup> and Iversen<sup>201</sup> argued that the *electoral systems* have profound impact on the types of adopted policies. More specifically, proportional electoral systems are associated with higher redistribution (hence, higher unemployment benefits) and corporatist institutions, such as employers associations. Hence, Iversen argued that PR is a necessary condition for specific SFS to emerge. Conversely, majoritarian systems create incentives for the governments to build the institutions, which support general SFS: low unemployment benefits, market based coordination among employers and liberal labor market regulation. Hence, it was hypothesized that:

*H 9: The higher the proportionality of electoral systems, the more likely it is that institutions, which support specific skills formations systems – high unemployment benefits, strong employers associations and collective bargaining – will emerge and will be maintained.*

The truth table provided in Table 34, yields three interesting insights. First, proportionality of electoral systems is not directly related with generosity of unemployment benefits and employment stability in the CEE. Estonia and Latvia have proportional electoral systems, but low unemployment benefits and employment stability, while the opposite is true for Hungary. Furthermore, the level of proportionality of the electoral system in the Czech Republic is similar to that found in Latvia and Estonia, but the former exhibits very high levels of employment stability and generous unemployment benefits.

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<sup>200</sup> Lijphart, 1999.

<sup>201</sup> Iversen, 2005.

**Table 34. The role of electoral systems.**

Cases	Independent variable: membership in the set "proportional electoral systems".	Intervening variables denoted by the intersection of two sets: "generous unemployment benefits" and "high employment stability".	Intervening variable: membership in the set "strong industry level employers associations".	Dependent variable: membership in the set "specific skills formation system".
Czech Republic	0,75	1	0	0,75
Estonia	0,75	0,25	0	0,25
Hungary	0,25	0,75	0,5	0,25
Latvia	0,75	0,25	0	0,25
Lithuania	0,25	0,25	0	0,25
Poland	0,5	0,5	0,5	0,5
Slovak Republic	0,75	1	0,5	0,75
Slovenia	1	1	1	1

Second, the proportionality of electoral systems is not related with the strength of employers associations in the CEE countries. The Czech Republic, Estonia and Latvia have proportional electoral systems, but very weak employers associations. Furthermore, Hungary exhibits considerably stronger employers associations, despite its mixed electoral system, which produces low proportionality.

Lastly, the proportional electoral system is a necessary condition for the emergence of specific SFS (compare fuzzy membership scores in the 2<sup>nd</sup> and 5<sup>th</sup> columns in Table 34): the cases with the most proportional outcomes of the elections (except Estonia and Latvia) exhibit specific SFSs and the cases with the least proportional electoral systems do not have specific SFSs. Estonia and Latvia merely indicates that proportionality of the outcomes of the elections is just one of the factors for emergence of specific SFS, i.e. the independent variable is necessary, but not sufficient. This result is unexpected given the above discussed findings, i.e. that there is no direct relationship between proportionality of electoral systems on the one hand and the institutions, which support specific SFS on the other hand.

What are the broader implications of these results? On the one hand, the results show that Lijphart's widely discussed argument – PR favors corporatism and higher levels of redistribution – does not hold in the CEE. On

the other hand, the proportionality of the electoral systems affects the type of SFS directly, rather than indirectly through other institutions. In line with Iversen's argument, this implies that proportionality of electoral systems is important because it provides a commitment device for future policy stability. The case of Hungary provides a good illustration of this idea. Hungary exhibits relatively generous unemployment benefits, employment stability and medium strength of employers' associations. Yet, despite these favorable conditions specific SFS failed to develop because of the lack of commitment device (proportionality of the electoral systems) that these favorable conditions will continue to exist in the future. Hence, in the face of uncertainty regarding future policies, neither the individuals, nor the employers have incentives to invest in the development of specific SFS.

Section 3.3.2. also argued that in addition to proportionality of electoral systems, the government stability should also play a role in explaining emergence of different SFS. The theoretical argument was that government stability is a precondition for avoiding short term policy fluctuations. Hence, if the government tenure is short: (a) the social partners are not likely to commit resources to the provision of semi-public goods (such as training); and (b) individuals are not likely to trust that the institutions, which provide insurance against labor market risks, will be maintained in the future. Accordingly, I hypothesized that:

*H 10: : Government stability is necessary for cooperative institutions, which support specific skills formation systems, while high instability is sufficient to undermine credibility of such institutions and should lead to emergence of general skills formation systems.*

Table 35 provides fuzzy membership scores for testing the first part of the hypothesis: the relationship between government stability and emergence of cooperative institutions, which support specific SFS. It yields three insights. First, the relationship between government stability and labor market institutions, which support specific SFS is weak at best (compare the second and third columns in Table 35). For a vast majority of cases, the generosity of unemployment benefits and employment stability are closely



related with government tenure. However, the Czech and Hungarian cases indicate that such a relationship is far from straightforward. Hungary has the most stable governments among all CEE countries. However, the level of unemployment benefits in Hungary is lower than in the Czech Republic, which exhibits shorter government tenure than in Hungary.

Second, as expected the government stability is a necessary condition for strong industry level employers associations. However, this relationship seems to be rather weak. For instance, the Czech Republic has relatively high government tenure, but very weak employers associations. Hence, other factors – such as the type of economic reforms carried out during early transition – played a more important role here.

