

ORIGINAL ARTICLE

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# Literature review of comparative school-to-work research: how institutional settings shape individual labour market outcomes

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## Abstract

Comparative school-to-work research has long emphasised the role of institutions in shaping youth labour market integration. This paper provides an overview of this research stream, consisting of four main sections. The *first* section introduces a variety of labour market outcomes of young graduates within Europe and identifies country clusters with higher and lower outcomes; this empirical evidence has so far remained limited in the multivariate oriented research stream. The *second* section links these labour market outcomes to the institutional settings of the education systems prevalent in the country clusters. By considering a wide country sample, it introduces a reliable country classification of transition regimes (along the OLM–ILM continuum), which has so far been partly inconclusive in research. The *third* section links labour market outcomes in turn to labour market institutions of the country clusters. This section emphasizes why labour market institutions drive only particular individual outcomes. Finally, the *fourth* section connects the previous three: it describes how certain institutional complementarities affect the youth labour market integration in the identified European country clusters. The review further identifies theoretical inconclusiveness or data-related desiderata, for which recommendations and solutions are proposed. The paper thus aims to assist both familiar and unfamiliar researchers to access the research stream by offering a comprehensive introduction and clear country classifications, linking research streams, and providing solutions to identified issues.

**Keywords** School-to-work transitions, Institutional settings, Education system, Labour market, Comparative research, Complementarities of institutions

**JEL code** Health, Education, Welfare

## Introduction

The transition from school to work is a decisive life event for young graduates. On the one hand, it reveals returns from previous educational investments. On the other, it sets a strong reference point for further career development (Gangl 2003a). However, transition patterns

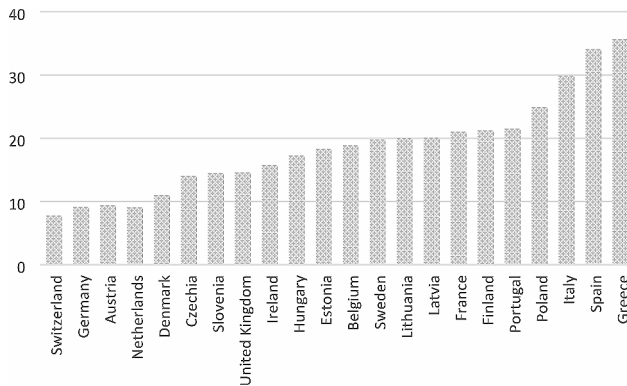
of young graduates vary strongly between countries. Whereas graduates in German-speaking countries show a smooth transition, with a low incidence of unemployment, their counterparts in Southern Europe experience a more turbulent transition (Fig. 1), and even if they find a job, it is mainly temporary and less frequently corresponds to their education than in German-speaking countries (Allen and Van der Velden 2009; Shavit and Muller 1998).

Comparative school-to-work research has significantly contributed to our understanding of these country-specific transition regimes. This research stream emphasises

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**Fig. 1** Youth unemployment rates (%), 2000–2021.

Authors' own graphic demonstrating mean unemployment rates of 15–25-year-olds for 2000–2021. Source: Eurostat

that individual outcomes are not solely dependent on individual characteristics, but vary across institutional settings. In particular, it addresses how various institutions of education systems and labour markets shape individual labour market outcomes.

Against this background, this paper provides an overview of comparative school-to-work research, with four main sections. The first of these sections presents different labour market outcomes in European countries concerning the transition period (*unemployment risk, search duration*) and job quality (*occupational status, education-job-matching*). The second and third sections introduce the institutional settings of these countries. Particular focus is paid to institutions of education systems (*stratification, vocational specificity*) and of labour markets (*employment protection legislation and income sustaining policies*), respectively. The final fourth section summarises and discusses the previous sections.

This paper makes several contributions to research. First, it provides an extensive review of the research stream by introducing detailed information on countries (both on labour market outcomes and on institutional settings) which has so far been lacking in the multivariate oriented research stream. Second, it provides a theoretical link between the descriptions of the labour market outcomes and various institutions. Third, by including a wide range of countries from both Western Europe as well as Central and Eastern Europe (CEE), it proposes a reliable country classification along the OLM–ILM division, allowing us to identify new and valid country clusters. Fourth, it theoretically and empirically describes the complementarity of educational and labour market institutions, which have thus far mostly been addressed separately. Finally, it identifies theoretical inconsistencies of the research stream and desiderata regarding country samples and data, to which solutions are provided.

## 1 Transition patterns in Europe

Comparative school-to-work research has its roots in the 1960s (Raffe 2014). Studies initially focused on the regional or national level but were later expanded to the international level due to the rise in youth unemployment in the 1980s and the need for proper policy regulations. With the expansion of the European Union in the 1990s, new international data emerged (EHP<sup>1</sup> in 1994, PISA<sup>2</sup> in 2000, EU-LFS<sup>3</sup> in 2000 and EU-SILC<sup>4</sup> in 2004), allowing analyses of young people's transitions into the labour market. These developments progressed transition research from a solely micro-perspective to a macro-oriented one, including a wider range of countries (approximately 10–14). The studies predominantly focused on graduates of secondary education from Western societies (Blossfeld et al. 2006; Kogan and Müller 2003; Müller and Shavit 1998b; Smyth et al. 2003) or separately from CEE (Kogan et al. 2008). However, with the growing expansion of the education system and implementation of the Bologna Reform, scholarly attention shifted to graduates of higher education. Data derived from projects such as CHEERS,<sup>5</sup> REFLEX<sup>6</sup> or HEGESCO<sup>7</sup> enabled separate analyses of transition patterns for highly-educated graduates in Western societies (Allen and Van der Velden 2009; Allen and Velden 2011) or CEE (Kogan et al. 2011; Noelke et al. 2012).

The profound analyses of the research stream identified transition regimes between two extreme poles: On the one hand are German-speaking countries, whose graduates experience a smooth transition into jobs that correspond to education, and on the other hand is Southern Europe, whose graduates experience a more turbulent transition pattern (Gangl 2010). However, English speaking or Nordic countries have yet to be clearly classified between these two poles. In addition, CEE has been mainly considered separately in research and direct comparisons with Western Societies have been limited. The paper thus fills these gaps by introducing diverse labour market outcomes and institutional settings for a wide range of countries, making direct comparisons and valid country classifications possible.

