



**The Transition from Education to Work:
Theoretical Framework and State-of-the-Art**

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1. Introduction

This working paper provides a theoretical framework and offers a review of the state-of-the-art of school-to-work transition research. The term “school-to-work transition” is here understood as broad conception that includes transitions from secondary school, school-based vocational, dual/apprenticeship training and higher education to the labor market. Next to the “school-to-work transition” the topic of “school-to-home transition” is also discussed (Gebel & Heyne, 2014). The research topic is focused on the school-to-work transition. Other events of the transition to adulthood such as family formation (first marriage, first childbirth) and leaving parental home and their bidirectional causal relationship with the transition from education to work are important research topics but beyond the scope of this working paper (Buchmann & Kriesi, 2011; Gebel & Heyne, 2014; Billari & Liefbroer, 2010; Grant & Furstenberg, 2007; Lloyd, 2005; Shanahan, 2000). In this working paper this interrelations are only discussed in terms of the effects of early family formation on the school-to-work transition. Next to studying the labor market career outcomes there is a large research tradition that links the school-to-work transition to other non-economic outcomes such as health and well-being. These topics are also beyond the scope of this working paper in view of the large body of theoretical and empirical studies on this topic (Voßemer & Eunicke, 2015; Athanasiades et al., 2016; Unt & Gebel, 2018). From a disciplinary point of view this working paper focuses on sociological and economic theories and empirical studies. Other disciplines such as (social) psychology and research in personnel and human resources also made important contributions to the research on youth labor market integration but this research is also beyond the scope of this working paper. The review of empirical studies is restricted to quantitative empirical studies. Qualitative studies provide also important insights into the school-to-work transition but they are beyond the scope of this review because this literature is so rich and methodological different.

This working paper is structure as follows: in Chapter 2 a micro-macro-theoretical model of the transition from education to work is described. It strongly builds on the life course paradigm and discusses various stages of the transition from education to work in a multilevel framework. In Chapter 3 the various outcomes of the school-to-work transition are discussed. Specifically, the endogeneity of leaving education (Chapter 3.1), the labor force participation decision (Chapter 3.2), the job search (Chapter 3.3), various dimensions of first job quality (Chapter 3.4) and the career mobility (Chapter 3.5) are discussed. In Chapter 3.5 an outlook is provided non-economic outcomes of the school-to-work transition that are beyond the scope of this working paper. Chapter 4 addresses various micro-level determinants of the school-to-work transition. Specifically, the role of education attainment (Chapter 4.1), education performance (Chapter 4.2), working while in school (Chapter 4.3), social networks (Chapter 4.4), social origin (Chapter 4.5), gender and ethnic origin (Chapter 4.6), religious and cultural attitudes (Chapter 4.7), early family formation and the consequences of bad labor market entries (Chapter 4.8) are discussed. Chapter 5 is devoted to the macro-level determinants. Various institutional and structural context factors are introduced. Among the institutional factors secondary education and training institutions (Chapter 5.1), tertiary education and training institutions (Chapter 5.2), employment protection legislation (Chapter 5.3), unions (Chapter (5.4), active and passive labor market policies (Chapter 5.5) and minimum wages (Chapter 5.6) are highlighted. Chapter 5.7 addresses macro-structural factors such as unfavorable economic conditions, cohort size, educational expansion, globalization and occupational upgrading.

2. A micro-macro-model of the transition from education to work

The transition from school to work is a central stage in the life-course with long-lasting consequences for later life. Finding a stable job is often seen as a central precondition to making successful transitions on the way to becoming an adult. In the following, we outline a micro-macro-model of the transition from education to work that is inspired by the life course paradigm (see Figure 1 for an illustration).¹

Building on the life course paradigm the transition from education to work can be understood as decisions of individual agents who make choices and compromises regarding different alternatives (Elder et al., 2004). Individuals make the decision on acquiring a specific education level and the timing of leaving education (see Chapter 3.1). After leaving education, the first crucial decision is whether a young person actively participates in the labor market or not (see Chapter 3.2). Active participation in the labor market is defined as employment or unemployment. This static decision framework can be extended to a dynamic one as an active person may revise her/his labor force participation decision by withdrawing from the labor market and an inactive person may revise her/his labor force participation decision by becoming engaged in the labor market. Education leavers who decide to become active in the labor market get involved in a two-sided matching process of job seekers and employers (Granovetter, 1981; Kalleberg & Sørensen, 1979) (see Chapter 3.3). Employers represent the meso-level in our micro-macro-theoretical model as they represent the organizations that offer jobs to the job seekers. If the education leaver likes to become self-employed or employer there is no two-sided matching process because there is no employer on the other side.² In this case a one-sided decision of the education leaver to become self-employed or employer or not must be modelled. If job matches are formed it is important to consider the quality of the first job obtained (see Chapter 3.4). This is because a quick labor market entry does not automatically guarantee a higher quality of the first job. In this review, we adopt a multidimensional perspective on various aspects of job quality instead of relying on a single job quality dimension (such as wages) or aggregating working conditions into a one-dimensional index. Specifically, we consider the type of first job, the issue of non-standard employment, informal (unregistered) work, wages, social security and fringe benefits, occupational status, and mismatch. This list of job quality dimensions is just exemplary and it can be extended. The transition from education to work is a dynamic period in the individual life course. Measuring the time between leaving education and the date of finding a first job captures the dynamics of the initial placement process in the labor market. However, dynamics also takes place after finding a first job. Young workers may experience upward and downward career mobility in terms of getting promoted or downgraded in a given firm, changing employers or losing a job. In this regard, it is important to study also the early career dynamics (see Chapter 3.5).

The transition from education to work is strongly interrelated to other stages of the transition to adulthood, such as leaving parental home, first cohabitation, first marriage or first parenthood (Heinz et al., 2009; Huinink & Feldhaus, 2009). These events are seen as central markers in the transition to adulthood (Buchmann & Kriesi, 2011; Gebel & Heyne, 2014; Billari & Liefbroer, 2010; Grant & Furstenberg, 2007; Lloyd, 2005; Shanahan, 2000). In the research on the transition to adulthood the timing of these different life course events is studied (Elder et al., 2004). In addition, the bidirectional causal relationships between the transition from education to work and other youth transitions is often studied (Gebel & Heyne, 2014). Although connecting the research on the school-to-work transition with other events of the transition to adulthood is important and still innovative, reviewing this literature is beyond the scope of this conceptual paper and review that is focused on the school-

¹ The model builds on previous work (Gebel & Heyne, 2014; Gebel 2010b).

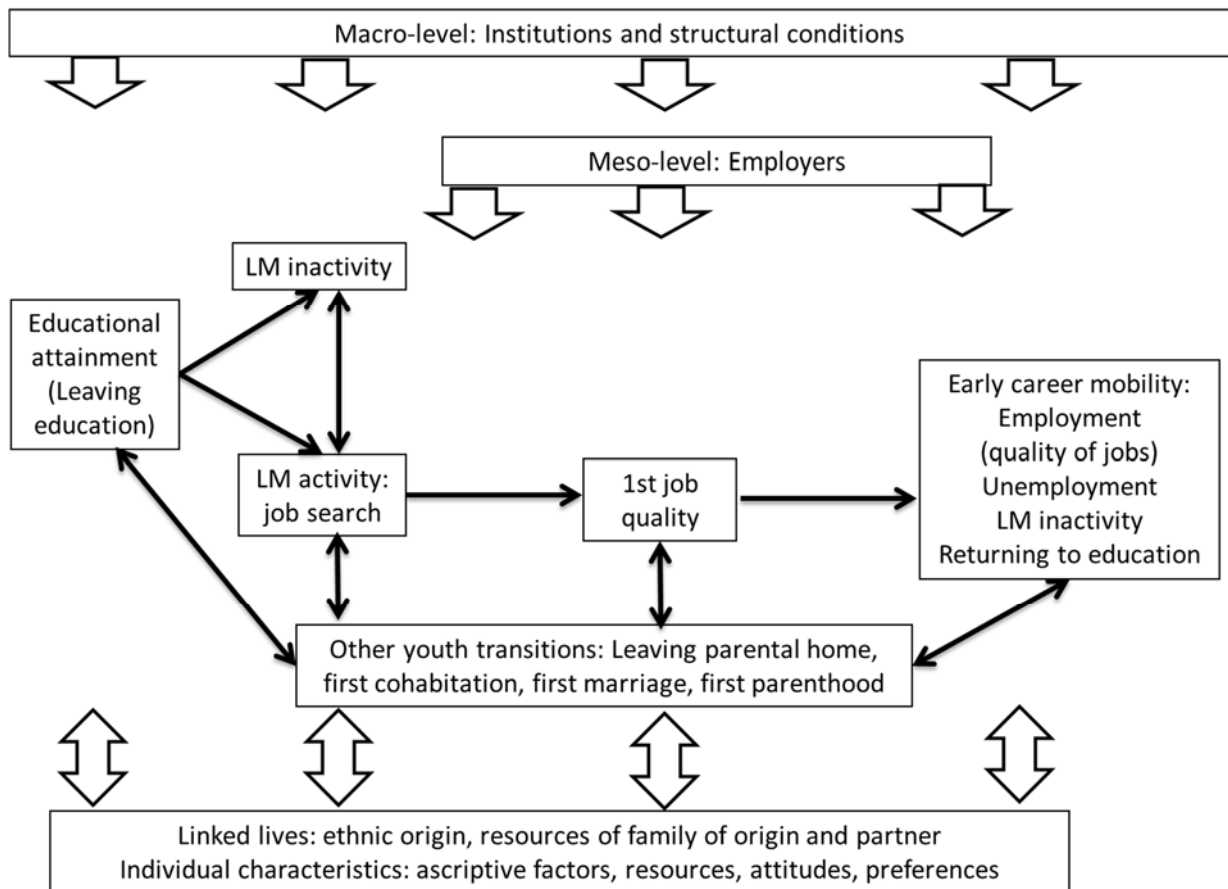
² In the case of employees/helpers in family businesses, the owner of the family business can be regarded as the employer even if it is a close family member.

to-work transition. In the following, we only highlight the role of early family formation as a micro-level determinant of the transition from education to work.