**Table 35. The role of government stability.**

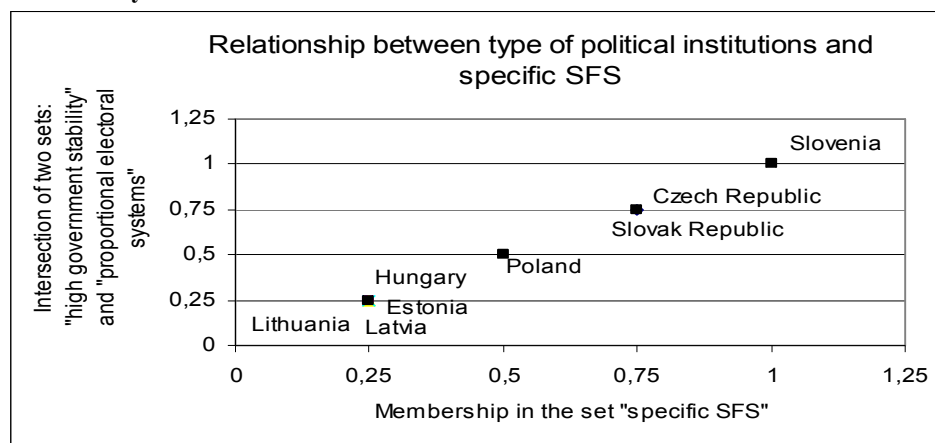
Cases	Independent variable: membership in the set “high government stability”.	Intervening variables denoted by the intersection of two sets: "generous unemployment benefits" and "high employment stability"	Intervening variable: membership in the set “strong industry level employers associations”	Dependent variable: membership in the set “specific skills formation system”.
Czech Republic	0,75	1	0	0,75
Estonia	0,25	0,25	0	0,25
Hungary	1	0,75	0,5	0,25
Latvia	0,25	0,25	0	0,25
Lithuania	0,25	0,25	0	0,25
Poland	0,5	0,5	0,5	0,5
Slovak Republic	1	1	0,5	0,75
Slovenia	1	1	1	1

Lastly, the fuzzy membership scores provided in Table 35, indicate that high government stability is a necessary condition for the emergence of the specific SFS: the higher the government stability, the more developed is the specific SFS. The only exception from this generalization is Hungary, which demonstrates high government stability, but an underdeveloped specific SFS. This could be explained by the fact that an additional necessary condition – proportional electoral system – is missing in the case of Hungary.

The interpretation of these results is similar to the one provided above, when discussing the role of proportionality of electoral systems: government stability directly affects the emergence of specific SFS. Theoretically this could be explained as follows: government stability increases the trust of the employers and individuals that the institutions, which support specific SFS, will be maintained in the future. This creates the incentives to invest in specific skills.

Do the above discussed political institutions collectively provide a better explanation of the emergence of specific SFS than individually? In order to answer this question, I used logical “and” to find an intersection of two sets: “proportional electoral system” and “high government stability”. The results provided in Figure 20 indicate that government stability and proportionality of electoral systems collectively provide a very good explanation of the emergence of specific SFS. Slovenia is the only case that: a) is characterized by high government stability and proportional outcomes of the elections and b) has a fully developed specific SFS. The Baltic States and Hungary are found on the other side of the spectrum: these cases miss government stability (Estonia and Latvia) or proportional electoral system (Hungary) or both (Lithuania). As a result: a) these cases failed to develop the institutions, which support specific SFS (the Baltic States); or b) the relevant institutions have developed, but they do not create incentives to invest in specific SFS due to high uncertainty regarding their future stability (the Hungarian case).

**Figure 20. The relationship between the type of political institutions and specific skills formation systems.**



Source: own compilation.

When discussing the role of political institutions, so far I have focused on the emergence of specific SFS. Does the absence of these institutions – low proportionality of electoral systems and low government stability – explain emergence of general SFS? The relevant fuzzy membership scores are provided in Table 36. First, the results indicate that proportionality of the electoral results is not related with the emergence of general SFS. Consider Estonia and Latvia on the one hand and Hungary on the other: the former have relatively proportional electoral systems and fully developed general SFS, while Hungary exhibits an unproportional electoral system and also has an underdeveloped general SFS. This contradicts the theoretical expectations that low proportionality of electoral systems should be related with general SFS.