This section begins with profound descriptions of labour market outcomes for a wide range of countries. This empirical evidence in the school-to-work research is

<sup>1</sup>[http://www.edac.eu/socio\\_esurvey\\_desc.cfm?v\\_id=8](http://www.edac.eu/socio_esurvey_desc.cfm?v_id=8)

<sup>2</sup><http://www.oecd.org/pisa/>

<sup>3</sup>[https://ec.europa.eu/eurostat/statistics-explained/index.php/EU\\_labour\\_force\\_survey\\_%E2%80%93\\_data\\_and\\_publication](https://ec.europa.eu/eurostat/statistics-explained/index.php/EU_labour_force_survey_%E2%80%93_data_and_publication)

<sup>4</sup>[https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:EU\\_statistics\\_on\\_income\\_and\\_living\\_conditions\\_\(EU-SILC\)/de](https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:EU_statistics_on_income_and_living_conditions_(EU-SILC)/de)

<sup>5</sup><http://www.qtafi.de/cheers-european-graduate-survey.html>

<sup>6</sup><http://roa.sbe.maastrichtuniversity.nl/?portfolio=reflex-international-survey-higher-education-graduates>

<sup>7</sup><http://www.hegesco.org/>

so far limited as most of the studies focus on multivariate results. This section thus classifies countries regarding outcomes related to the job search process (e.g. unemployment risk, search duration) which have been derived from official statistics (such as the Organisation for Economic Co-operation and Development [OECD] or Eurostat). Information on outcomes related to job quality (e.g. occupational status, education-job-matching) is in turn derived from descriptive results presented by the few studies available in the research stream. This wide-ranging empirical evidence allows us to directly compare the outcomes prevalent in a wide range of European countries and identify clear country clusters, including direct comparisons between Western societies and CEE.

In the following, I first describe country-specific outcomes for graduates with secondary education, followed by descriptions of outcomes for those with tertiary education as the research stream has focused on each educational group separately. Although there is a vast literature on the institutional effects on social inequality with respect to gender (e.g. Hadjar and Buchmann 2016; Van Hek et al. 2019), migration background (e.g. Heisig and Schaeffer 2020; Kogan 2016) or social origin (e.g. Bol and Van de Werfhorst 2013; Triventi 2013), this paper focuses on country-specific transition patterns of the two educational groups (secondary and tertiary educated), irrespective of their sociodemographic characteristics. The aim is to present country-specific transition regimes characterised by high(er) and low(er) labour market outcomes of young graduates.

### 1.1 Labour market outcomes of graduates with secondary education in Europe

As mentioned above, research on graduates with secondary education indicates a continuum of countries, from German-speaking ones showing advantageous outcomes to Southern European countries' showing more turbulent transition patterns. All other countries (English speaking, CEE or Nordic countries) lie somewhere between these two poles.

Table 1 illustrates the various indicators for labour market outcomes in these countries. In line with previous research, most graduates from *German-speaking countries* (mostly represented by Germany, Austria and Switzerland) transition smoothly into employment. This manifests itself in low youth unemployment rates (approximately 4–8%) and a rapid transition into the first significant job (less than 6 months on average, see Table 1). These jobs also appear to be highly beneficial. They show a relatively high occupational status (the ISEI<sup>8</sup>

is approximately 40) and strongly correspond to education: the vast majority of graduates have a job that relates to their educational level (*vertical match*=above 90%) or fits their field of education (*horizontal match*=up to 80%).

*Southern Europe* reflects the opposite scenario, as emphasised by previous research. Studies mostly considering countries such as Spain, Italy and Greece show that long before the financial crisis in 2008, young graduates already faced a high risk of unemployment (up to 25%, see Couppié and Mansuy 2003). Although the risk almost doubled in the aftermath of the financial crisis in 2008 and has remained high until now (up to 40%, see Table 1), it is evident that graduates in Southern Europe were already disadvantaged before its outbreak. Furthermore, the job search duration is the longest in Europe, with young graduates taking approximately one year to secure their first job. Moreover, when they finally attain employment, it is less frequently linked to their education, especially to their field of education (horizontal matching: 52–55%).

Apart from the two above-mentioned extreme poles, I identify the following country clusters, as indicated by Table 1.

*Nordic* countries such as Sweden, Finland and Norway, together with the Netherlands and Denmark, form a relatively homogenous group<sup>9</sup>. Although some studies classify Denmark and the Netherlands as part of the German-speaking cluster (Gangl 2010), the findings presented in Table 1 reveal that these countries do not reach the same advantageous level in all outcomes as in German-speaking countries but rather show similarities with their Nordic neighbours (SE, FI, NO). This is especially true for the unemployment rates of secondary educated (max 8% in German-speaking countries vs. up to 14% in Nordic countries, NL and DK) or horizontal matching (up to 80% in German-speaking vs. up to 70% in Nordic countries, NL and DK).

The group of English-speaking countries (such as the UK or Ireland) together with Belgium and France – in research referred to as *Western European countries* – somewhat resembles the pattern of Southern Europe. Although the labour market disadvantage of these graduates is less pronounced than those in Southern Europe regarding unemployment rates (10–20%), search duration (3–7 months) or horizontal matching (up to 60%), it is clearly closer to Southern Europe than to German-speaking countries.

Regarding CEE, this country group cannot be subsumed under one category. Instead, I identify a

<sup>8</sup> International Socio-Economic Index of Occupational Status (ISEI) varies between 16 (e.g. unskilled workers) and 90 (e.g. judges) (Ganzeboom et al. 1992).

<sup>9</sup> In the following I refer to Finland, Norway or Sweden as *Nordic* countries, whereas when *additionally* considering Denmark and the Netherlands, I call this country group *Northern* countries.

**Table 1** Labour market outcomes in European countries

	Southern Europe	English-speaking & FR, BE <sup>1</sup>	Baltic CEE	Nordic & DK, NL <sup>2</sup>	Landlocked CEE	German-speaking countries	Source
<b>Youth-(un)employment</b>							
Youth-unempl. rate <sup>3</sup> (%)	30–40	10–15 15–20	15–20	20–25 9–11	8–13	7–10	Eurostat (2020b)
Youth-unempl. > 1 year (%)	35–56	21 27–35	16–27	4–10 8–18	27–35	8–22	OECD (2015)
Youth temporary contracts (%)	31–56	15–29 39–58	8–12	29–55 35–55	20–32	40–55	OECD (2016)
<b>LM-outcomes Sec. Educ.</b>							
Youth unempl. SE (%)	27–39	10–16 14–20	10–13	7–14 7–9	6–14	4–8	Eurostat (2016)
Search duration (months)	9–14	3–4 6–7	5–9	5–6 3	4–6	5–6	Eurostat (2009)
Occupational status (ISEI: 16–90)	35–39	37 34–37	34–39	34 37–39	37–39	38–41	Marczuk (2021, p. 127)
Vertical match (%)	88–90	85 82–85	81–84	86–89 87–91	90–95	94–96	Marczuk (2021, p. 127)
Horizontal match (%)	52–55	54–60 53–60	50	54–65 68–71	68–71	75–80	Levels et al. (2014, p. 351)
<b>LM-outcomes Higher Educ.</b>							
Youth unempl. HE (%)	23–35	5–8 8–10	5–8	5–8 4–10	4–11	3–6	Eurostat (2016)
Search duration (months)	7–12	3 5	3–4	3–4 3	3–4	4	Eurostat (2009)
Occupational status (ISEI: 16–90)	55–57	57 57–59	55–60	57 58	60–62	60–68	Marczuk (2021, p. 127)
Overeducation (%)	24–30	21–33 17–26	19–25	14 18–22	8–13	17–19	McGuinness et al. (2018, p. 1000)
Vertical match (%)	57–67	60 70–79	62–70	80 73	75–79	80–85	Allen and Van der Velden (2009, p. 40)
Horizontal match (%)	73–80	59 82–84	74–81	90–92 81	81–87	85–88	Allen and Van der Velden (2009, p. 41)