Life course research emphasizes the individuals' lives are strongly linked to those of relevant others like parents, siblings and partners (Mayer, 2009). This is expressed by the principle of "linked lives", which states that lives are interdependent and influenced by networks (Elder et al., 2004). Specifically, it is assumed that the resources and attitudes of the family of origin (parents, siblings, relatives) and the family of destination (partner and partner's family) are relevant for the transition from education to work.

Following the life course paradigm, individuals and their decisions are embedded in the social context of societies and, hence, life course patterns depend on the social context (Heinz et al., 2009). Specifically, institutional and structural context conditions define a set of opportunities and constraints to which individual persons respond when making their life course decisions and transitions with respect to the transition from education to work (Breen & Buchmann, 2002: 288). Next to the individuals making their transition from education to work, the actions of employers ("meso-level") and related persons (in terms of "linked lives") are also embedded in the social context. The social context varies historically and across nations and regions (Mayer 2004). Therefore, the transition from education to work is expected to vary across historical periods and national contexts (Breen & Buchmann, 2002). In Chapter 5, we describe these macro-level determinants of the transition from education to work in detail.

Figure 1: A micro-macro-model of the transition from education to work



Source: Own illustration.

3. Micro-level outcome variables

3.1. Endogeneity of leaving education

Although analysis on the transition from education to work usually start with a sample of people leaving education (either dropping out or successfully graduating), it should be noted that leaving education is a decision itself and, thus, endogenous. There is a huge literature in the sociology of education on education decisions and education attainment. Education decisions are often modelled as a rational decision of the actors involved (youths, parents, and teachers). Education is continued if the subjective expected utility of continuing education is higher than that of alternative options. The alternative options to enrollment in education are the participation in the labor market or the engagement in housework and family care work. The main benefits of higher education are high expected economic returns from the labor market such as higher chances of finding a job, higher wages, privileged job positions and good career chances (Stocké, 2007).³ Thus, expectations on future (individual) labor market prospects are expected to influence the timing of leaving education. Education is not only connected to benefits, but also bears direct costs in terms of school uniforms, textbooks and transportation.⁴

Recent comparative research projects on the school-to-work transition extended their research framework by studying also the education attainment process (Gebel & Heyne, 2014; Kogan et al., 2011). In this regard, they address the endogeneity of the decision to leave education. The empirical results also provide insights into the determinants of education attainment (e.g. social origin) that may act as confounding variables when investigating the effects of education in the labor market.

3.2. Labor force participation

After leaving education, the first crucial decision is whether a young person actively participates in the labor market or not. Active participation in the labor market is defined as employment or unemployment. In general, employment subsumes both dependent employment and self-employment. In the broadest definition, employment also includes (marginal) part-time, short-term and casual work. In the context of developing countries, it is recommended to extend the definition by including informal (unregistered work) and work as family helpers in agricultural and non-agricultural family businesses in order to account for the variety of first job positions.⁵ Unemployment refers to active job seekers.⁶ Labor market inactivity is defined as being neither employed nor unemployed. This category is quite heterogeneous including persons fully devoting their time to housework and/or care work, persons who suffer from (long-term) illness and disability

³ In traditional contexts, education is instead seen as an important resource in the marriage market, where a high level of education increases the likelihood of finding a highly educated partner who has better earnings prospects (Elbadawy et al. 2007; Lloyd 2005).

⁴ The benefits of the alternative options of participation of in the labor market or the engagement in housework and family care work can alternatively be modeled as indirect costs of education.

⁵ This definition does neither include agricultural activities in terms of self-subsistence farming nor housework and care work for the own family.

⁶ There are variations of this definition imposing further restrictions such as being available for work and being officially registered as an unemployed. The latter requirement is not suitable for developing countries with residual welfare states (see also Chapter 3.5). In terms of passive labor market policies young job seekers are often not eligible for unemployment benefits or benefits are too low and, thus young job seekers have no incentive for official registration and they rely instead on support by the family. Moreover, active labor market policies (e.g. job search assistance, employment subsidies, training measures) are often not well developed such that young seekers refrain from registration and seeking support from public employment offices.

that restrict them in actively participating in the labor market, persons doing a gap year for travel, discouraged workers⁷ and idle persons. In research on Western countries, this group is often ignored because it is a rather small group. However, in the context of developing countries and particularly Muslim societies, the share of inactive persons is quite large among women as many women fully devote their time to housework and/or care work after leaving education. Against this background recent studies extended the standard framework of “school-to-work transition” research by investigating the specific pattern of the “school-to-home transition” (Gebel & Heyne, 2014).

The “school-to-home transition” can be understood as a decision model (Gebel & Heyne, 2014).⁸ An education leaver decides for inactivity if the subjective expected utility of labor market inactivity exceeds the subjective expected utility of labor market activity. The subjective expected utility of labor market activity is influenced by the chances of finding a job, that is, the individual labor market opportunities, as well as the monetary and non-monetary benefits of having a job.⁹ The subjective expected utility of labor market inactivity is influenced by the opportunities of activities outside of the labor market (e.g. in terms of demands for housework and care work) and non-monetary benefits of these alternative activities.¹⁰ This static decision framework can be extended to a dynamic one as an active person may revise her/his labor force participation decision by withdrawing from the labor market and an inactive person may revise her/his labor force participation decision by becoming engaged in the labor market. Such aspects of the early career dynamics are addressed in Section 3.5.

3.3. Job search

Education leavers who decide to become active in the labor market get involved in a two-sided matching process of job seekers and employers (Granovetter, 1981; Kalleberg & Sørensen, 1979). If the education leaver likes to become self-employed or employer there is no two-sided matching process because there is no employer on the other side.¹¹ In this case a one-sided decision of the education leaver to become self-employed or employer or not must be modelled.

In case of education leavers seeking a job as a dependent employee job matching theory in terms of two-sided (i.e., job seeker’s and employer’s) allocation decisions can be applied as a theoretical framework (Granovetter, 1981; Kalleberg & Sørensen, 1979). Matches, i.e., an employment relationship composed of employer and employee, will form if young applicants prefer the job offer against the alternative of continued searching and employers perceive suitable job applicants against the alternative of non-contracting.

Job matching models emphasize information problems in the process of forming labor matches, which introduces uncertainty among agents. Particularly, the first match formation at labor market entry is ridden with information problems (Rosenbaum et al., 1990). Young job seekers face information problems regarding the existence of vacant jobs and the monetary and non-monetary

⁷ Discouraged workers are defined as inactive people who would prefer to work but do not search for job because they are discouraged to do so. The definition often implicitly assumes a dynamic process that previous active job seekers become discouraged as they were unsuccessful and stop their job search efforts.

⁸ In specific cases such as long-term illness, the decision theory framework might be inappropriate because there are no alternatives to consider.

⁹ One could even argue that job search itself generates a non-monetary benefit as job seekers increase their well-being by being “active” in terms of “doing something”.

¹⁰ In the decision model, the subjective expected utility of labor market inactivity can alternatively be interpreted as the opportunity costs of labor market participation.

¹¹ In the case of employees/helpers in family businesses, the owner of the family business can be regarded as the employer even if it is a close family member.

job characteristics that they offer. Moreover, labor market entrants still need to learn about their preferences and productive characteristics by engaging in a process of job shopping in the early career (Johnson, 1978). Employers face information problems regarding the existence of suitable job seekers and the productive characteristics they offer. Particularly, employers have difficulties assessing the expected productivity and trainability¹² of applicants fresh out of school because labor market entrants lack a track record of previous employment experiences.¹³ To overcome the initial information problems, employers and job-seekers need to make costly investments into acquiring the necessary information. These costly two-sided market frictions due to information problems result in costly delays for the process of matching persons to jobs and, hence, the school-to-work transition is often a prolonged and turbulent period characterized by labor market exclusion and job insecurity.

Within the job matching framework, the young job seeker's search decision can be best understood from the perspective of job search theory (Granovetter, 1981; Halaby, 1988; Mortensen, 1988, 1986). According to job search theory, the chance of receiving a job offer is determined both by the job seeker's search efforts and the employer's decision to make such an offer. A young job seeker accepts a job offer if he/she expects the utility of the offered job to be higher than the utility of the alternative of a continued search, whose value is called the "reservation wage". The utility of the offered job not only depends on the wage but also the subjective assessment of other, non-monetary job quality characteristics as well as the direct costs of work (e.g. costs of commuting, working clothes, etc.). The utility of continued search depends on the expected arrival of future job offers (representing the success probability), the quality of future job offers (representing the expected benefits) and the direct costs of continued search (e.g. job seeking advertisement, writing job applications, etc.). Indirect costs of continued job search occur in terms of potential "scar effects" of search unemployment, if there is a depreciation of general and specific skills or employer discrimination against long-term unemployed.¹⁴ The job search process is a sequential decision process, in which the job seeker has to decide each time, based on her/his accumulated information, whether to stop searching for employment and accept a job offer or to continue searching for a better opportunity. Job search processes can also continue after finding a first job in terms of on-the-job search for job alternatives.

Signaling and screening theories can be adopted to study employers' behavior in the two-sided matching process. Employers try to overcome uncertainty in the hiring process by relying on unalterable attributes, so called "indices" (such as ethnicity), and alterable characteristics, so called "signals" (such as education), in order to assess the unknown productivity and trainability of young applicants (Spence 1973). Either from general information or previous experience, employers form conditional probability assessments of productivity given various combinations of signals and indices and they hire individuals based on these assessments. Thus, those young people who have the "right" signals and indices are more attractive to employers and in a better position. In this respect, young people may actually increase the job offer arrival rate by acquiring positive signals of their productivity. According to signaling theory, individuals in turn seek to obtain that signal which carries the greatest rewards, subject to the constraint that signaling costs exists and that these costs are inversely related to individual productivity (Arrow, 1973; Spence, 1973).

The key outcome measures of the job search process is whether the job seekers is successful in finding a first job and how long it takes to find a first job. Finding a job is a central marker in the

¹² Thurow (1975, 1979) argues that employers mainly worry about trainability, i.e. the costs of training a newly hired employee, which they seek to minimize.