**Table 36. Political institutions and general skills formation systems.**

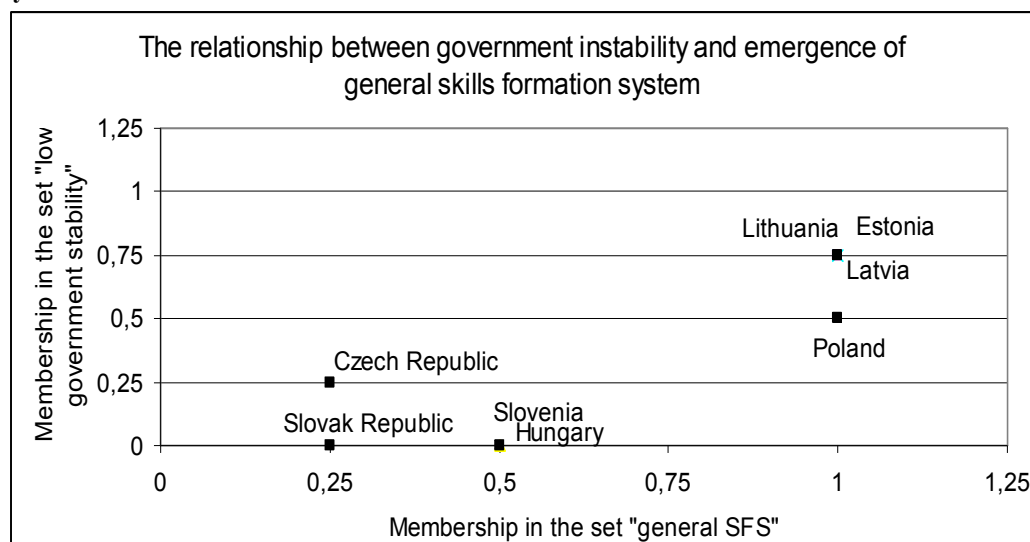
Cases	Independent variable: membership in the set "unproportional electoral system"	Independent variable: membership in the set "low government stability"	Dependent variable: membership in the set "general skills formation system"
Czech Republic	0,25	0,25	0,25
Estonia	0,25	0,75	1
Hungary	0,75	0	0,5
Latvia	0,25	0,75	1
Lithuania	0,75	0,75	1
Poland	0,5	0,5	1
Slovak Republic	0,25	0	0,25
Slovenia	0	0	0,5

Second, as hypothesized in H10, short government tenure is sufficient (but not necessary) for emergence of general SFS: all cases that demonstrate low government stability also have well developed general SFS, but not *vice versa* (see

Figure 21). In other words, this shows that short average government tenure is sufficient to a) undermine individuals' trust in government policies aimed at insurance against labor market risks and b) create incentives for individuals to self-insure against future labor market volatility by acquiring broadly transferable general skills. On the other hand, the cases of Slovak Republic, Slovenia and Hungary indicate that some of the elements of general

SFS could also emerge in countries with relatively high government stability. This most probably could be explained by other factors, such as demand for general skills.

**Figure 21. The relationship between government stability and general skills formation systems.**



Source: own compilation.

To summarize, four important findings emerge from empirical analysis carried out in this subsection. First, in contrast to the theoretical expectations expressed in H9 and H10, proportionality of the electoral system and government tenure is not a necessary condition for the emergence of the labor market institutions, which support specific SFS: generous unemployment benefits and employment stability. Second, government tenure, but not the proportionality of the electoral systems is a necessary condition for strong employers associations. Third, proportionality of electoral systems and government stability are collectively necessary for emergence of specific SFS. Fourth, as hypothesized in H10, short government tenure is sufficient to create incentives for individuals to acquire general skills.

### 5.3. Implications

Chapters 5.1. and 5.2. sought to test the hypotheses developed in part 3. Table 37 provides the summary of the results of the empirical tests. This chapter discusses

the interpretation of the results: what are the implications of these findings for further theoretical analysis of skills formation systems and how these findings explain the divergence of CEE countries? Section 5.3.1. focuses on the theoretical implications, while the evolution of skills formation systems in each of the CEE country is discussed in section 5.3.2. Furthermore, section 5.3.3. briefly discusses the implications of findings for the theoretical debate regarding the impact of Europeanization – a factor that has received considerable attention in research on change in the CEE, but so far has been ignored in this dissertation.

**Table 37. Summary of the results of the empirical tests of the hypotheses.**

Question.	No.	Hypotheses	Results of empirical tests.
Why individuals acquire different types of skills?	H1	High employment stability and high unemployment benefits create incentives for individuals to acquire specific skills.	Confirmed by both tests.
	H2	Low employment stability and low unemployment benefits foster acquisition of general skills.	Rejected with robust regression test. Confirmed with fuzzy set techniques: low employment stability and low unemployment benefits are sufficient for general SFS.
What institutions are necessary for provision of skills?	H3	Coordinated wage bargaining is necessary for high levels of continuous training.	Rejected by both tests.
	H4	Strong employers' associations are necessary for effective functioning of apprenticeships.	Confirmed by both tests.
Why have different institutions evolved during early transition?	H5	The more the management of inherited economy was decentralized, the more scope was there for emergence of cooperative institutions, which were necessary for specific skills formation system.	Rejected with fuzzy set techniques.
	H6	Inheritance of highly centralized economies lead to emergence of market based relationships among firms.	Rejected with fuzzy set techniques.
	H7 H8	Shock therapy reform strategies led to emergence of institutions, which support general skills formation system. Incremental reform strategies led to emergence of institutions, which support specific skills formation system.	Both hypotheses partially confirmed with fuzzy set techniques: chosen reform strategies explain the strength of employers associations, but not the generosity of unemployment benefits or employment stability.
Why were institutions maintained or abandoned	H9	The higher the proportionality of electoral systems, the more likely it is that institutions, which support specific skills formations systems –	Partially rejected with fuzzy set techniques. Proportionality of electoral systems is not a necessary condition for

during later stages of transition?		high unemployment benefits, strong employers' associations and collective bargaining – will emerge and will be maintained.	generous unemployment benefits, employment stability and strong employers' associations. The independent variable also does not explain emergence of general SFS. However, it is a necessary condition for emergence of specific SFS.
	H10	Government stability is necessary for cooperative institutions, which support specific skills formation systems, while high instability is sufficient to undermine credibility of such institutions and should lead to emergence of general skills formation systems.	Partially confirmed with fuzzy set techniques. Government stability is not a necessary condition for generous unemployment benefits, employment stability. However, it is a necessary condition for emergence of strong employers' associations and for emergence of specific SFS. Absence of government stability is sufficient for emergence of general SFS. Proportional electoral systems and government stability are collectively necessary for emergence of specific SFS.