<sup>1</sup> As the countries in this group differ in labour market institutions, the values are presented separately for English-speaking countries (upper value) and for France and Belgium (lower value)

<sup>2</sup> As countries in this group differ in labour market institutions, the values are presented separately for Nordic countries (FI, SE, NO: upper value) and for Denmark and the Netherlands (lower value)

<sup>3</sup> This rate addresses the youth of all educational levels (primary, secondary and tertiary)

north–south division within CEE that corresponds to the above-mentioned poles. Landlocked countries (predominantly the Czech Republic, Hungary and Slovakia) show relatively comparable outcomes to the German-speaking group, whereas their Baltic neighbours are closer to the Western and Southern European group. In particular, countries situated around the Baltic Sea, such as Lithuania, Latvia, Estonia and, to a certain extent, Poland, show disadvantageous returns regarding search duration (up to 9 months) and vertical (approximately 80%) and horizontal matching (50%). These returns are, in turn, higher in their landlocked neighbours (a search duration of less than 6 months and over 90% or around 70% for vertical

and horizontal matching, respectively), showing comparable outcomes with the German-speaking group.

## 1.2 Labour market outcomes of tertiary graduates in Europe

The transition patterns regarding the highly educated resemble the transition patterns of their secondary education counterparts (see Table 1), revealing a similar continuum of countries between the German–Southern Europe division.

Again, university graduates in *German-speaking countries* have a low risk of unemployment (up to 6%) and experience a smooth transition into their first job (only 4 months on average). In addition, these jobs correspond

with a high occupational status (almost 70 ISEI), and frequently match their educational level (up to 85%) or field of study (up to 88%). Relatively few graduates work beneath their educational level (overeducated group: 17–19%). As with those who have a secondary education, the tertiary educated in Northern countries are similar to the German-speaking group, with comparable overeducation rates (up to 22%) and horizontal matching (up to 92%), but a slightly lower occupational status (around 58 ISEI) and vertical matching (73–80%) than those in German-speaking countries.

On the other extreme pole is *Southern Europe*, where the transition from school to work is more turbulent and jobs are of a lower quality. In addition to relatively high unemployment rates (up to 35%) and a long search duration (7–12 months), every third graduate works below his or her educational level. In addition, the occupational status is, on average, the lowest in Europe (below 60 ISEI) and fewer graduates have a job requiring an HE degree (57–67%) or a particular field of study (less than 80%). As shown for the secondary educated, similar job characteristics emerge within the *Western European* group, although this applies more to English-speaking countries than to France or Belgium (see Table 1).

CEE is also not a homogenous group when regarding the tertiary educated. Once again, a north–south division is evident in the former Soviet countries: Whereas landlocked countries show similar outcomes regarding search duration (up to 4 months), occupational status (up to 62 ISEI) and matching (75–87%), and even lower overeducation rates (max. 13%) than the German-speaking group, Baltic countries more closely resemble the disadvantaged situation of Southern Europe, particularly regarding the relatively high overeducation rates (up to 25%), relatively low occupational status (ISEI less than 60), and matching rates (62–81%).

In summary, the country pattern for university graduates resembles the pattern for secondary graduates, revealing a continuum of countries between German-speaking nations and those of Southern Europe. Although the Northern and especially the landlocked CEE countries are closer to the German-speaking group, Western Europe and Baltic CEE countries are more similar to the southern group. These differences are frequently linked to the institutions in the education systems in these countries. The following section introduces the main theoretical frameworks on the institutional effects on individual outcomes and subsequently describes country characteristics according to these institutions.

## 2 The role of education systems

### 2.1 How do educational institutions shape labour market outcomes?

Studies addressing the role of institutions of education systems predominantly focus on vocational specificity and stratification of education<sup>10</sup> (Allmendinger 1989; Hannan et al. 1999; Kerckhoff 2001; Müller and Shavit 1998a). These institutions influence individual outcomes due to *educational signalling* (Spence 1973)<sup>11</sup>. The principal aspect of this theory is the imperfect information of employers who seek signals of productivity of job seekers. School-to-work research uses this approach as a mechanism behind institutional effects. Accordingly, institutions shape the informational value (signalling) of educational credentials, which drives the labour market outcomes of young graduates.

The *stratification of the education system* (Allmendinger 1989; Kerckhoff 2001) defines the extent to which graduates are sorted by performance into different educational levels or programmes (tracking). In highly stratified systems, graduates follow different educational paths and employers rely strongly on certificates as these signal differences in job applicants' performance. This high signalling of education leads to higher labour market outcomes. In contrast, in less stratified systems, graduates follow similar educational paths and job applicants differ little regarding educational attainment. To distinguish between them, employers must focus on other characteristics of the candidates aside from educational level or field of study (e.g. grades, work experience). This low educational signalling results in lower educational outcomes. Empirical studies support these assumptions: Graduates in countries with high stratification show more advantageous labour market outcomes, such as a lower risk of unemployment (Gangl 2003b, c), higher occupational status (Gangl 2002) and higher education–job matching (Levels et al. 2014). Many studies emphasise that stratification increases the gap between graduates of lower and higher education regarding occupational status (Andersen and Van de Werfhorst 2010; Bol 2013), earnings (Van de Werfhorst 2011a) and vertical matching (Marczuk 2021). This indicates that stratification affects the *signalling of educational level*, leading

<sup>10</sup> Along with stratification and vocational specificity, the *standardisation of the education system* is another educational institution. However, this concept was rather considered in small case studies (Allmendinger 1989; Kerckhoff 2001), while it is less established in analyses using a wider country sample. Due to its limited application within comparative transition research and the lack of descriptions for a wide range of countries, it will not be further addressed in this review.

<sup>11</sup> For further empirical evidence using other theoretical explanations for the role of education, such as the human capital theory (Becker 1962, 1993), the job queue theory (Thurow 1978) or credential mechanisms (Collins 1979), see e.g. Bills et al. (2017); Bol (2015); Van de Werfhorst (2011a, b).

to a stronger differentiation in vertical outcomes on the labour market (occupational status, earnings, etc.).