¹³ However, labor market entrants may gain employment experiences by working prior leaving education in internships, apprenticeships or side jobs next to their studies.

¹⁴ In both cases of accepting a job offer and continuing the job search there are living expenses. Living expenses may differ if consumption behavior changes in response to getting a first job or continued job search.

transition to adulthood due to its importance in gaining independence from the family, as well as for securing a good socio-economic position, career and life chances. When analyzing the duration of the transition from education to work person should be excluded who never had a first job and who are not engaged in a job search. This subgroup of person should be subject to a separate analysis on the labor force participation decision (see Chapter 3.2). The duration of the school-to-work transition is measured as the time between leaving the education system (with or without successful graduation) and finding a first job (Gebel & Noelke, 2011).¹⁵ Search periods prior to leaving education are usually disregarded because this detailed information on job search behavior prior to leaving education is often not available and because such search activities while being in education are fundamentally different from search period in unemployment status, which entails higher material and psychological costs (Allen & van der Velden, 2007). Active job search after leaving education may simply not take place as the respondent could continue the same work as he/she had during his/her studies. Empirical studies that focus on the time elapsed after leaving education code such events as instantaneous transitions from education to work. Empirical studies differ in their definition of the first job. Some studies impose restrictions on the formality of first jobs (i.e. excluding informal jobs), minimum working hours and work intensity (e.g. excluding marginal part-time jobs, casual and seasonal work) and minimum duration of first jobs (e.g. focusing on “significant first jobs” of at least six months duration). It is recommended to impose such restrictions taking the nation-specific context into account. Event history analysis is usually applied to study the time elapsed between leaving education and finding a first job (Wolbers, 2007; Noelke et al., 2012; Kogan et al., 2011; Blossfeld et al., 2008; Scherer, 2005). This method has the advantage of accounting for the problem of right-censoring of data if the complete duration is not observed for all respondents (Blossfeld et al., 2019).

3.4. First job quality

Next to the labor force participation decision, the chances of finding a first job and the speed of finding a first job, it is important to study the first job quality. This is because a quick labor market entry does not automatically guarantee a higher quality of the first job. Hence, it is important to investigate the quality of the first job as well. In this review, we adopt a multidimensional perspective on various aspects of job quality instead of relying on a single job quality dimension (such as wages) or aggregating working conditions into a one-dimensional index. The advantage of such a multidimensional perspective is that it captures potential trade-offs or cumulative advantages or disadvantages in the working conditions of first job holders in different employment segments. Detecting trade-offs is important to understand compensatory effects, e.g. in terms of having a disadvantage in one job quality dimension and having an advantage in another one. Detecting cumulative disadvantages is important in order to assess the prevalence and degree of precarious, low quality work among labor market entrants.

3.4.1. Type of first job

Young people usually start their working career as dependent employees. However, in the context of developing countries it is important to distinguish other types of first job. Specifically, young people may start their working career as a self-employed person (including running an agricultural business) or as an employer (mainly owning a small company, e.g. a family business). Moreover, young people often start working as an employee or helper in an agricultural or non-agricultural family business. These different types of first jobs do not imply differences in job quality by definition. Nevertheless, the type of first job is often seen as an important outcome variable in analyses on the transition from

¹⁵ Interruptions to schooling, due to illness for example, should not be defined as leaving education.

education to work because it is often correlated with job quality characteristics, which are explained in the next subsections.¹⁶

3.4.2. Non-standard employment

An important dimension of job quality is whether there is any deviation from standard employment. Standard employment is defined as full-time employment based on a permanent contract at the employer's place of business and under the direction of the employer (Kalleberg, 2000; Barbieri, 2009). Deviations occur in form of part-time work, temporary contracts, temporary agency work, contract work, etc. Discussing the literature on various forms of non-standard employment is beyond the scope of this working paper. In the following, we focus on the type of contract because this topic has received most attention in the research on the school-to-work transition.

Regarding the type of contract, the crucial distinction between work contracts of unlimited duration versus work contracts of limited duration (temporary contracts) versus seasonal work contracts is made. There is a strong research tradition investigating the role of temporary work, its determinants, characteristics and consequences at labor market entry (Baranowska & Gebel, 2008, 2010; Baranowska et al., 2011; Gebel, 2009, 2010a; McGinnity et al., 2005; Blossfeld et al., 2008; Barbieri & Scherer, 2009; Scherer, 2004).

From a rational choice perspective there is no reason for a *job seeker* to prefer a temporary contract over a permanent work contract for the same job position, i.e. a job with identical characteristics with the exception of the duration of the contract and its consequences.¹⁷ This is because, in contrast to the employer, there is no advantage for the employee of having a contract of limited duration over having a contract of unlimited duration that he/she can quit anytime.

In contrast, there are various reasons why *employers* prefer to hire specific job applicants based on temporary contracts (Gebel, 2010b). First, employers may use temporary contracts as prolonged probationary periods or a so called *screening device* if they are uncertain about the real productivity and trainability of a job applicant (Korpi & Levin, 2001; Riley, 2001; Spence, 1973). For the duration of the temporary contract, an employer can obtain information that is unavailable before hiring a school leaver. After a certain screening period, the contract will be converted into a permanent one if the young worker's productivity proves to be satisfactory. If, however, a worker's productivity turns out to be insufficient, the employer might simply allow the contract to expire, a procedure which does not involve any firing costs. Second, employers may also find it profitable to use temporary contracts as an *incentive mechanism*. By offering the possibility of converting a temporary contract into a permanent one, employers can use temporary contracts as an efficient effort-eliciting tool (Güell, 2000; Polavieja, 2003). Third, employers have incentives to form a *buffer stock* of temporary jobs, making it possible to respond to short-term market volatilities without having to dismiss any of the core workers (Olsen & Kalleberg, 2004; Polavieja, 2003; Saint-Paul, 1996). This insulation and stabilization of the core workforce may help firms to reduce firing costs and save firm-specific human capital of experienced workers. Fourth, employers may also use temporary contracts to fill temporarily positions whose *former incumbent are on a temporary leave* (i.e., maternity leave or illness). It may be also cost-effective for employers to hire specialized temporary workers for

¹⁶ Taking the labor market segmentation into account analyses on the first job type in developing countries often differentiate between formal (registered) and informal (unregistered) job and/or public sector versus private sector job as a type of first job (Gebel & Heyne 2014; Heyne & Gebel 2016; Gebel et al. 2019; Hajizadeh et al. 2019; Badurashvili et al. 2019). In this review, we discuss the issue of formal (registered) vs. informal (unregistered) jobs as well as the differentiation of public versus private sector jobs as a dimension of job quality.

¹⁷ Preferences for a temporary contract over a permanent contract may indeed occur if the temporary contract is for a job with other preferable characteristics (as compensatory mechanisms) that the job with the permanent contract does not offer.

particular tasks, which is limited in its time (i.e., project work). Hiring young temporary workers for temporary leave replacement, for particular tasks or to form a buffer stock reduces employers' labor adjustment costs because young temporary workers can be easily and freely dismissed on the expiry date of the temporary contract. From this perspective, temporary jobs are an integral part of labor segmentation, dividing the workforce into (mainly older) insiders with permanent contracts located in the primary labor market segment and (mainly younger) outsiders with temporary contracts located in the secondary labor market segment (Doeringer & Piore, 1971). The motives of employers to use temporary contracts are expected to depend on employer characteristics such as the industry sector, firm size, personal structure, economic performance of the firm, market volatilities the firm is facing.

3.4.3. Informal (unregistered) employment

In the context of developing countries it is, however, even more important to distinguish the case of a written work contract from having no written work contract (just a verbal agreement) instead of just focusing on the division between temporary and permanent contracts. The case of having no written work contract is often seen as a defining characteristic of informal work arrangements next to or in addition to the distinction between registered and unregistered work. Alternatively, informal (unregistered) work is often defined by the fact that income taxes are neither paid by the employer nor employee, i.e. the income is not taxed.¹⁸

The benefits of entering an informal (unregistered) job for a *job seeker* is the income tax evasion, which may lead to a higher take-home pay. However, informal work may also impose costs if this informal economic activity is sanctioned by law enforcing institutions. In a rational choice framework this cost can be seen as the multiplication of the probability of detection and the fine/sentences. In addition, from a moral perspective, costs may entail negative feelings on doing something which is against the law. Furthermore, in terms of future job applications the young worker may face troubles in reporting work experiences in informal (unregistered) jobs in their CV.

The *employer's decision* to hire informal workers is also associated with certain benefits and (potential) costs. This decision has two components as employers have to decide whether to officially register the firm or not next to the decision whether to hire a specific job seeker in a formal (registered) or informal (unregistered) work arrangement.¹⁹ The benefits of not registering a business as well as hiring an informal (unregistered) worker are that employers can evade costs imposed by taxes and burdensome regulations (e.g. hiring and firing costs induced by employment protection legislation). However, informal work may also impose costs if this informal economic activity is sanctioned by law enforcing institutions. In the specific case of not registering a business employers may also face higher transaction costs in capital and financial markets (Loyaza, 1994). Engaging in the informal sector makes it more difficult to establish contacts with business partners and get access to capital if these partners sanction this illegal behavior. Furthermore, customers may sanction businesses working outside the legal system for morale reasons. In a rational choice framework, this cost can be seen as the multiplication of the probability of detection and the fine/sentences/transaction costs.

The benefits and potential costs of informal employment and, thus, the choice of informal over formal employment arrangements depend on the employer's production sector (Loyaza, 1994; Ram et al., 2007). For more competitive and capital-intensive firms, it is more profitable to remain in the formal sector. For more labor intensive and less competitive firms, it may give a better pay-off not to

¹⁸ In addition, one defining characteristic of informal employment may be that informal (unregistered) work are not covered by social security. The topic of social security coverage is discussed separately in Chapter 3.4.5.