### 5.3.1. Theoretical implications

The results of the empirical tests have broad ranging implications for two theoretical debates: a) debate on further development of the VoC approach and its applicability to the CEE countries; b) historical institutionalist debate on the emergence of different skills formation systems specifically and capitalist institutions generally in the post-communist CEE countries. I discuss these implications separately in the following subsections.

#### The VoC approach and its applications in the CEE countries

This paper tested the hypotheses proposed by the VoC literature. It found that: a) generous unemployment benefits and employment stability are necessary for creating incentives for individuals to acquire specific skills; b) low employment benefits and absence of employment stability create incentives for individuals to self-insure against future labor market uncertainties by acquiring general skills; c) strong industry level employers associations are necessary for

effective functioning of the system of apprenticeships. Furthermore, one of the hypotheses proposed by the VoC literature – coordinated wage bargaining is necessary to create incentives for employers to invest in continuous training of their employees – did not pass neither the quantitative test, which used data from all of the EU Member States, nor the qualitative test, which focused on the CEE. Hence, while there is a need for further research on the incentives for employers to train their employees, overall the hypotheses proposed by the VoC literature provided a powerful explanation of the incentives to acquire different types of skills and the institutional foundations of effective system of apprenticeships.

Furthermore, the results of the current paper have three wider implications for further development of the VoC approach. First, “perfect” complementarities between all of the institutions which are the focus of the early VoC approach<sup>202</sup> – financial systems, industrial relations, skills formation systems and inter-company relations – rarely exist empirically. Furthermore, the assumption that all of these institutions should reinforce each other in order to produce expected results is theoretically excessive. Analysis of the CEE countries revealed that majority of cases are far from “ideal” types and exhibit particular mixtures of institutions. Nevertheless, empirical analysis clearly showed that the existence of concrete institutions (for instance, the level of unemployment benefits) rather than constellations of large number of institutional structures provide a powerful explanation of cross-country variation in SFS. Hence, the first implication – there is a need to theoretically disaggregate the complex structure of institutional complementarities into testable hypotheses, which focus on concrete institutions with the largest explanatory power. This should increase the applicability of the main insights of the VoC approach to the analysis of larger number of cases.

Second, while demand for particular types of skills most probably plays an important role, it is not sufficient for emergence of particular type of skills formation system. The early VoC literature<sup>203</sup> argued that institutional complementarities shape the competitive strategies of the firms, which further reinforce the existing institutional structure by (among other things) creating demand for particular types of skills. The results of this paper show that cross-

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<sup>202</sup> See Hall and Soskice, 2001.

<sup>203</sup> Ibid.

national variation in SFS could be explained by focusing on the existing institutions rather than by the analysis of the demand for skills and the competitive strategies of firms. This does not imply that the demand is irrelevant. Instead it means that the demand is only one of the necessary factors behind the emergence of different types of SFS. More specifically, despite high demand for specific skills, they are not likely to be acquired and produced, if there are low unemployment benefits, low employment stability and the employers' associations are weak. Hence, the second implication – explanations of the emergence of SFS should dispose of the economic determinism of demand for skills and instead focus on the institutions, which support different aspects (incentives to acquire skills, incentives to train, etc.) of skills formation systems. Such “return” to politics and individuals' choices should strengthen the VoC approach.

The third and arguably the most important implication: commitment to and trust in future stability of institutions is a necessary condition for effective functioning of these institutions. The mainstream of the VoC literature (with a notable exception of Iversen<sup>204</sup>) focused on the developed OECD countries and therefore assumed policy stability. The analysis of the CEE countries revealed that such an assumption is too strong: effectiveness of the institutions significantly decreases, if there is substantial policy volatility. More specifically: generous unemployment benefits and employment stability create incentives to acquire specific skills only if the individuals trust that these institutions will be maintained in the future. The main reason is that these labor market institutions provide insurance against future labor market risks: hence, they can not function effectively, if they lack credibility and trust. Two political institutions were found to increase the credibility of future policy stability: proportional electoral systems and government stability. The former, in line with Lijphart<sup>205</sup>, tends to lead to consensualism, which reduces the likelihood of radical policy changes and, in line with Iversen<sup>206</sup>, increases the credibility of parties' commitment to long term policy objectives. Furthermore, the government stability reduces the likelihood of radical policy swings and

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<sup>204</sup> Iversen, 2005.

<sup>205</sup> Lijphart, 1999.

<sup>206</sup> Iversen, 2005.