The *vocational specificity* of educational programmes also shapes individual labour–market outcomes. An educational system is vocational specific (Kerckhoff 2001; Müller and Gangl 2003) if it provides training in specific skills for a particular occupation – either school-based or as a combination of school and apprenticeship-based training (the ‘dual system’). In these systems, employers rely on skills provided in education as they are strongly vocational and easily applicable to the job (Marsden 1999; Müller and Shavit 1998a). This high signalling of skills makes credentials crucial for the job placement process, resulting in higher labour market outcomes of graduates. Many studies have tested these assumptions by mainly using indicators for the vocational specificity of secondary education. They emphasise that the effect of specificity varies according to outcomes. Vocational specificity shows advantageous effects on outcomes regarding transition, such as a lower risk of unemployment (Gangl 2003b; Shavit and Muller 2000; Van der Velden and Wolbers 2003) and temporary employment (de Lange et al. 2013) or a faster speed of entry (Bol and Van de Werfhorst 2013; Wolbers 2007). However, studies show that higher specificity lowers the occupational status of graduates (Shavit and Muller 2000; Wolbers 2003, 2007). This is related to the trade-off effect of vocational specificity proposed by Shavit & Müller (2000): Although graduates with secondary education are protected from unemployment or low-skill employment (*safety net*), they face lower opportunities for jobs with higher occupational status as these jobs are reserved for graduates with tertiary education (*diversion*). Some studies also find a negative effect of specificity on horizontal matching (Wolbers 2003; Levels et al. 2014; Marczuk 2021). Marczuk (2021) suggests considering horizontal matching only in jobs corresponding to the educational level (vertical matching): In line with the diversion reasoning, specificity might lower horizontal matching for those with a secondary education when higher status-jobs are included (positions designed for those with a tertiary education).

The next section describes the institutional settings of European countries regarding both stratification and vocational specificity and links them to the individual labour market outcomes presented in the previous section.

## 2.2 Education systems in European countries

Research applying the theoretical concepts of stratification and vocational specificity of secondary education divides countries into those with highly evolved stratification and specificity and those where these features are markedly less present. Whereas most studies draw a distinction between *occupational labour markets* (OLM)

and *internal labour markets* (ILM) (Marsden 1990, 1999), others refer to *qualification* and *organisational spaces* (Maurice et al. 1986). The OLM model (or qualification spaces) is characterised by high educational signalling due to a highly specific and stratified education system. In this model, training takes place in the education system and certificates are highly valued by employers. In the ILM model (or organisational spaces), educational signalling is low due to more generally-oriented programmes and the less pronounced stratification of education systems. In this model, education takes place in the labour market itself (*on-the-job training*) as skills signalled by credentials are less useful to employers.

Research has so far emphasised that German-speaking countries clearly represent the OLM model, whereas Southern Europe show characteristics of ILM (Gangl 2010; Müller and Shavit 1998a). However, the classification of countries in between this continuum has not always been conclusive: for example, Saar et al. (2008) classify Nordic countries (FI and SE) as ILM, whereas Marczuk (2021) categorises them into the OLM group; some English speaking countries are either classified as OLM (Kerckhoff 1995) or clearly as ILM (Gangl 2010). This is partly related to the different country samples and due to the different indicators for institutional settings used in the studies. To derive clear country classifications, I rely on in-depth qualitative descriptions of country-specific institutions presented in previous studies of the school-to-work research. However, I complement this information by quantitative data derived from official statistics (OECD employment outlook, Eurostat). Using the same measurement of institutional settings for wide range of countries allows to identify reliable country classifications along the OLM–ILM continuum. In this respect, stratification is measured by low tertiary graduation rates as high stratification selects students into different educational tracks and fewer students reach tertiary level. In addition, I also consider the tracking index proposed by Bol and Van de Werfhorst (2013), although not all countries are covered there (e.g. CEE). Vocational specificity is in turn represented by two indicators: the share of students in school-based vocational upper secondary education (as opposed to general education) and by the share of students in apprenticeship-type vocational education (dual-system), although the information is not available for all countries (e.g. CEE). To measure the vocational specificity of higher education, I rely on qualitative descriptions derived from previous studies (e.g. Kivinen and Nurmi 2014; Reimer et al. 2008) because – to my knowledge – official statistics barely provide this information. All these measures allow us to propose a reliable classification of countries along the OLM–ILM continuum.

As already mentioned, research emphasises that German-speaking countries clearly represent the OLM model. The advantageous labour market situation of graduates is linked to the high educational signalling driven by high specificity and high stratification (Müller and Shavit 1998a). Germany, and Austria, and partly Switzerland,<sup>12</sup> offer a highly tracked school system (Bol and Van de Werfhorst 2013): Students are sorted early into different academic or vocational tracks after 4 to 6 years of elementary school, which determinates their future educational chances for higher or vocational education. This results in relatively low tertiary education rates, especially in Germany and Austria (Eurostat 2022). Furthermore, these systems are characterised by extensive vocational training. In addition to purely school-based learning, all German-speaking systems show high shares of apprenticeship-based training (the 'dual system') at the upper secondary level (OECD 2021), where students learn both in schools and on the job. Regarding the tertiary level, these systems reveal high proportions of universities of applied sciences (Leuze 2010), with high rates of specific or professional fields of study (Reimer et al. 2008) and study-related work experience (Kivinen and Nurmi 2014).

The education systems of Northern countries resemble the OLM pattern of the German-speaking group. However, regarding secondary education, Denmark offers an extensive apprenticeship-based training (the 'dual system'), whereas this is less evolved in the Netherlands, Sweden and Finland, where school-based training is more prevalent (OECD 2021; Smyth et al. 2003, p. 43). In addition, tracking in all Northern countries is less pronounced compared to German-speaking countries (Bol and Van de Werfhorst 2013; Shavit and Muller 1998; Smyth et al. 2003) revealing higher tertiary education rates (Eurostat 2022). This might partly explain why labour market outcomes in Northern countries are lower than those in German-speaking countries, as described in the former section.

In contrast, English-speaking countries follow the ILM model (Gangl 2010). The education system involves far less tracking (Smyth et al. 2003) and students complete a long period of elementary school that predominantly leads to higher education, which is why these countries

are revealed to have high tertiary education rates (Eurostat 2022) and low tracking (Bol and Van de Werfhorst 2013). This low stratification is accompanied by high shares of general programmes in secondary education (OECD 2021): students learn more general skills with a wide range of subjects in predominantly school-based education (Shavit and Muller 1998; Smyth et al. 2003). Tertiary education consists mostly of traditional universities of general scope (a multi-faculty structure) (Kim and Kim 2003; Leuze 2010) with high shares of general fields of education (Reimer et al. 2008) and less access to study-related work experience (Kivinen and Nurmi 2014). These institutional settings in English-speaking countries are linked to lower educational signalling and more turbulent transition patterns (Müller and Shavit 1998a, p. 12). Similar institutional settings reveal countries such as France and partly Belgium, being however, slightly more stratified (with lower tertiary education rates, see Eurostat 2022) and possessing higher shares of vocational school-based programmes at the secondary level (OECD 2021), which might explain their more advantageous outcomes (of university graduates) compared to English-speaking countries, as presented in the previous section.