¹⁹ Labor market entrants who decide to become self-employed or employer also face the first decision whether to register their business or not. This decision is jointly discussed with the employer's decision in the following.

register business activity and to employ workers without offering them formal labor contracts (Pfau-Effinger, 2003). Another line of division is marked by the ownership sector. Public employers or employers that provide services for the state should rely on formal employment because they are less profit-oriented and their supervision by state authorities should be stronger. In this respect, informal employment can be used as an alternative for enterprises with low capital resources, for which it is too expensive to start a competition in the 'formal' employment sector (Sassen, 1997).

3.4.5. Wages, social security and fringe benefits

Wages are seen as a central job quality dimension. They capture the monetary/economic aspect of job quality. Studies differ in the measurement. First, the decision must be made whether to study net and gross wages. Second, it matters whether bonuses are included. Third, the reference period matters, that is, whether the wages are measured on an hourly²⁰, weekly, monthly or yearly basis. Depending on the reference period wage differential can be influenced by working hours and regularity of work (e.g. seasonal work). In general, measurement problems for wages may specifically occur due to top-coding in the research data, recall bias, rounding errors, conscious misreporting and high shares of non-response. Specifically in the context of informal work arrangements, there is often misreporting of wages. Similarly, high inflation contexts may make it difficult for respondents to report their wages.

Next to wages, non-wage benefits such as employer-provided social security and fringe benefits can be considered. As social security systems differ, country-specific versions of questions on social security are required that take the specific national institutional structure of the social security system into account.

In the matching process young job seekers should prefer better paid job, *ceteris paribus*. Employers should be only willing to offer a highly paid job if the young worker's productivity is high. The same logic applies to employer-provided social security and fringe benefits. Employers may also use high wages and employer-provided social security and fringe benefits as an incentive mechanism. Receiving wages, social security and fringe benefits higher than expected will act as an incentive for young employees to work harder as the cost of losing the job are higher.

3.4.6. Occupational status

Individual occupational attainment is often an alternative measure for wages in sociological studies. Occupations are seen as a more durable aspect of individual labor market outcomes, which strongly predicts individual social and economic standing. There are various occupation-related measures. The most prominent measure of occupational status is Ganzeboom et al.'s (1992)(1992) Standard International Socio-Economic Index (ISEI), which is a continuous measure of occupational attainment that is comparable across countries. The ISEI is formally defined as "the intervening variable between education and income that maximizes the indirect effect of education on income and minimizes the direct effect" (Ganzeboom et al., 1992: 10-11), thus capturing enduring differences in individual socio-economic standing. Many studies on first job quality use the ISEI as an outcome measure (Kogan & Gebel, 2011). Alternatively, there are studies relying on social class position (Klein, 2011; van de Werfhorst, 2007) or on occupational prestige measured via the Magnitude Prestige Scale (MPS) (Klein, 2015).

Similarly to the case of wages, social security and fringe benefits one may argue that young job seekers should prefer better first jobs of higher occupational status, social class position or occupational prestige, *ceteris paribus*. Employers should be only willing to offer such privileged

²⁰ Hourly wages are calculated using the actual or contractual working time.

occupational positions if the young worker's productivity is high. Moreover, employers may also use high occupational positions as an incentive mechanism.

3.4.7. Mismatch

Many studies on the transition from education to work have investigated the determinants and consequences of *vertical and horizontal education/skill mismatches* (Barone & Ortiz, 2011; Baert et al., 2013; Verhaest & Omeij, 2010). In general, an activity is considered skill-inadequate if the competences, abilities and skills acquired in the training system do not meet the requirements of the occupation (so-called "skill mismatch") (Büchel, 2001). Since measurements of competences, abilities and skills are rarely available in data sets, the majority of empirical research to date focused on the phenomenon of "education mismatch" with the formal education level and/or field as a proxy measure for the acquired competences, abilities and skills (for a comparison of the two approaches see Allen and van der Velden (2001).

The vertical assessment of mismatches compares the education level of a person with the job requirement level, whereas the horizontal assessment is based on whether or not the field of education acquired corresponds to the type of occupational activity (Büchel, 2001). Different methods of measurement are used in the literature (Büchel, 2001; Sloane, 2004). According to the *objective approach*, researchers have to assign a minimum qualification level or a typical education field to each occupation according to objective criteria. Furthermore, a *statistical approach* ("*realized-matches approach*") can be taken by comparing the individual education of a respondent in a specific occupation with the average education level or typical education field of employees in this occupation. Alternatively, one can ask the young worker for a subjective assessment of education mismatch.

3.5. Career mobility

The transition from education to work is a dynamic period in the individual life course. Measuring the time between leaving education and the date of finding a first job captures the dynamics of the initial placement process in the labor market. However, dynamics also takes place after finding a first job. Young workers may experience upward and downward career mobility in terms of getting promoted or downgraded in a given firm, changing employers or losing a job. In this regard, it is important to study also the early career dynamics. For example, some studies focus on upward and downward occupational mobility in the early career (Blossfeld et al., 2008; Gangl, 2003). Other studies investigate the chances of moving from non-standard employment in the first job to standard employment (e.g. Gebel 2010). As employment relationships may also terminate another strand of the literature investigates the probability getting unemployed after a first job (Blossfeld et al., 2008; Wolbers, 2007).

These studies usually focus on *single transitions applying event history models*. Just a few studies in this tradition model the outcome dynamics in terms of investigation the outcome variable at different moments in the early career allowing for more than one transition (Gebel, 2010a; McGinnity et al., 2005). The differences between the two approaches can be explained based on an example on temporary contracts. The single transition event approach would model the transition from a first temporary job to a permanent job as a single transition event history model. The observation of person would stop at the moment of making this transition or the moment of data censoring. The key focus of this approach would be on the probability and speed of making this one specific transition. The alternative approach of studying the *impact function* would investigate outcome dynamics over a specific predefined period of time, e.g. the probability of having a permanent contract one year, two years, three years, four years, and five years after starting the

working career in a temporary contract.²¹ If a person makes the transition from a temporary job to permanent job after one year this person would still remain in the sample when analyzing the probability of having a permanent contract two, three, four, and five years later. The person may lose the permanent job after one year again, regain employment, etc. Thus, the situation of a person is observed allowing for multiple transition and gaining insights in the early career situation of each person at a certain moment of the early career.

A further alternative, specifically to the second approach of measuring outcome dynamics, is to apply *sequence analysis*. Sequence analysis can be used to investigate the serial succession of statuses instead of focusing just on specific transitions (Scherer, 2001; Brzinsky-Fay, 2007; Brzinsky-Fay & Solga, 2016). Similarities of sequences can be calculated using optimal matching procedures.

The research in all these three traditions of early career mobility research focus either on the effects of characteristics acquired/determined before leaving education (e.g. social origin, ethnicity, education) or on the effects of the job search duration or first job quality on the early career mobility.

3.6. Non-economic outcomes

Next to studying the labor market career outcomes there is a large research tradition that links the school-to-work transition to non-economic outcomes. For example, in the framework of the literature on the transition to adulthood the topics of family formation (first marriage, first childbirth) and leaving parental home are studied. These events are seen as central markers in the transition to adulthood (Buchmann & Kriesi, 2011; Gebel & Heyne, 2014; Billari & Liefbroer, 2010; Grant & Furstenberg, 2007; Lloyd, 2005; Shanahan, 2000). Although connecting the research on the school-to-work transition with other events of the transition to adulthood is important and still innovative, reviewing this literature is beyond the scope of this conceptual paper and review that is focused on the school-to-work transition. In the following, we only highlight the role of early family formation as a micro-level determinant of the transition from education to work. The same applies to the research on the effects of the influence of the school-to-work transition on emigration intentions and decisions (Stoilova & Dimitrova, 2017). Similarly, this conceptual paper and review cannot capture the consequences of the school-to-work transition on health and well-being. These topics has been covered extensively in publications of the EU-Horizon2020 EXCEPT project (Voßemer & Eunicke, 2015; Athanasiades et al., 2016; Unt & Gebel, 2018).

²¹ Time intervals can also be chosen on a monthly or daily base if such fine-graded data are available.

4. Micro-level determinants

4.1. Education attainment

4.1.1. Causal mechanisms of the effect of education attainment on school-to-work transition

Education is seen as key factor influencing the individual labor market success. From a theoretical perspective various mechanisms have been identified as being crucial for understanding the labor market effects of education (van de Werfhorst, 2011): the skills approach in the tradition of human capital theory (Becker, 1993[1964]), the signaling and screening approaches (Spence, 1973), as well as the social closure approach and structuralist explanations (Collins, 1979; Doeringer & Piore, 1971).²²

According to the *skills perspective* of the human capital theory, individuals acquire productive skills in education, which makes them more productive (Becker, 1993[1964]; Weiss, 1995; Cunha et al., 2006). Becker (1993[1964]) introduced the distinction between general and specific skills as the two key components of an individual's productive skill set. While general skills raise productivity in a broad set of tasks in different jobs, occupations or industries and are transferable, specific skills raise productivity only in specific tasks. Young school leavers acquire general skills in the family and in schools and they may already acquire specific skills in vocational education programs at secondary level (Shavit & Müller, 2000) and higher education fields of studies with high degree of occupation-specificity (Noelke et al., 2012). This learning explanation construes education as a costly investment for learning marketable skills.

According to *signaling theory*, individuals in turn seek to obtain education degrees as signals of productivity and trainability, subject to the constraint that signaling costs exists and that these costs are inversely related to individual productivity (Spence, 1973).²³ Respectively, in the matching process, employers use education as a costless screening device in order to make inferences about the unknown productivity of job applicants and their trainability on the job (Arrow, 1973; Thurow, 1975). Following Thurow's labor queue model, education becomes a positional good as it defines the relative position in the queue of applicants that fill positions that are queued according to the complexity of the job tasks. The functioning of the screening and signaling process mainly depends on the trust imparted to education as a signal of productivity and trainability. Highly reliable, valid, and differentiable educational signals lower the transaction costs during the matching process on the labor market. As signaling processes are embedded in the social context, the signaling capacity (and trustworthiness) of educational titles are influenced by the design of national educational institutions (Gebel & Noelke, 2011) (for further details see Chapters 5.1 and 5.2).