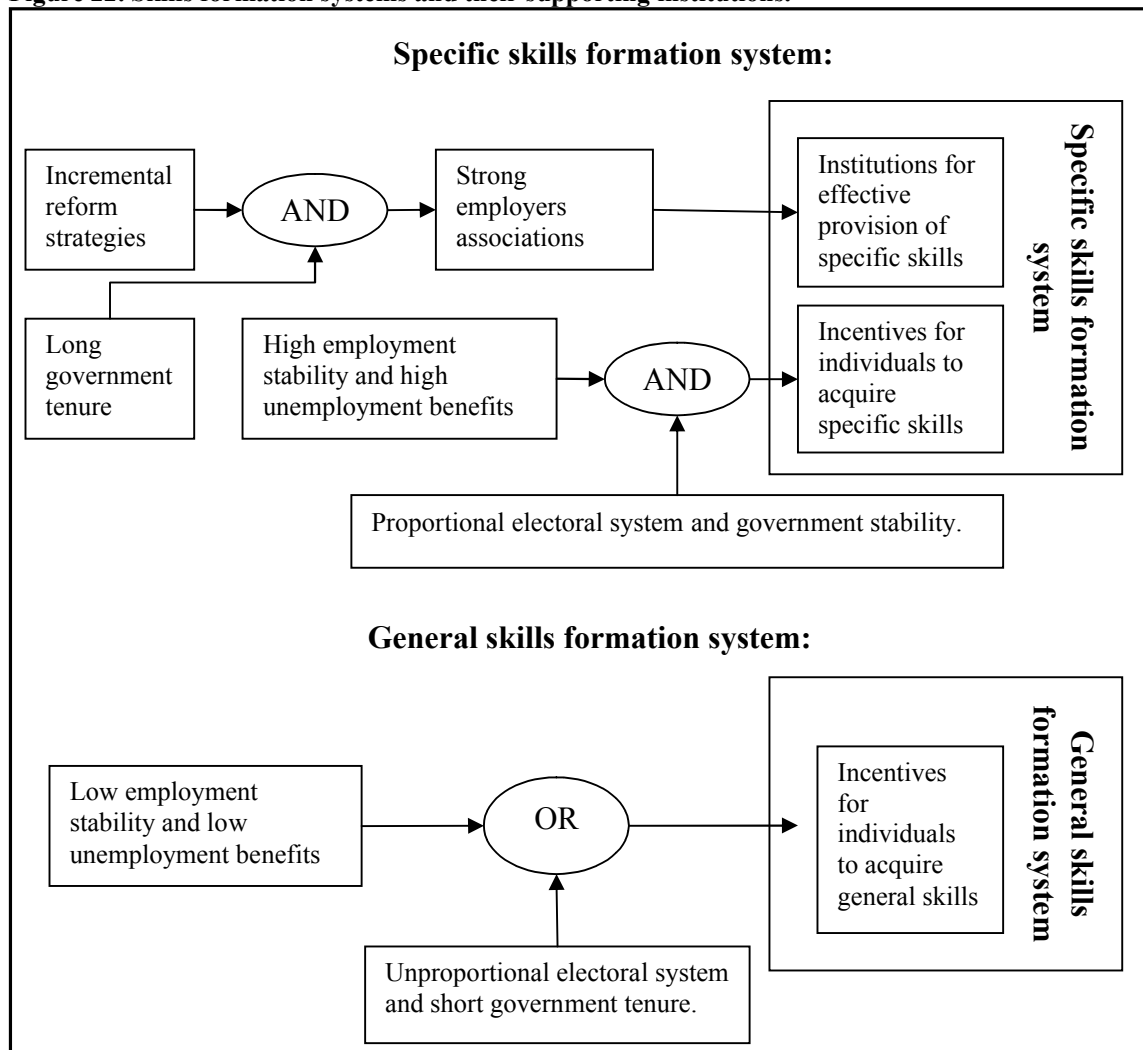


increases the trust of individuals and firms that such swings will not occur in the future.

Such an interpretation of the role of electoral system slightly differs from the one provided by Lijphart and Iversen. Both authors, although coming from different directions, argued that: a) the proportional representation tends to be associated with the more generous unemployment benefits and corporatism; b) increases the credibility of political commitment to maintain these institutions in the future. The results of the current paper, however, show that: a) in the CEE there is no causal relationship between proportionality of electoral results, on the one hand, and generosity of unemployment benefits and the strengths of employers associations, on the other hand; b) proportional representation is in fact a very important commitment device for future policy stability. Hence, proportionality of electoral systems and government stability are conditional variables, which amplify or mute the impact of labor market institutions on SFS, but not independent variables capable of explaining variation in the employment stability and generosity of unemployment benefits.

Figure 22 summarizes the theoretical model, which emerged from the discussion in part 3 and empirical tests carried out in chapters 5.1. and 5.2. One should note that it considerably differs from the model provided in part 3 (see Figure 4) which was based solely on the theoretical expectations.

**Figure 22. Skills formation systems and their supporting institutions.**



Source: own compilation.

### **Implications for historical institutionalist accounts on the emergence of different skills formation systems in CEE**

This dissertation also sought to test two types of hypotheses explaining the emergence of different capitalist institutions in the CEE. First, Feldmann<sup>207</sup> argued that the type of planned inherited economy had an impact on the subsequent evolution of capitalist institutions: cases that inherited relatively decentralized economies should develop coordinated market economies, while countries that inherited highly decentralized economies should develop liberal market economies.

<sup>207</sup> Feldmann, 2006.

This paper found that while this argument holds true for Slovenia on the one side of the spectrum and the Baltic States on the other, it fails to explain the cases of the Czech and Slovak Republics. Hence, Feldmann's argument does not stand systemic test.