In summary, there is a division between OLM and ILM models, with German-speaking countries representing one group and Western European countries (English-speaking, France, and Belgium) the other. However, this division does not fully apply to Southern Europe. Although it shows strong characteristics of the ILM model, with general training in both secondary and tertiary education (Marczuk 2021; OECD 2021; Passaretta and Triventi 2015), low stratification and relatively high tertiary education rates (Eurostat 2022)<sup>13</sup>, labour market outcomes in Southern Europe are even more disadvantageous than in ILM Western countries, as shown in the previous section. This is due to the higher labour market regulation in Southern Europe (Gangl 2010)<sup>14</sup>. Strict regulations protect those already employed, making it more difficult for new entrants to find a job. The negative effect of more general and less stratified education is thus amplified by strict labour market regulations (Gangl 2010), leading to even lower labour market outcomes compared to other ILM countries.

Particular Central and Eastern European countries differ strongly in institutional settings. On the one hand, landlocked countries such as the Czech Republic and Hungary (and partly Slovakia) have the highest tracking within CEE, low educational expansion and

<sup>12</sup> Switzerland is divided into different language areas and cantons: The largest area comprises the German-speaking cantons. There is also the smaller French-speaking, Italian-speaking and the very small Romansh-speaking part of Switzerland. Due to federalism, the education system is primarily the responsibility of the cantons. However, the structure of whole education systems is not so strongly differentiated between cantons (SERI 2024), which is why school-to-work research does not differentiate the language areas within Switzerland, considering it a German speaking country. Accordingly, Switzerland is placed here in the German speaking cluster: although slightly less stratified, it shows the highest vocational specificity of all considered German-speaking countries.

<sup>13</sup> This applies less to Italy, which has lower tertiary education rates than other Southern countries; however, these low rates partly stem from high dropout rates at Italian universities (Barone and Ortiz 2011).

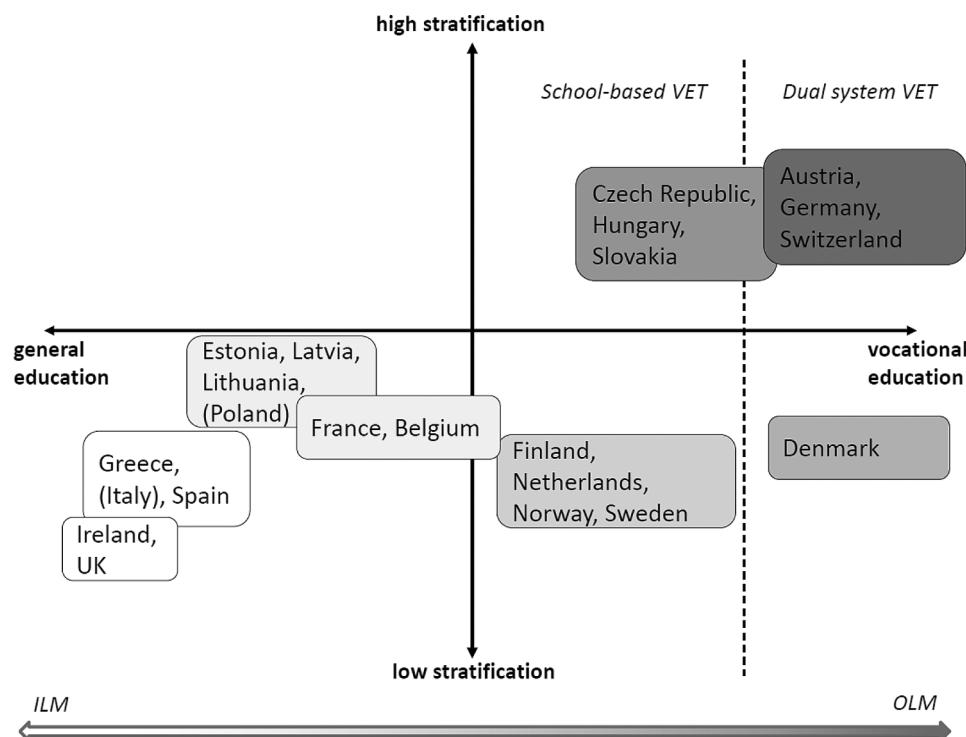
<sup>14</sup> Spain is an exception, revealing a less regulated labour market.

offer apprenticeship-type training (Kogan 2008). This resembles the education systems of German-speaking countries, although to a lesser extent due to the comparatively less evolved dual system (OECD 2021). The Baltic countries such as Lithuania, Latvia, Estonia (and partly Poland), on the other hand, have lower tracking, higher educational expansion (Eurostat 2022) and offer predominantly general education at upper secondary level (OECD 2021). These differences in education systems might partly explain why individual outcomes in landlocked countries are higher than in Baltic countries.

This section identifies country-specific transition regimes. Figure 2 reveals the above-described country classifications. Both secondary and tertiary graduates in German-speaking countries show the highest labour market outcomes. This is linked to their high specificity and highly stratified education system (OLM model). Relatively similar patterns can be seen in Denmark and, to a lesser extent, in the remaining Northern countries. In contrast, in Southern and Western Europe (English

speaking countries & FR, BE) these institutional settings are merely evolved (ILM model), resulting in lower labour market outcomes. Central and Eastern Europe does not display a uniform pattern: Landlocked countries (CZ, HU, SK) show higher labour market outcomes due to highly evolved institutional settings comparable with German-speaking systems. Countries around the Baltic Sea (EE, LV, LT and PL) reveal lower outcomes due to a lack of these strong institutional settings. As shown by the case of Southern Europe, along with less evolved educational institutions, there are labour market institutions that make the transition more turbulent. These institutions form another relevant context which shapes individual outcomes, which will be described in the next section.