According to the *social closure theories*, access to specific occupations is artificially constrained by formal qualification requirements (Bills, 2003; Collins, 1979; van de Werfhorst, 2011). Once entered into an occupation, the individual level of education is no longer relevant for the wage generation process (Weeden, 2002). The process of social closure is often institutionalized in terms of professional organizations that define and control the formal requirements and access regulations and procedures. Educational credentials are provided by the education system.

Similarly, following *structuralist explanations*, occupations also play a key role in the process of rewarding educational degrees (Barone & van de Werfhorst, 2011; Carbonaro, 2007). According to

²² Next to the labor market returns to education education is also seen as beneficial for other life course outcomes such as civic engagement, well-being and health, etc. (Gebel & Heineck, 2019; Hout, 2012; Bela et al., 2018).

²³ Some strong versions of these models postulate that schooling is exclusively a productivity signal but not raising productivity (Psacharopoulos, 1979). Thus, education has no causal effect on labor market outcomes and the association between education and labor market outcomes is completely spurious.

segmented/dual labor market theories (Doeringer & Piore, 1971) job attributes determine the rewards in the labor market, whereas education is only valuable in gaining access to the privileged job positions. The reasons for different reward structures of occupations are again often related to varying degrees of occupational closure (Weeden, 2002), other institutional characteristics of occupation, and occupational skill demands (Carbonaro, 2007). In addition to the conceptualization via occupational positions, differences between labor market segments, industries or sectors are also often highlighted in structuralist explanations.

4.1.2. Theoretical expectations on the effects of education attainment on school-to-work transition

Based on these theoretical perspectives it can be expected that education should generally have positive effects on labor market outcomes in the transition from education to work. Given the investments into education according to human capital, signaling and screening theories it can be assumed that the higher educated persons seek to amortize their investments by becoming active in the labor market.

The effect of education on the speed of finding is less clear. On the one hand, higher education levels should result in more job offers as employers rely on educational signals and value the higher skill levels and trainability of high educated job applicants. On the other hand, higher educated graduates may also search more selectively for high-quality jobs to guarantee a sufficient return on their educational investments, which prolongs the school-to-work transition process. More occupation specific skills should speed up the labor market entry by facilitating the information flows in the matching process as educational contents are more aligned with employer skill demands. Organizational links, for example, through on-the-job training and obligatory internships, give employers low-cost screening opportunities for potential job candidates, while job applicants can learn about their preferences and productive characteristics.

Regarding the job quality it can be assumed that higher education increase the chances of earning higher wages and getting access to higher occupational positions because employers rely on educational signals and value the higher skill levels and trainability of higher educated job applicants. Skill specificity should only be rewarded in terms of higher wages and getting access to higher occupational positions if these skills are scarce and in specific demand by the employer.

Higher education should also increase the chances of getting a standard employment relationship because employers often hire high-educated persons on positions that require the building of long-term relationship. Moreover, screening perspective should be especially pronounced among high-skilled labor market entrants because it is difficult for an employer to assess them due to high task complexity and the difficulty of supervising them (Baranowska & Gebel, 2010).²⁴ Skill specificity should reduce the risk of getting a temporary contract because employers can more easily assess the productivity and trainability of job applicants with more specific skills. Particularly, if these skills are acquired in programs characterized by organizational links, for example, through on-the-job training and obligatory internships, employers have already low-cost screening opportunities for potential job candidates and, thus, do not require temporary contracts as screening devices.²⁵

Higher education is also expected to increase the chances of getting a formal (registered) job because the higher occupation positions that high educated persons enter are more often in the formal economy. While employers in the formal economy rely more often meritocratic selection procedures, education is expected to be less influential in the informal economy that often relies on

²⁴ A counterargument is that some high-skilled jobs, e.g. in terms of project work, are temporary in their nature, and therefore induce temporary jobs (Remery et al., 2002).

²⁵ Training contracts such as practiced in the apprenticeship system can be seen as functional equivalents to temporary contracts.

social networks in hiring processes (Kogan, 2011). Regarding skill specificity it is difficult to formulate any effect on the chance of getting a formal (registered) job.

Having higher education should bear higher risks of being overqualified in terms of education mismatches if there are not sufficient high-skilled jobs available. Education programs that equip students with more specific skills that are closely oriented to performing concrete tasks at students future workplaces in companies should increase the chances of finding a matching job.

In terms of career mobility it is often argued that higher educated persons have better chances of upward mobility because they more often succeed in entering the primary labor market segment that offers structured career ladders. Employers may also establish long-term relationships with high educated workers. As persons with specific skills are expected to reach more often matching jobs this should also translate into higher job stability and lower risks of job losses. In contrast, persons with general skills may experience more often periods of job shopping that might be characterized by search unemployment because they still need to learn about their productivity, preferences and matching jobs.

4.1.3. Measuring education attainment

A key question for the school-to-work transition research is how to conceptualize education when estimating the effects of education on youth labor market chances. Following human capital theory one can try to directly measure skills and use it as an explanatory variable in school-to-work transition research. A challenge of this research is to develop appropriate skill measures. Subjective skill assessments must be seen highly critical. Objective tests of competences are required instead. Another methodological challenge appears if test scores are measured when persons are already in the labor market. In this case it is hard to assess the direction of causality as test scores might be already affected by labor market experiences. Thus, test scores should be measured prior to entering the labor market.

As an alternative to the indirect measurement of education via years of education assuming that education enhances productivity in a monotonic way, years of education is seen an appropriate indicator of productivity (Mincer, 1974). Shortcomings of this approach are that the linearity assumption that each additional increment in education yields a constant earnings premium is often not met. In addition, it is a challenge to calculate the exact time spent in education given part-time education as well as skipped and repeated classes (Gebel & Heineck, 2019). Furthermore, the same amount of time spent in different levels and kinds educational programs may result in different levels and kinds of skill accumulation. Against this background, sociological studies mainly rely on differentiated measures of educational degrees. Taking the respective institutional structure of the national education systems into account, categorical variables of education were defined in international comparative studies on returns to education at labor market entry (Shavit & Müller, 1998; Kogan et al., 2011). In addition to the horizontal differentiation across different levels of education, a specific focus is on the vertical differentiation in terms of various forms of vocational education (Shavit & Müller, 1998; Kogan et al., 2011) as well as the field of studies (Noelke et al., 2012; Reimer et al., 2008; van de Werfhorst, 2002b). These institutionally shaped lines of differentiation between different education degrees are discussed in section (XXX) in detail because they are mainly a macro-level institutional characteristic.

4.2. Education performance

Next to education attainment performance in education is expected to matter in the transition from education to work.

In previous empirical studies the role of *grades* for the success in the school-to-work transition was examined (Vuolo et al., 2014; Kogan & Gebel, 2011; Matković, 2011; Bernardi, 2003). At a given level of education students can still differ in terms of their performance. The most obvious measure of education performance at a given level of education are grades because these are observable signals. A key question is in which way employers perceive grades and whether they actually use them in hiring decisions (Breen et al., 1995). The signaling value of grades may suffer if grades are not comparable across schools and education programs. In this regard the degree of standardization of the education system is expected to matter (see Chapter 5.1). In general, it can be expected that good grades should translate into labor market advantages in the transition from education to work.

Another concept of education performance is *dropping out from education*, i.e. being enrolled in an education program but not successfully completing it. The phenomenon of education dropouts has been central research interest in school-to-work transition analyses (Matković & Kogan, 2012; Scholten & Tieben, 2017; Matković & Kogan, 2014).

Differences in education performance can also be visible in terms of *non-linear education trajectories*. Education careers are sometimes not in a straight line. Examples are that people make several degrees of the same level, change their field of studies, switch between different education programs and persons who return to the education systems after gaining first experiences in the labor market. Previous research has highlighted that this phenomenon takes place and influence the later labor market chances (Edeling & Pilz, 2017).

4.3. Working while in education

Increasing shares of young people continue their educational career beyond compulsory schooling entering an age when they are available for work next to their studies (Roksa & Velez, 2010; Wolbers, 2003). One motive is that work experience could represent an advantage in the job-seeking process during the school-to-work transition (Passaretta & Triventi, 2015). Moreover, students may need to work to finance the prolonged education attainment, particularly as the share of tuition-based private and public study places has been increasing in the process of marketization and privatization of higher education institutions (Robert & Saar, 2012; Baranowska, 2011). Particularly, in the context of developing countries working while in school is expected to be also driven by economic needs of the family of origin due to the economic development of the countries considered.

Regarding the role of work experiences before leaving education there is a debate in the literature whether working while in school is bad as it distracts students from being a good student or good as young people acquire work experience, skills and social contacts as well as getting familiar with cultural codes, behavioral patterns and habits in the world of work that may help with the integration in the labor market after leaving education (Weiss et al., 2014; Jacob et al., 2018). It may also act as a signal of unobserved characteristics that are valued by employers (Nunley et al., 2016).

4.4. Social networks

Since the publication of Granovetter's (1974) seminal work on social capital, a large body of empirical research has emphasized the central role of social networks in overcoming the information problem in the job search process (for a review, see Lin, 1999).

There is an ongoing scientific debate about the role of social networks versus skills/education for labor market success (Kogan, 2011; Kogan et al., 2013). It is argued that job seekers learn about job opportunities from personal contacts and information flows improve the matching quality between the job and the applicant (Lin, 1999). Whereas employers tend to use referral networks for recruiting

employees, contacts are seen as an important source of information for job seekers because they broaden their knowledge of opportunities (Lin, 1999; Mouw, 2003; Petersen et al., 2000).

A trade-off is, however, predicted assuming that young people searching via networks have higher reservation wages, searching more selective and, thus, longer for jobs (Mouw, 2003). While job search is expected to be shorter, the matching quality should be high due to the selective search. A different trade-off is expected if young people searching via social networks are diverted to less attractive jobs that are easily and quickly available (Bentolila et al., 2010). Finally, a no-win scenario is based on the assumption that searching via social networks does not generate any advantages or even disadvantages in the labor market. Such an economically irrational behavior can be justified by the existence of strict social norms or traditional loyalties towards one's social groups or the existence of non-monetary benefits of searching via social networks (Kogan et al., 2013).