Second, a number of authors<sup>208</sup> argued that the strategy of economic reforms also had an impact on the subsequent evolution of capitalist institutions. It is argued that gradualism is favorable for emergence of coordinated market economy, while shock therapy should facilitate evolution of institutions associated with liberal market economies. Empirical tests carried out in this paper show that this argument is only partially correct: chosen reform strategies explain the strength of employers associations, but not the generosity of unemployment benefits or employment stability.

Hence, it seems that two of the most prominent arguments fail to provide a compelling and thorough explanation of the emergence of different types of capitalist institutions in the CEE. In the context of the current dissertation, cross-country variation in the level of unemployment benefits and employment stability seems to be the most puzzling. In the light of these findings, future research should refocus its attention from broad-brush macro level to mezzo (concrete elements of undertaken reforms and the logic behind them) and micro (e.g. temporal conflicts, survival and transformation of particular organizations and institutions) level.

### **5.3.2. Explaining divergent skills formation systems in Central and Eastern Europe**

In the light of the theoretical findings and results of the empirical tests of the hypotheses, this subsection seeks to provide a coherent narrative of the different SFS in the CEE countries. Slovenia is a prototypical case of specific SFS. It is characterized by high levels of participation in vocational training, an extensive and well functioning system of apprenticeships and high levels of firms' investment in continuous vocational training of the employees. Acquisition of specific skills is strongly reinforced by the well developed labor market and economic institutions: generous unemployment benefits, high employment stability and strong industry level associations. High government

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<sup>208</sup> Deacon, 2000, Feldmann, 2006, Norkus, 2008, Bohle, Greskovits, 2007.

stability and proportional electoral system reinforces these capitalist institutions by signaling firms and individuals that the institutions will be maintained in the future and hence encouraging long term investments in acquisition and development of specific skills.

The Czech and Slovak Republics also exhibit many characteristics of specific SFS. Similarly to the case of Slovenia, high levels of unemployment benefits and employment stability coupled with long government tenures and proportional electoral systems create incentives for the future Czech and Slovak labor force to acquire specific skills. However, these countries lack the system of apprenticeships, which differentiates them from Slovenia. Apprenticeships are not likely to develop in the Czech Republic, since it lacks strong employers associations. However, the presence of such associations in the Slovak Republic implies that over time the system of apprenticeships could emerge and the Slovak Republic could develop specific SFS that is increasingly similar to the one found in Slovenia. On the other hand, more research is needed to explain, why this has not happened yet.

Why have the Slovak and Czech Republics diverged, i.e. why strong employers associations have emerged in the former, but not in the latter? During early transition the Czech Republic engaged in radical “shock therapy” reforms, which sought to unleash the market forces. This had a negative side effect: such reforms disturbed the inter-firm links, which were replaced by market based coordination. On the other hand, the Slovak Republic, which inherited a largely similar economy, engaged in gradual reforms. They accommodated firm-driven restructuring and institution-building, which was necessary for re-establishing non market coordination among firms.

Poland is an interesting case with a unique mix of institutions: high employment stability, moderate unemployment benefits and some industry level employers’ coordination coupled with moderate proportionality of the electoral system and medium government stability. Looking at the longer term it seems that such a mix is not sufficient to maintain specific SFS: while Poland has a moderately developed system of apprenticeships, the participation in initial vocational training has considerably declined over the past decade. On the other hand, an increasing number of future and current Polish labor force seek to acquire broadly transferable general skills. In fact Poland boasts the highest levels of participation in tertiary education (ISCED 5A level) in CEE. Hence, it seems that an inadequate mix of

institutions has not reversed the decline of specific SFS in Poland and at the same time facilitated emergence of general SFS.

From the first sight Hungary might look like the most puzzling case. During the early transition it adopted gradualist reforms, which strengthened non-market based cooperation between firms. The latter was necessary for the emergence of a modern although an underdeveloped system of apprenticeships. Furthermore, Hungary boasts relatively generous unemployment benefits and employment stability. All of this would indicate that Hungary has all the ingredients necessary for a well functioning specific SFS. Yet, it is largely absent: Hungary exhibits the lowest participation in initial vocational training and its firms barely invest in the training of their employees. Hungarian mixed electoral system provides the answer to this puzzle. Relatively unproportional electoral outcomes reduce confidence in the future stability of institutions. As a result current levels of unemployment benefits and employment stability do not provide sufficient incentives for individuals to acquire specific skills. It remains to be explained, however, why in the absence of well functioning specific SFS, general SFS is also underdeveloped in Hungary.

Lastly, the Baltic States are the prototypical cases of general SFS. Fast and radical economic reforms undertaken during early transition unleashed the forces of Schumpeterian creative destruction, which rapidly dismantled the remnants of the Soviet style specific SFS and the institutions supporting it. Furthermore, low employment stability and petty unemployment benefits coupled with government and policy instability created considerable anxiety among the labor force regarding their capacity to adapt to volatile demand for skills. Hence, a large proportion of the current and future labor force seek to self-insure against future uncertainties by acquiring broadly transferable general skills.