It is worth noting that Fig. 2 reveals a positive correlation between both institutional settings: the higher the vocational specificity, the higher the stratification, or vice versa (although this applies less to Northern countries). This positive correlation might result from the threshold



**Fig. 2** Educational institutions in European countries.

Source: Author's diagram based on the literature review and own calculations derived from official statistics: Stratification is measured by tertiary education rates for 20–35 year olds (Eurostat 2022) and by the tracking index proposed by Bol and Van de Werfhorst (2013); vocational specificity is measured by the share of students enrolled in general and vocational upper secondary education and in apprenticeship training in vocational upper secondary education (OECD 2021). Although all countries offer both general and vocational education (and to a certain extent apprenticeship-based training), the graph classifies countries according to their most dominant characteristic, e.g. Whereas German-speaking countries provide high shares of school-based training, they are classified as dual systems, because their dual shares are the highest in Europe; English speaking countries are classified as general systems because they show higher shares of general education compared to their shares of vocational education. The latter also applies to Baltic CEE (OECD 2021), although official statistics do not provide information on the shares of dual systems in these countries, which are classified by some studies as vocational specific (Kogan 2008)



between secondary and tertiary education<sup>15</sup>. On the one hand, general secondary education is meant to prepare for entry into tertiary education (Unesco 2012), thus high shares of general education result in high educational expansion (and thus low stratification). On the other hand, higher shares of vocational programmes (especially with an extensive dual system) are associated with low tertiary education rates because vocational secondary education is meant to prepare for entry into the labour market instead of continuing education at the tertiary level (Unesco 2012). These strongly evolved institutional characteristics result in higher labour market outcomes of both the secondary and tertiary educated (for a study addressing the school-to-work transition of both educational groups, see Marczuk 2021).<sup>16</sup>

### 3 Labour market institutions

#### 3.1 How does the labour market shape individual labour market outcomes?

In addition to the institutions of the education system, a wide research stream has focused on the effects of various labour market characteristics on individual labour market outcomes.

Numerous studies analysing the effect of educational institutions have considered the characteristics of the labour market to control for other contextual factors. Whereas the majority focus on cyclical factors, mostly using the change in gross domestic product (GDP) or the youth unemployment rate of a country (e.g. de Lange et al. 2013; Gangl 2003a; Gebel and Giesecke 2016), some also consider the size of labour market sectors (e.g. Kogan et al. 2011; Marczuk 2021; Verhaest et al. 2017).

Apart from these labour market *characteristics*, many studies explicitly address the effect of labour market *institutions*. Although trade unions, active labour market policies and the minimum wage are moderately addressed in transition research (for a short review, see Gebel 2017), the most prominent labour market institution considered is the employment protection legislation (EPL). This institution describes regulations regarding employers'

hiring and firing practices. The effect of this institution follows an insider–outsider logic (Lindbeck and Snower 1989): A strictly regulated labour market protects employees (insiders) and makes dismissals more difficult. This, in turn, diminishes the opportunities to hire new labour (outsiders) and has a particularly negative effect on the integration of young people into the labour market who, as recent graduates, are clearly outsiders.

Empirical findings reveal that labour market regulation indeed raises the risk of unemployment (Breen 2005; de Lange et al. 2013), prolongs the transition period (Wolbers 2007) and increases the risk of temporary employment for young graduates (Passaretta and Wolbers 2016). In short, labour market regulation affects outcomes regarding the chance of obtaining a (permanent) job, as emphasised by insider–outsider theory. However, research addressing outcomes related to job quality reveals less conclusive findings. Some studies find a positive effect of EPL on the risk of overeducation (Di Pietro 2002; McGuinness et al. 2018) and explain it by the greater difficulty of dismissing mismatched workers. Others identify negative effects on overeducation (Gangl 2004) or mismatch (Assirelli 2015; Verhaest et al. 2017) by arguing that employers may be risk averse in more regulated settings, leading to a better fit between the applicant's education and job. Thus, the insider–outsider assumptions regarding EPL are suitable when considering the chance of getting (or keeping) a job, but less so when considering the quality of the job (matching, overeducation).

Among the various types of EPL, *employment and income-sustaining policies* form another relevant labour market institution. They address the preconditions for and the duration of unemployment benefits. The effect of sustaining policies on individual outcomes is explained by search and matching theory (Barron 1975; Mortensen 1973), according to which, candidates continue to search for a job as long as the search costs do not exceed the wages of the currently available jobs. When candidates face high job search costs, they are keen to accept jobs that do not meet their (wage) expectations. These search costs are, in turn, lowered by high income-sustaining policies as they compensate for wage deficits during unemployment. Consequently, unemployment benefits grant workers more time to find a job that suits their preferences. Indeed, research has found that higher unemployment benefits prolong the unemployment duration (Farber and Valletta 2015; Lalive 2007) and this longer search period leads to jobs with higher wages or stronger matching (Gangl 2004; Nekoei and Weber 2017). However, most of the studies do not use country macro indicators when measuring sustaining policies but instead rely on the duration of unemployment benefits at the individual level. In addition, comparative transition

<sup>15</sup> Given the progressive educational expansion in Europe (Eurostat 2020a), approaches of hybridisation of secondary vocational with higher education are becoming currently more common. These dual study tertiary education programmes combine school and work based training and thus imitate the approach of dual systems of secondary education (DAAD 2024). However, these trends predominantly take place in the highly specific German systems, which is in line with the above proposed classifications along the OLM–ILM line.

<sup>16</sup> Marczuk (2021) additionally proposes a complementarity model of these educational institutions affecting the transition of both educational groups: Whereas stratification closes whole labour market sectors for graduates of a particular educational level (e.g. sectors for *Professionals* designed for tertiary educated vs. sectors for *Service and Support Workers* designed for secondary educated), vocational specificity closes jobs within these sectors for graduates of particular field of education (e.g. *School teachers* for tertiary graduates from Education vs. *Child care workers* for secondary graduates from Education).

research considers sustaining policies as a complementary institution to EPL: the main assumption behind this complementarity is that sustaining policies provide unemployment benefits covering the costs of a long search duration caused by strict EPL (Bukodi et al. 2008; Estévez-Abe et al. 2001). Thus, sustaining policies complement EPL rather than having an autonomous effect on youth transition into labour market. The following section describes country characteristics regarding employment protection legislation and its complementarity effect by sustaining policies.