It can also be expected that the role social networks in the job search and placement process differ between types of first job and sector of employment. For example, it is expected that informal (unregistered) jobs and jobs as employee or helper in the family business are mainly filled via social ties, whereas meritocratic rules are of less importance (Gebel & Heyne, 2014). In contrast, social networks should be less important for formal (registered) jobs because meritocratic selection rules are of greater importance. For example, for public sector recruitment often formal tests are applied in the job search process (Badurashvili et al., 2019; Gebel et al., 2019; Hajizadeh et al., 2019). However, one counterargument is that social networks in terms of nepotism plays an important role when filling jobs in the public sector.

4.5. Social origin

Social origin plays a key role in the transition from education to work due to various channels of intergenerational transmission of advantages. The strongest effect of social origin on school-to-work transition is expected to run indirectly via the causal mechanism of education attainment. That is, young people from privileged social backgrounds have better chances of higher education attainment and performance, which should translate into better labor market prospects. However, there are also theoretical arguments for direct effects of social origin on the transition from education to work, i.e. net of the mechanism via education attainment and performance. To reach a better understanding of the role of the social origin it is helpful to differentiate between different forms of capital/resources.

Parents' economic capital particularly enables young people to finance longer and higher educational attainment (Becker, 1993[1964]). A strong familial economic basis means that youth do not have to work from an early age to contribute to household income or undertake care duties and housework. Parents who are well off can also provide a better learning environment and support to their children such as better learning equipment of study material, affording transportation costs to better schools, tuition fees and high quality private tutoring (Duncan et al., 1998; Erikson & Jonsson, 1996). Regarding the school-to-work transition young people from well-off families can afford a long waiting process for better quality jobs, whereas young people from poor backgrounds have to accept any job they can get, even if it is of low quality because they cannot afford waiting (Gebel & Heyne, 2014).

Highly educated parents possess greater *cultural capital* that provide information advantages and support for young people to pursue a successful academic and work career (Bourdieu & Passeron, 1977; Erikson & Jonsson, 1996). It is an advantage to have parents being familiar with the education system and the requirements of schooling as well as the behavioral and cultural request at workplaces in high quality labor market segments.

Social capital such as parents' social ties in the labor market helps young people to find jobs and get access to privileged job positions (Granovetter, 1974). To gain access to privileged job segments, it seems to be important to have ties to specific people, particularly having parents who work in the

respective sector. Having parents working in the respective sector may pave the way towards this sector via the provision of social contacts and insider information such as providing valuable information and references for job interviews. The intergenerational transmission should be especially relevant for jobs in the family business (Gebel & Heyne, 2014).

Due to the phenomenon of resource competition it is important to take the *number, gender and age composition of siblings* into account. Siblings matter in the competition for parental resources that are relevant for education and labor market success (Sieben et al., 2001). The more siblings a young person has the less resources are available for him or her. It can also be expected that the gender and the birth order matter in this respect (Härkönen, 2014). The number of siblings also influences the demand of the family of origin for support in the housework and in care activities. Specifically, in larger families and in the case of a relatively higher share of brothers, there is more demand for girls to do housework and care (Gebel & Heyne, 2014).²⁶ For the resource competition, it also matters whether a person grew up with two parents or not. Having less than two parents at home reduces, *ceteris paribus*, reduces the available resources. This is particularly the case, if one or two parents deceased. In case of divorced parents compensatory mechanism often occur, either legally requested or because of the interest of both parents to maintain a good relationship. Absence of parents from home might be also due to labor market migration processes. There is a research tradition that analyses the effects of labor migration of parents on the life outcomes of their offspring, specifically their education and labor market chances, are of interest for research on Tajikistan (Gatskova et al., 2017; Jaupart, 2018; Olimova & Bosc, 2003).

4.6. Gender and ethnic origin

Similarly to the effect of social origin, gender and ethnic origin affect the transition from education to work due in a direct and indirect channels. The indirect effects occurs mainly occur via the causal mechanism of education attainment. That is, gender and ethnic origin affect the chances of higher education attainment and performance, which should affects the labor market prospects. Regarding the direct effect one can rely on discrimination models. There are empirical studies on the effect of ethnic origin on the school-to-work transition process (Lindemann & Kogan, 2013; Kalter & Kogan, 2006; Stoilova & Haralampiev, 2008). Moreover, there are empirical studies on the effect of gender on the school-to-work transition process (Gebel & Heyne, 2014; Iannelli & Smyth, 2008; Smyth, 2005).

4.7. Religious and cultural attitudes

Previous research has shown that religion and cultural attitudes are important determinants of the chances of young women in the education system, in the labor market and that religion and cultural attitudes affect the family formation processes (marriage and childbirth) (Spierings, 2015; Heyne, 2017; Guetto et al., 2015).

In terms of cultural attitudes *gender attitudes* are seen as an important aspect to explain women's school-to-home and school-to-work transition (Gebel & Heyne, 2014).

There are methodological challenges when gender attitudes are measured after entering the labor market. A reciprocal nature of women's actual behavior and gender norms and attitudes has been proven in many empirical studies. There is both attitude-based selection of behaviors but also processes of attitude adaptation to live behavior and experiences made (Berrington et al., 2008; Kan, 2007; Steiber & Haas, 2009). Hence, it is preferable to measure gender attitudes before leaving

²⁶ The number of siblings can also be seen as the proxy for the degree of traditionalism in the family of origin. Traditional parents have more children on average.

education. Another methodological limitation is that the gender attitudes measures are not perfect measures of preferences. Preferences and attitudes do not necessarily correspond to each other (Hakim, 2000). For example, it is possible that women approve female labor force participation in general but, in relation to themselves, have a preference not to participate in the labor market.

In terms of measurement religious denomination is a proxy for the religious orientation of a person but it does not necessarily reflect a strong role of religion in the life of the respondent. This is because the practice of religion and relevance of religion for daily life can be rather different for two persons of the same religious denomination. The advantage of religious denomination as an individual measure of religion is that it is less affected by endogeneity problems than the subjective measures of religiosity and religious preferences and practices (Heyne, 2017). Endogeneity problems only occur because of persons converting to a different faith in reaction to education attainment and experiences in the labor market, which is a less realistic reaction than changing attitudes, preferences and practices.

Next to the objective fact of the religious denomination subjective measures of the importance of religion in the personal life and religious practices can be applied. In contrast to the religious denomination these questions capture the attitudes, preferences and lived practices with respect to religion. Having such a broad set of questions at hand the researchers can take a more differentiated view on the role of religion on youth life courses. However, these subjective questions can be seen as much more sensitive to young people's experiences in the education system, the labor market and the family. Thus, these measures are less stable and stronger affected by endogeneity problems than the religious denomination (Heyne, 2017).

4.8. Early family formation

Processes of family formation such as marriage and parenthood are central events in the transition to adulthood next to the transition from education to work. Life course research has shown that family formation and school-to-work transition are strongly interrelated. Whereas the topic of the effects of school-to-work transition on family formation²⁷ is beyond the scope of this paper (see also the explanation in Chapter 3.6), early family formation can be analyzed as a determinant of the school-to-work transition.

For example, regarding the labor force participation decision, early marriage and parenthood pave the way for young women to enter the roles of caregivers and house workers and represent barriers in the education and labor market career. This applies especially to primarily patriarchal Muslim societies (Moghadam, 2003; Spierings et al., 2010; Gebel & Heyne, 2014). Early marriage and parenthood increase the demand for housework and induce role conflicts with being a student or active in the labor market. Specifically, children add to the family demand for care and housework and they raise the opportunity costs of participating in the labor market due to costs of childcare. Higher rates of early school leaving, education dropouts and school-to-home transitions are expected among women who experience early marriage and motherhood. In contrast, following principles of sex-specific role specialization in the traditional division of labor early marriage and fatherhood require young men to earn money in the labor market for their family. While this may force young men to leave the education system to enter the labor market being a husband and a father should increase the labor market attachment and career orientation of young men. The specialization in market work allows men to accumulate more market specific skills that should support their career development. These processes can be supported by paternalism of employers.

²⁷ Finding a stable job is often seen as a central precondition for making successful transitions in terms of marriage and parenthood on the way to become an adult. Education expansion and increasing labor market insecurities (such as youth unemployment, temporary and informal work) are seen as factors contributing to the delay of family formation worldwide (Lloyd, 2005).

Furthermore, early family formation may represent a stigmatizing signal in the competition among job seekers for scarce jobs in the job search process (Gebel & Heyne, 2014). While early marriage may be a signal of upcoming childbirth, early childbearing may reduce the job offer arrival rate because employers, particularly those in the private sector, hesitate to hire female employees who have the double burden of work and family. Employers may discriminate against married women and mothers based on the belief that these women are less attached to the labor market, less productive due to the double burden of work and family. Married women and mothers may also prefer and seek jobs that provide support for combining work and family, low work intensity and, childcare facilities.

4.9. Consequences of bad labor market entries

According to the theoretical model outlined in Chapter 2 a “bad labor market entry” (Gebel, 2015) can also be investigated in terms of its early career consequences next to being an outcome variable itself (see Chapters 3.3 and 3.4). This is important as many young people experience episodes of unemployment and precarious employment such as informal employment, temporary jobs and skill-inadequate jobs during their school-to-work transition period. Since the school-to-work transition is a central stage in the individual life course, the question arises how an initial period of non-employment and precarious employment affect the early work career. A key question in this respect is also how long lasting such effects are or whether these are only transitory phenomena.

4.9.1. Consequences of initial unemployment

Looking at the literature, it is often argued that experiencing *unemployment at the beginning of the working life* lowers future employment chances and wages in the long run (Gebel, 2015). These so called scar effects are related to the depreciation or loss of skills and work experience as well as the loss of social networks that occur during the period of unemployment. It is argued that these scars may last for the entire early working career because initial unemployment induces a stigmatizing signal in future hiring decisions and, thus, recurrent spells of unemployment. An opposing view is that initial disadvantages diminish when unemployed youths find their way to employment and get access to training and networks. In this respect, frequent job moves and recurrent periods of unemployment in the early career in terms of job shopping are seen as necessary and unproblematic steps in the process of finding the right job.