### **5.3.3. The impact of Europeanisation**

A number of studies<sup>209</sup> pointed out towards the impact of Europeanization as one of the driving forces behind change in the CEE region. This

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<sup>209</sup> Nicholas Barr, *Labor Markets and Social Policy in Central and Eastern Europe: Accession and Beyond*, Washington, D. C.: The World Bank, 2005. Heather Grabbe, "How Does Europeanization Affect CEE Governance? Conditionality, Diffusion, Diversity", *Journal of European Public Policy*, Vol. 8 (6), 2001, pp. 1013-1031. Frank Schimmelfennig, Ulrich Sedelmeier, *Europeanization of Central and Eastern Europe*, Ithaca and London: Cornell University Press, 2005. Martin Heidenreich, Jonathan Zeitlin, *Changing European Employment and Welfare Regimes. The Influence of the Open Method of Coordination on National Reforms*, London and New York: Routledge, 2009.

factor has been neglected in the dissertation, because the EU has only indirect influence on the education and labor market policies in the Member States. It is transmitted through: a) the open method of coordination, which encompasses such instruments as benchmarking, peer learning, setting common (non-binding) objectives, etc.; b) the Structural funds, which were used to co-finance projects in the area of education and labor market. What do the findings of this dissertation tell us about the potential impact of the EU Accession and Membership on the skills formation systems in the CEE?

While such impact was not directly assessed in this dissertation, it is possible to speculate that the Accession process and membership in the EU did not play a decisive role. All 8 CEE countries joined the EU in 2004. The conditionality set during the Accession process was largely identical. Furthermore, all 8 CEE countries participated in the implementation of the Lisbon Strategy, which (among other objectives) sought to upgrade skills formation and labor market institutions. Hence, hypothetically we could expect that the Accession process and the EU Membership should (indirectly) act as unifying force that in the long run could lead towards convergence of the skills formation systems. However, as the previous parts of the dissertation argued, there are considerable differences in the skills formations systems in the CEE countries. Furthermore, the findings of this paper would suggest that as long as the relevant institutions – unemployment benefits, employment stability, employers associations, government tenure and electoral systems – remain, the EU pressures should not dramatically alter the incentives faced by individuals and firms. Instead, we could expect divergent responses to similar pressures. For instance, implementation of the EU objective – to ensure better match between the supply and demand of skills – could take several forms in different CEE countries. In the Baltic States this could imply further extension of general SFS: higher transferability of the skills of the labor force reduces the need for a close match between the supply and demand. In contrast, we could expect a more extensive involvement of employers in provision of specific skills in Slovenia: this could facilitate acquisition of information regarding future demand for skills, increase the relevance of the training to the labor market needs and therefore further strengthen the specific SFS. Such path is possible in Slovenia, but not the Baltic States, because the latter lack strong employers' associations, which (as this dissertation argued) are necessary for firms' involvement in provision of specific skills.

To sum-up, similar international pressures are likely to result in different outcomes due to differences in the national institutions that shape the incentives of individuals and firms to invest in skills formation systems. These implications are deduced from the findings of the dissertation, but were not systemically tested. Hence, the impact of the EU on the skills formation systems could be an interesting area for future research.

## Conclusions

This dissertation sought to explain why, despite largely similar starting positions, the eight CEE countries have developed different types of skills formation systems over the past 20 years. This broad question was broken down into three smaller ones: a) what institutions create incentives for individuals to acquire different types of skills? b) what institutions are necessary for effective provision of skills? c) why have these different types of institutions emerged in some CEE countries, but not others?

The answer to the first question rests on the idea that acquisition of specific skills is a risky decision. Since these types of skills are applicable only in particular occupations and only in particular economic sectors, specific skills could easily become obsolete due to technological and economic changes. Hence, individuals are not likely to acquire such skills, unless a) there are institutions, which provide insurance against future loss of job and income; b) there is considerable trust that these institutions will be maintained in the future. Accordingly, generous unemployment benefits and employment stability provide insurance against future employment related risks and create incentives for the workforce to acquire specific skills in Slovenia, the Czech and Slovak Republics. Trust in the future stability of these labor market institutions is reinforced by proportional electoral system and government stability. Furthermore, absence of trust in future stability implied that the generosity of unemployment benefits and employment stability has not created incentives for the individuals to acquire specific skills in Hungary.

Conversely, if the above institutions are absent – individuals expect frequent job changes, often moves from employment to unemployment (and *vice versa*) and low level of income support while in search for an adequate job – then individuals will seek to enhance their adaptability in a volatile labor market by acquiring broadly transferable skills. This explains the popularity of academic tertiary education and particularly social science, business and law programs, which develop general skills valuable in a large array of economic sectors, among the future and current labor force in the Baltic States and Poland.

The answer to the second question is closely related with different rationales behind provision of specific and general skills. The non-transferable nature



of specific skills implies that they should closely match economic, technological, organizational and similar changes in order to be relevant in the labor market. Hence, firms' involvement is crucial in provision of detailed information on the future demand for specific skills as well as direct provision of on-the-job training and organization of apprenticeships. While all firms would be better off, if they invested in the development of specific skills of their labor force, such incentives are hampered by the problems of collective action. Firms within the same sector could easily free-ride on the investments made by the training firms. Strong sectoral employers' associations provide institutional solution to such problems. The role of associations is similar to the one of "Don Corleone" in resolving the prisoner's dilemma, i.e. associations provide monitoring and sanctioning in order to ensure cooperation. Hence, Slovenia, characterized by very strong employers associations, also has an extensive system of apprenticeships, Poland and Hungary with moderately strong associations exhibit an underdeveloped system of apprenticeships, while the Baltic States and the Czech Republic, which have very weak employers associations, do not have an effective system of apprenticeships. The case of the Slovak Republic, which is characterized by moderate strength of employers associations and absence of apprenticeships, indicate that the associations are necessary, but not sufficient to ensure firms' investment in the development of specific skills of their future labor force.