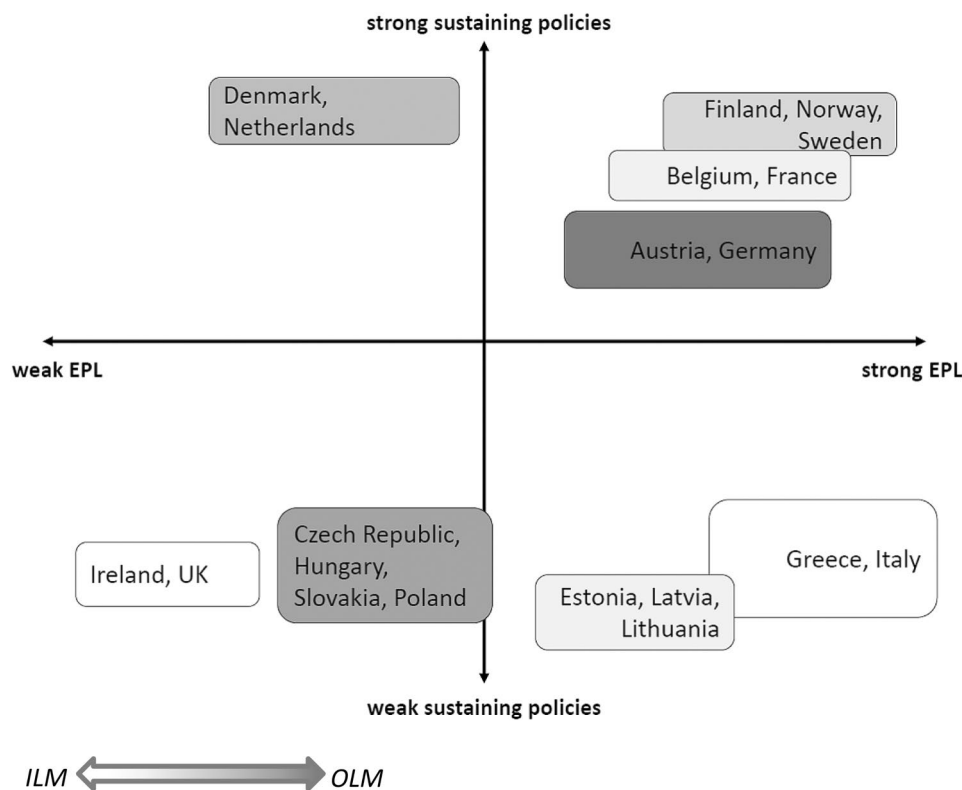
### 3.2 Labour market institutions in European countries

This section presents country-specific settings concerning institutions along the axes of EPL and sustaining policies. It leans on the existing country classifications regarding the two labour market institutions proposed by Saar et al. (2008) and Estévez-Abe et al. (2001). However, the contribution of this chapter is in linking these institutional settings to the individual outcomes elaborated in Sect. 1 and providing more insights about the country clusters. As argued above, the focus is on the effect of institutional settings on the transition period of youth (unemployment rate, duration of unemployment, temporary contracts) which is shown to be affected by labour

market settings rather than job quality (e.g. matching, overeducation).

In the right upper corner of Fig. 3 are Nordic countries such as Finland, Norway and Sweden, together with Belgium and France. In these countries, both institutional settings are highly evolved, which affects labour market outcomes. On the one hand, the strict EPL makes labour market entry more difficult for young graduates (outsiders), as evidenced by the relatively high rates of youth unemployment (15–20% for FR & BE, 20–25% for Nordic countries, see Table 1), which frequently lasts longer than one year, especially for unemployed youth in France and Belgium (27–35%). In addition, employers more frequently assign short-term contracts (up to 58%), which makes it easier to fire employees that is highly restricted by EPL. On the other hand, the high sustaining policies provide financial security during these long search periods and allow job seekers to find jobs that suit their preferences. Although to a lesser extent, German-speaking countries (such as Germany or Austria) also show similar institutional settings. However, despite showing strict EPL, their unemployment rate and job finding duration are some of the lowest in Europe (see Table 1).

Similar to the group described above, Southern European countries (except for Spain) also show strict EPL and turbulent entry patterns that subsequently manifest



**Fig. 3** Labour market institutions in European countries.

Source: Authors' own diagram based on the classifications by Saar et al. (2008) and Estevez-Abe et al. (2001)

in the highest youth unemployment in Europe (up to 40%). In addition, their unemployment frequently lasts over a year (for up to 56% of unemployed youth) and the contracts assigned are frequently of a short time (up to 56%). However, unlike in France, Belgium or Nordic countries, the turbulent transition period is not compensated for by high unemployment benefits as the sustaining policies are low in Southern Europe. This institutional gap is filled by family support (Bernardi et al. 2000; Gangl 2010), suggesting that family plays a significant role as a relevant institution when state support is scarce.

Apart from the two main models with strict EPL described above, other country groups reveal low EPL. In Denmark and the Netherlands (see the upper left corner in Fig. 3) the low protections of already employed insiders allow for flexible hiring and firing practices and thus a smoother transition into the labour market for young graduates (outsiders). This manifests in low youth unemployment (approximately 10%) and short unemployment spells (below 18% search for longer than a year). In addition, the generous income-sustaining policies provide security for employees in the event of a sudden job loss provoked by the weak EPL.

Flexible hiring and firing practices also take place in English-speaking countries due to low EPL (see the lower left corner of Fig. 3). This manifests itself in relatively low youth unemployment (below 15%), shorter unemployment spells (21% search for longer than a year) and a lower share of temporary contracts (15–29%). However, in the case of a sudden job loss, the unemployment benefits offer less support compared to Denmark or the Netherlands due to weak sustaining policies, which might make the further career path more turbulent.

Central and Eastern European countries show quite weak sustaining policies whereas they differ in EPL: the smooth transition in landlocked countries (search duration is less than 6 months, max. 13% youth unemployment) might be related to a weaker EPL and easier firing and hiring practices. These practices are stricter in Baltic countries, which might explain their more turbulent transition pattern (search duration is up to 9 months, up to 20% youth unemployment). Whereas the smooth transition pattern in landlocked countries requires less state support, as in English-speaking countries, the turbulent pattern in Baltic countries is not supported by sustaining policies, similar to Southern Europe.

In summary, this section describes the role of institutions of the labour market in driving labour market outcomes. Among the many labour market characteristics, EPL is a central institution that delays the transition of youth (outsiders) into the labour market. Whereas in some countries the longer transition is compensated for by high sustaining policies (some Nordic countries or Belgium and France), in others it is weakly evolved and

must be covered by family financial support (e.g. Southern Europe and perhaps Baltic countries). This section also emphasizes that EPL drives the transition into first jobs (unemployment risk and length, search duration) due to the insider–outsider protection or search costs. Job quality, in turn, might be more strongly related to educational signalling, which is driven more by education systems than by labour market institutions. The next section connects both sides and describes how the institutions of the education system complement the institutions of the labour market in affecting the transition into the first job in addition to job quality.

#### **4 Putting the pieces together: complementarities between education systems and labour markets in Europe**

Several studies describe the complementarity of EPL with vocational specificity shaping individual outcomes (Andersen and Van de Werfhorst 2010; Barbieri et al. 2016; Breen 2005; Brzinsky-Fay 2017; Leuze 2010; Scherer 2005). Accordingly, high specificity compensates for the negative effect of EPL on outsiders (graduates) entering the labour market owing to stronger educational signalling. Thus, having strong educational signalling may prevent young people from turbulent transitions, even in highly regulated labour markets. This is particularly the case in German-speaking countries, which explains their smooth transition into beneficial jobs despite the strong insider protection regulated by a strict EPL.

Estévez-Abe et al. (2001) provide a theoretical framework which addresses the complementarity of labour market and education system institutions. In particular, the authors explain why education systems provide general or specific skills by arguing that it depends on the protection of skills regulated by labour market institutions.