Empirical findings suggest that there is some catching-up process but unemployment still damage youths’ careers in the long-run (Mroz & Savage, 2006). Particularly unemployed youths with low levels of education experience such adverse long-term career effects (Burgess et al., 2003).

4.9.2. Consequences of initial inferior job positions

From a theoretical perspective there are two opposing scenarios on the *consequences of labor market entries in inferior job positions* such as temporary contracts, informal (unregistered) work or skill-inadequate employment (Gebel, 2015, 2010a; Scherer, 2004).

According to the *entrapment perspective* “bad jobs” are located in the secondary labor market offering only limited chances of skill acquisition, which hinders upward mobility. There is hardly any labor mobility between the two segments inducing risks of being trapped into cycles of inferior job positions. Furthermore, a worker who begins his or her professional life in a “bad jobs” is viewed as a bad hire by future employers, inducing a stigmatizing signal.

In contrast, the *integration perspective* emphasizes that initial disadvantages of “bad starts” compared to starts in (good) standard employment relationship diminish over time because youth in bad starting conditions are able to catch up via acquiring work experience and skills and getting access to training and networks that pave the way to the good jobs. For example, according to the

screening argument, employers convert temporary entry jobs into permanent jobs if the young employee fulfils the employer's expectations. Thus, in this regard, temporary jobs can be seen as “entry ports” or “stepping-stones” into insider positions. Similarly, with respect to skill-inadequate employment, Sicherman’s (1991) career theory claims that starting the career as an overqualified worker is associated with better promotion chances across firm-internal career ladders into skill-adequate positions. The integration in form of the stepping-stone hypothesis is especially relevant when bad entry jobs are compared to the alternative of unemployment (“downward comparison”) instead of making the “upward comparison” to (good) standard jobs (Gebel, 2013).

Is the entrapment hypothesis or the integration hypothesis empirically supported? According to Gebel (2013), one can distinguish three different research designs for the evaluations of the consequences of a start in a disadvantaged job positions. The distinction is made based on the choice of the control group.

The first design analyzes the exit dynamics from a sample of persons in inferior jobs, e.g. a sample of persons who started their labor market career with a temporary contract. There is no comparison group and the focus is on the probability of exiting towards different states (e.g. getting unemployed, getting a permanent contract), its timing and its determinants. For example, using data of a large-scale Polish school-leaver survey, Baranowska et al. (2011) show that, among labor market entrants who leave their first temporary job, only about one quarter move to a permanent contract, whereas three quarters became non-employed.

In the second design, which is most often used, the career consequences of starting in an inferior position are compared to starting in a superior position. For example, many empirical studies investigate the career effects of temporary employment in comparison to permanent workers. For example, Barbieri & Scherer (2009) show for Italy that entering the labor market via temporary jobs has strong and long-lasting negative career consequences in terms of lower employment chances and lower chances to end up in stable employment. In contrast, McGinnity et al. (2005) find for Germany that the unemployment rates of those who started with a temporary job are higher in the short run but tend to converge with those of permanent-contract workers after five years. Similarly, Gebel (2010a) shows that British and German youths who start their working life in temporary jobs suffer from initial wage penalties and risks of temporary employment cycles, but that those differences compared to entrants with permanent contracts diminish during the early career. The integration scenario works most effectively in the UK. In terms of subgroup differences of young persons, previous research has shown that the integration hypothesis is confirmed for the youths with high levels of education whereas the segmentation perspective applies more often to the youths with low levels of education (Gebel, 2010a). With regard to overqualification, empirical studies are more in line with the entrapment hypothesis (Scherer, 2004; Baert et al., 2013). There is some degree of catching-up to those who started in matching jobs but initial disadvantage are not fully compensated during the early career (Scherer, 2004).

In the third design, which has been rarely used so far for studies on labor market entry, the career consequences of taking up an inferior job are studied for a sample of young unemployed job seekers. For example, Gebel (2010b) investigates the integrative power of temporary contracts for the young unemployed based on German panel data. The study shows that entering a temporary job acts as a stepping stone for West and East German unemployed youths by increasing their employment chances and chances of finding a permanent contract as well as decreasing their unemployment and inactivity risks during the five subsequent years. Entering a temporary job also results in a higher wage and wage growth (compared to previous jobs before unemployment) during the first three years.

5. Macro-level determinants

As explained in the micro-macro-model of school-to-work transition in Chapter 2, the social context influences the individual life courses (Mayer, 2004). Specifically, institutional and structural context conditions define a set of opportunities and constraints to which individual persons respond when making their life course decisions and transitions with respect to the transition from education to work (Breen & Buchmann, 2002: 288).

From a methodological point of view, variation across space and time can be used to identify the effects of macro-contextual factors on the transition from education work. Multilevel analyses can be applied by merging contextual information to the individual level data (Snijders & Bosker, 1999). *Variation across space* is visible across countries. Countries often differ in their institutional and structural and structural context such that cross-country comparisons can be used to study the effects of the social context. Next to the variation across countries regional disparities induce variation in the social contexts in which individual life courses are embedded. Regional variation may occur with regard to the institutional and structural macro context. Thus, we do not discuss regional factors separately but see regions just as additional sources of variations in contextual factors next to the variation across countries and time. *Variation across time* can be used if there are changes in institutional and structural context over time, e.g. when political reform change the institutional context.

In the following, we will discuss for various institutional and structural explanatory factors dimensions the main theoretical expectations and present selected empirical results from previous comparative research projects. The review of empirical results focuses on comparative studies, which actually try to operationalize the influence of institutional and macro-structural factors in multi-level quantitative analyses.

5.1. Secondary education and training institutions

5.1.1. Theory

At secondary level, various institutional dimensions have been distinguished (Gebel & Noelke, 2011; Gebel, 2018). First, *stratification* in terms of horizontal differentiation refers to the existence of distinct, institutionally structured educational programs at the same level of education (Gebel & Noelke, 2011). It is determined by the existence of early tracking, limited mobility between tracks, and the separation into distinct schools (types) (Allmendinger, 1989; Kerckhoff, 1995; Müller & Shavit, 1998). Gebel and Noelke (2011) highlight that effects of stratification only occur if there are qualitative differences between programs. The pre-sorting of students into segmented programs that occurs in case of stratification is expected to increase the signaling capacity of education degrees and, thus, ease the school-to-work transition.

Second, *standardization* relates to the extent to which educational programs follow common, transparent standards, thus, equipping students with a similar knowledge independent of the specific institution they attend (Allmendinger, 1989; Kerckhoff, 1995; Müller & Shavit, 1998). The comparability of the same education degree acquired in different institutions should increase employers' trust in the signaling capacity of education degrees and, thus, ease the school-to-work transition.

Third, in terms of *curricular content*, programs can be distinguished by the extent to which they are oriented toward general or (occupation/vocation) specific skills (Allmendinger, 1989; Kerckhoff, 1995; Müller & Shavit, 1998). Instruction in general programs focuses on general skills as they aim at preparing pupils for higher education. General skills are expected to raise general productivity and be to easily transferable between occupations. Instruction in vocational training programs focuses on

occupation-specific skills that qualify for specific occupations. Given the tailored training employers should value graduates with specific skills when hiring. However, in some countries vocational education is of low quality and seen as a "dead-end" track. Attracting mainly students with disadvantaged social origins may create a disadvantaged learning environment and induce a stigmatization of graduates from vocational programs, which can translated into a problematic transition from education to work.

Fourth, *linkages between employers and the education system* may reduce the information problems in the two-sided matching process and, thus, ease the school-to-work transition. One example of linkages is employer provided on-the-job training for vocational students who are simultaneously enrolled in publicly financed education programs. This so called dual training system unifies theoretical learning in schools with practical work experience in apprenticeships with firms, which guarantees that students acquire specific skills that are up-to-date (Müller & Shavit, 1998). In contrast, in school-based vocational programs where the vocational training is usually more general in its nature and the training components only take place in schools or training centers that are not related to firms, there is the risk that the acquired skills are less up-to-date (Gebel & Noelke, 2011). Firm-based training also creates an screening opportunity for employers, which reduces information problems in subsequent hiring decisions and, thus, generates a smooth transition from education to work (Breen, 2005).²⁸ In this respect the dual training contracts act as a functional equivalent to temporary work contracts (see Section 3.3).

5.1.2. Empirical studies

There is a long-standing tradition in empirical social research to classify entire education systems according to their institutional characteristics in simplified country-level typologies. Youth labor market performance using cross-sectional micro or macro data is compared across different types of the country typology (Gangl, 2001; Müller, 2005; Saar et al., 2008). There are also studies in this research tradition of country-typologies that use longitudinal data at the micro-level. For example, Brzinsky-Fay (2007) tested established country classifications using sequence data analyses of individual panel data from the European Community Household Panel (ECHP) for the 1990s. While country typologies are very informative from a descriptive point of view, there are various shortcomings of this approach (for more detailed critique, see, Gebel, 2018). First, even if the empirical analyses support the theoretically expected patterns across country clusters, it is still unclear which institutional dimension of the education system is causing the observed patterns because the clusters often entail a bunch of macro-contextual factors. Thus, it is hard to isolate the effect of a specific institutional dimension when using country-typologies. Second, it is not possible to keep the influence of other macro-contextual factors, e.g. other institutions or structural factors constant. This bears the risk of wrong causal conclusions that overemphasize the role of education and training institutions, while the true causal factors might be other institutional or structural factors. That country clusters not only stand for different education and training systems, but also represent country differences in other institutional and structural dimensions is a major limitation. Third, there is the problem that secondary education institutions are changing over time, which may make static clusters obsolete. For example, there were tremendous changes in the organization of vocational education in Central and Eastern Europe during the transformation from socialism to capitalism (Kogan et al., 2011).

Another research tradition challenged the idea of country typologies by arguing that it is important to differentiate between single institutional dimensions by using quantitative macro-indicators and statistical methods of controlling for confounding macro-variables. Specifically, quantitative macro-

²⁸ Links between employers and the education system can also be maintained by the involvement of corporate actors, especially employers' associations and trade unions, in the organization of vocational education (Müller & Shavit 1998; Gebel & Noelke 2011).

indicators are used to measure distinct institutional factors instead of aggregating them all in a “black-box” country case. Using the principle of statistical control, the effect of one factor can be isolated from other confounding factors.