Furthermore, a number of authors<sup>210</sup> also argue that coordinated wage bargaining is necessary for firms to invest in continuous training of their employees, which constitutes another important element of provision of specific skills. Empirical tests, however, did not provide systemic support to this hypothesis.

Provision of general skills is based on the premise that future demand for skills is in principle unknown. Hence, such systems focus on development of good general (analytic, social, cognitive, learning, etc.) skills, which enhance flexibility in adapting to fast economic, technological, organizational and similar changes. Accordingly, firms' involvement in provision of such skills is not necessary and general skills formation systems rely on flexible institutional structures, which promote academic excellence.

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<sup>210</sup> Hall and Soskice, 2001. Iversen, 2005. Thelen, 2004.

The answer to the third question – explanation of the emergence of different institutions in the CEE – rested on the test of two hypotheses. First, Feldmann<sup>211</sup> argued that the type of planned inherited economy had an impact on the subsequent evolution of capitalist institutions: cases that inherited relatively decentralized economies should develop coordinated market economies, while countries that inherited highly decentralized economies should develop liberal market economies. Comparative analysis of the 8 CEE countries did not find systemic support to this hypothesis. Second, I tested the hypothesis proposed by a number of authors<sup>212</sup>, who argued that the strategy of economic reforms had an impact on the subsequent evolution of capitalist institutions. Empirical tests revealed that chosen reform strategies explain the strength of employers associations, but not the generosity of unemployment benefits or employment stability.

These findings have important policy implications: is it worthwhile to invest in specific SFS in countries, where such systems have yet failed to emerge? The answer (see Table 38) to this question in each case depends on the extent to which there are institutions that create incentives for individuals and firms to participate in specific SFS. Such institutions are clearly present in the Czech and Slovak Republics and Slovenia. Investments in specific SFS are also likely to pay-off in Hungary (if future stability of generous unemployment benefits and employment security is ensured) and Poland (if there is a rise in generosity of unemployment benefits and strength of employers associations as well as future stability of the labor market institutions). In the Baltic States, however, the existing institutions create incentives neither for firms, nor for individuals to participate in specific SFS. Since such system can not function without individuals, who would be willing to acquire specific skills, and firms, willing to provide such skills, the States' investments in specific SFS are not likely to pay-off.

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<sup>211</sup> Feldmann, 2006.

<sup>212</sup> Deacon, 2000. Feldmann, 2006. Norkus, 2008. Bohle, Greskovits, 2007.

**Table 38. Policy implications.**

Country	Type of SFS	Could state intervention strengthen specific SFS?
Czech Republic	Well developed specific SFS, which, however, lacks the system of apprenticeships.	Yes.
Estonia	Well developed general SFS.	No.
Hungary	Some elements of general SFS, an underdeveloped specific SFS.	Yes, if future stability of the labor market institutions is ensured.
Latvia	Well developed general SFS.	No.
Lithuania	Well developed general SFS.	No.
Poland	Well developed general SFS and a declining specific SFS.	Most likely yes.
Slovak Republic	Well developed specific SFS, which, however, lacks the system of apprenticeships.	Yes.
Slovenia	It is a prime example of a well developed specific SFS.	Yes.

Source: own compilation.

Furthermore, the findings discussed in this dissertation have important implications for further research in this area in general and particularly for further development of the VoC approach and its applications to the analysis of the CEE countries. First, the majority of the CEE countries exhibit a mix of different types of institutions rather than constellations of complementary institutions, which were used to identify ideal types of liberal and coordinated market economies. This seems to create theoretical problems in applying the VoC approach outside of a handful of developed OECD members. However, empirical analysis showed that the existence of concrete institutions rather than complex institutional structures provide a powerful explanation of cross-country variation in skills formation systems. Hence, there is a need to theoretically disaggregate the complex structure of institutional complementarities into testable hypotheses, which focus on concrete institutions with the largest explanatory power.

Second, the explanations of the different skills formation systems should dispose of the economic determinism of demand for skills and instead focus on the institutions, which support different aspects (incentives to acquire skills, incentives to train, etc.) of skills formation systems.

Third, commitment to and trust in the future stability of institutions are necessary conditions for effective functioning of the capitalist institutions. This is

particularly important to the analysis of cases, where policy and institutional stability can not be assumed.

Fourth, the majority of the authors contributing to the VoC literature assumed that skills could be measured as a dichotomous variable: presence of some types of skills implies absence of different type of skills. The results of this paper imply that such assumption is too strong. For instance, Slovenia has a very well developed specific skills formation system and moderately well developed general skills formation system. Hungary, on the other hand, seems to stand at the cross-roads between general and specific SFS.

Fifth, institutions tend to produce different effects in different contexts. Hence: a) instead of analyzing labor market regulation as a proxy of employment stability, one should focus on the actual labor market flexibility; b) instead of analyzing electoral rules and government formation procedures, one should focus on actual proportionality of electoral results and government tenure.

Lastly, this dissertation largely failed to provide a compelling explanation to two important questions: a) what institutions create incentives for employers to invest in further developments of the skills of the employees; b) why do the CEE countries have different levels of unemployment benefits and employment stability? Hence, further research is needed in these areas.

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