The starting point of this argument is that investment in specific human capital is riskier because specific skills are not easily transferable between industries or companies. However, this investment is less risky if LM-institutions are highly evolved. On the one hand, generous sustaining policies cover search costs and thus allow a longer search for jobs that match specific skills (especially within the same industry). On the other hand, due to insider protection, EPL guarantees continued employment in jobs matching specific skills (particularly in the same company). Thus, if at least one of the labour market institutions is highly evolved, the investment in specific skills is less risky, allowing education systems to provide vocational specific education (Estévez-Abe et al. 2001).

This is true for German-speaking or Northern countries (and to a certain extent France and Belgium) where strict EPL and/or sustaining policies protect the vocational-specific skills offered in education systems. That

is why the training takes place in the education system and employers use these skills in their companies (OLM). These countries show, on the one hand, a rather turbulent transition (due to strong labour market institutions), but on the other a high level of education–job matching (due to specific education). However, in German-speaking countries, the transition into labour markets is smooth due to the dual system and high stratification that provoke strong educational signalling, which makes hiring skilled graduates less risky.

Conversely, if both labour market institutions are less evolved, the investment in vocational skills is not protected and education systems provide general education that is transferable between companies or industries (Estévez-Abe et al. 2001). That is why, in English-speaking countries, the weak labour market institutions are complemented by general educational systems and training takes place on the job (ILM). Therefore, these countries show a smooth transition (due to weak labour market intuitions) but lower education–job matching (due to general education).

Although this theoretical framework was designed predominantly for Western societies, it is less applicable to Southern or Central and Eastern Europe. Despite strict EPL and the protection of specific skills, the education system in Southern Europe or Baltic countries does not provide specific but rather general education, resulting not only in a turbulent transition pattern but also in low education–job matching. Landlocked Eastern European countries, in turn, show on average weak labour market institutions but specific education. This might be related to the history of these countries and the changes after the fall of the Iron Curtain (Kogan et al. 2008): Although the education systems have maintained their Soviet tradition of specific education, the shift from controlled to liberal governance has weakened labour market institutions. This leads to a rather smooth transition (due to low EPL) and high matching between education and jobs in landlocked countries (due to high vocational specificity).

## 5 Discussion

This paper introduced and systematised the main findings of the comparative school-to-work transition research and offers several contributions.

First, by describing both labour market outcomes and institutional settings for a wide range of Western and Central and Eastern European countries, it provides a clearer classification of transition regimes: As emphasised by previous studies, we learned that graduates in German-speaking countries experience advantageous outcomes due to highly stratified and specific education while these outcomes are lower in Southern Europe due to less evolved education institutions. However, Sects. 1 and 2 provide a country classification that places all other

countries in between these two poles: whereas Northern and especially landlocked CEE countries are closer to the German-speaking group, English speaking countries and France, Belgium and in particular Baltic CEE countries are more similar to Southern Europe. Considering a wide range of countries allowed us to identify these reliable country clusters, which thus far have been differently classified or rarely considered in previous research.

Second, by connecting both educational systems and labour markets – addressed separately in previous studies – this study sheds light on how they complement each other and which outcomes in particular they affect: By extensively reviewing the findings of previous studies, we learned that labour market institutions influence outcomes related to transitioning into the labour market (unemployment risk and length, search duration, etc.) due to insider protections and search costs (see Sect. 3). Education systems, on the other hand, shape both the transition pattern and job quality (overeducation, matching, etc.) due to educational signalling (see Sect. 2). These differentiations emphasise the importance of considering particular labour market outcomes when analysing a particular institution, in addition to highlighting that both the education system and labour market should be considered when addressing transition patterns (see Sect. 4). Complementarities of institutions are crucial – it is never one institution but rather a conjunction of several institutions that drives individual outcomes.

Third, the overview allows us to identify research desiderata regarding country samples. The examinations of the country samples of previous studies revealed that some European countries were barely considered, e.g. small German-speaking countries (Luxembourg, Liechtenstein), islands of Southern Europe (Cyprus or Malta) or other CEE countries (e.g. Bulgaria, Croatia, Romania). Although these CEE countries could reveal the diverse heritages of Soviet influences, small countries or islands might show different institutional logics of education systems as they are more closely linked to the labour market on the regional level. In addition, considering candidate EU countries (Turkey and other Balkan countries) or countries outside Europe (especially rare comparisons with the Asian, Latin American or African continents) might, in turn, lead to a revision of the existing classifications and theoretical models given the homogenisation attempts of secondary or tertiary education proposed by the Lisbon or Bologna Process in Europe.

Fourth, relevant limitations regarding the available data are worth mentioning. Most of the micro-level survey data do not differentiate between general and vocational specific programmes of secondary education. This is a clear limitation considering the importance of the vocational education and training (VET) graduates in the research stream. To our knowledge, only EU-Labour

Force Survey data (2000 and 2009) or Programme for the International Assessment of Adult Competencies (PIAAC) data (2011) provide this information in addition to a variety of labour market outcomes. Moreover, macro-level country data provide few indicators addressing vocational specificity, especially regarding work experience during education. Such indicators are rarely offered for the secondary stage, whereas indicators regarding higher education are not available. The 'European Tertiary Education Register (ETER)' project<sup>17</sup> might fill the latter gap, providing data on the characteristics of tertiary education institutions in Europe such as size, subject structure, programme orientation, etc. However, this platform is still evolving and at present does not cover all higher education institutions in European countries.

It is also worth noting that the presented research stream is limited to the transition into the first job after graduation. Research focusing on further career development shows that, with time, the signalling of specific education falls and other signals (job experience) become more relevant (Gangl 2010). Thus, general transferable skills might be advantageous for further career development whereas specific skills hinder adaptation to new jobs or technologies (Brunello and Rocco 2015; Hanushek et al. 2017). Research also emphasises the disadvantages of highly evolved educational institutions: although they shape smooth paths into the labour market, higher stratification or vocational specificity increases social inequality in educational attainment regarding social origin, migration background or gender (Bol and Van de Werfhorst 2013; Heisig and Schaeffer 2020; Van Hek et al. 2019).

Lastly, despite the strong contribution of transition research emphasising the role of institutions, individual actions are extremely complex, and this research only reveals generalised processes within complex countries. Although the above-identified country clusters show clear similarities, they are not identical regarding institutional settings or labour market outcomes; for example, Switzerland shows slightly different educational or labour market institutions within the German-speaking cluster, which also applies to Spain within Southern Europe or to Poland within the Baltic cluster. These generalisations allow us to paint an understandable picture from complex settings; however, the within heterogeneity is not meant to be neglected here.

#### Acknowledgements

Not applicable.

#### Author contributions

Not applicable.

#### Funding

Not applicable.

#### Data availability

Not applicable.

#### Declarations

#### Competing interests

Not applicable.

Received: 18 September 2023 / Accepted: 27 July 2024

Published online: 16 September 2024

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