For example, using macro data Breen (2005) finds that the youth unemployment rate is higher the lower the share of pupils in dual system education is. This relationship is robust even when controlling for the varying macro-economic conditions in terms of the adult unemployment rate between countries. This finding, with regard to the youth to adult unemployment ratio, is confirmed by a similar study of macro data by Bol and van de Werfhorst (2013). However, Bol and van de Werfhorst (2013) do not find an effect of the share of pupils in dual system education on length of first job search. They find, however, that the higher the share of pupils enrolled in upper secondary vocational education, the faster is the school-to-work transition.

In a comparative study of micro data from thirteen countries, Shavit and Müller (2000) show that the safety net effect of vocational education (in terms of protecting from unemployment risks and risks of unskilled employment) is stronger the higher the level of vocational specificity (measured as the existence of well-developed apprenticeship systems or school-based vocational training in detailed occupations) and the stronger linkages between employers and schools are. However, they also show that under these institutional configurations, graduates of vocational secondary education attain lower occupational prestige than graduates of tertiary education (so called “diversion effect”) more often. Similarly, using micro data from the EULFS 2000 ad hoc module on school-to-work transitions, Wolbers (2007) shows that the relative advantage of graduates from higher secondary vocational education, compared to graduates from higher secondary general education, is slightly more pronounced the higher the level of vocational specificity (measured by the share of apprenticeship-type vocational education). This is in line with the cross-level interaction effect findings of Shavit and Müller (2000) on the “safety net”. However, contrary to expectations, the relative advantage of graduates from higher secondary vocational education, compared to persons with lower levels of education, diminish the higher the level of vocational specificity is. Moreover, results show that the diversion effect, i.e. the occupational status disadvantage of graduates from higher secondary vocational education compared to tertiary graduates, is weaker the higher the level of vocational specificity is. This contradicts the cross-level interaction effect findings of Shavit and Müller (2000) on the “diversion effect”.

Using micro data from the EULFS 2009 ad hoc module on school-to-work transitions for twenty European countries, Levels et al. (2014) find that the more stratified the secondary education system is, the better the education-to-job matching is, whereas standardization does not seem to matter. Results are contradictory regarding the institutional structure of vocational education. The positive effect of vocational education on horizontal and vertical education-to-job matches is stronger in systems with stronger institutional linkages (measured by the percentage of upper secondary vocational education that takes place in a dual system). However, the positive effect is unaffected or even weaker the more vocationally oriented (measured via the percentage of students enrolled in upper secondary vocational programs) a secondary education system is.

These studies relying on cross-sectional designs at the macro-level can be criticized because they may suffer from confounding bias at the macro-level. This is because the small number of country cases sets limits to the number of other macro-indicators that can be included as controls for the other institutional and structural factors that affect both the education institutions and labor market outcomes. This limitation has been addressed by studies that used longitudinal dimension exploiting institutional variation at the macro level. For example, Noelke and Horn (2014) use rapid shift of training provisions from employers to vocational schools that occurred during the Hungarian transformation from socialism to capitalism as an institutional variation over time within one country in a pseudo-panel design. Using a difference-in-differences analysis, the authors show that the shift in training provision from employers to schools increased male vocational school graduates’ unemployment whereas there is no effect on their class position. Sensitivity analyses confirm that results are robust to the usage of alternative indicators measuring training opportunities. In a

placebo test the authors show that the unemployment risks of upper secondary general graduates were not affected by the shift in training provisions from employers to schools. Combining these results provides evidence for a cross-level interaction effect, i.e. the stronger the linkages between employers and the education system are, the stronger is the unemployment avoidance effect of vocational education as compared to secondary education. Using data from the EULFS 2009 ad hoc module for school leaver cohorts of the period 1995–2009 for seventeen countries, Barbieri et al. (2016) use a time-varying indicator of “vocational orientation” (measured by the share of students at secondary level enrolled in vocational education). They address the problem of unobserved heterogeneity by including country and school leaver cohort fixed effects. They find that the stronger the “vocational orientation”, the higher is the speed of labor market entry and the occupational prestige of the first job.²⁹

An alternative is to measure the influence of education institutions at the program-level within a given country. Graduates from school-based and dual system vocational education programs are compared within the same country. The clear advantage of this approach is that results cannot be biased because of cross-country differences since the study is restricted on a within-country perspective. The challenge of this approach is that the social selectivity of education programs needs to be controlled for (Arum & Shavit, 1995). For Western Europe such empirical studies show that dual system vocational education reduces the unemployment risk at the beginning of the working career compared to school-based vocational education or general secondary education (Winkelmann, 1996; Parey, 2009). However, these advantages are not persistent. There are also no wage effects at all (Parey, 2009). These Western European studies suffer from the lack of comparability of the different vocational programs because the programs have different durations and, often, a different field of study composition. The institutional context of some Central and Eastern European countries provides a better setting to implement such a within-country study. For example, Baranowska (2011) and Matkovič (2011) study Poland and Ukraine where school-based vocational and dual system programs coexist that have a similar duration and just differ in the existence of links between employers and the education system. They show that both graduates from school-based vocational education and dual system training experience a smoother transition from education to work compared to graduates from general secondary education. The advantage of vocational education exists irrespectively of the organization of vocational education.

5.2. Tertiary education institutions

5.2.1. Theory

Whereas the first comparative studies treated tertiary graduates more or less as a small homogeneous group with equally good labor market prospects (Müller & Shavit, 1998), later research has underlined the increasing importance of institutional differences within tertiary education for the labor market entry process in view of tertiary education expansion and differentiation (Gerber & Cheung, 2008).

In the public discussion and from a theoretical perspective it is often argued that *educational expansion* may have resulted in an increased competition among tertiary graduates and, thus, to increasing rates of unemployment among tertiary graduates as there are not enough high qualified

²⁹ Cross-level interactions between the macro-level “vocational orientation” indicator and individual level of education attainment were tested. However, the analysis did not distinguish between secondary general and secondary vocational education. Thus, the results are not comparable to previous studies on the cross-level interaction.

jobs available.³⁰ Moreover, it is assumed that education expansion induced a “credential inflation” which led to displacement processes from the top as higher qualified entrants take jobs that were previously held by less qualified workers.

Important institutional dimensions of higher education systems are the vertical differentiation and the horizontal differentiation. *Vertical differentiation* means the existence of different levels of tertiary education (Shwed & Shavit, 2006). In the Bologna reform the vertical differentiation was aggravated by the hierarchical and clearly structured BA-MA-PhD levels. In addition, there are tertiary (vocational) degrees ranging below the level of tertiary education. A salient feature of the vertical differentiation is the difference in the durations of tertiary education programs (Gebel & Noelke, 2011). A longer duration of instruction should increase the acquired amount of skills, but it may also signal higher motivation and abilities of those students who master it. This should improve the labor market chances.

Horizontal differentiation of higher education is defined as the occupational-specificity of education programs (van de Werfhorst, 2002a). That is, horizontal differentiation measures the extent to which different fields of study are aligned to labor demand and the extent of organizational linkages between classrooms and workplaces (Noelke et al., 2012). It is expected that more specialized programs ease the transition from higher education to work. Professional associations support the occupational specificity of study programs by establishing organizational links between higher education and employers. In addition, mandatory on-the-job training (for example, in medicine and law) and internships reinforce the occupational orientation of the curriculum (Noelke et al., 2012). The horizontal differentiation is aggravated in countries where occupation-specific programs are offered by tertiary vocational colleges that are institutionally separated from universities (van de Werfhorst, 2004). The horizontal differentiation is attenuated if study programs contain differentiated and strong minors next to the major (van de Werfhorst, 2004).

Drawing on the literature on the labor market consequences of attaining prestigious, tuition-based, and private higher education institutions (Gerber & Cheung, 2008; Shwed & Shavit, 2006) Gebel and Baranowska-Rataj (2012) argue that the expansion of tuition-based programs (so called *marketization*) and private study programs (so called *privatization*) has introduced a further institutional differentiation and new lines of inequality within the group of higher education graduates. It is expected that privatization eases labor market integration of tertiary graduates because private study programs often offer more labor market-oriented courses, maintain ties with firms, and are more flexible to adapt their curricula and their direction of specialization according to labor demand. However, there is also a great degree of heterogeneity in terms of quality differences within the private higher education sector. The effects of marketization in terms of tuition-based study programs should be limited if the programs are offered in the same institution. However, in some countries differences exist in terms of the quantity and quality of skill instruction as well as the learning environments because of social selectivity (Gebel & Baranowska-Rataj, 2012). In the specific context of post-socialist transformation societies, the institutional setting of *studying part-time or by correspondence* has been of importance.³¹ Effects on the labor market performance are expected as part-time students often attend special evening and weekend courses and, thus, have less time to follow skill instructions due to the double burden of work and studies (Gebel & Baranowska-Rataj, 2012). This also applies to persons studying by correspondence.

³⁰ Education expansion is sometimes described as a macro-structural factor instead of an institutional factor. In this review education expansion is discussed in the section on tertiary education institutions because it is strongly linked to the institutional structure of higher education in terms of its degree of overall expansion.

³¹ Part-time and per correspondence studies were more common during Socialist time and became less common in the post-socialist transformation period and later on.

5.2.2. Empirical studies

In line with the research on secondary education, country typologies have been developed to classify countries according to the differentiation of tertiary education. The differentiation of tertiary education is measured in terms of the distinction between more research-oriented universities, on the one hand, and second-tier universities and colleges, which provide specific training and practically oriented teaching of occupational skills, on the other (van de Werfhorst, 2004; Arum et al., 2007). For example, based on a comparison of the British and German higher education system, Leuze (2007) concludes that the links between tertiary education and labor market chances are stronger in Germany because of the stronger occupational specificity of the German higher education system. Van de Werfhorst (2004) classified the higher education systems of the Netherlands, Norway, and Austria and showed that in the Netherlands the horizontal differentiation, measured in terms of the field of studies, has the strongest impact on labor market chances. However, the general critique of country clusters for secondary education systems (see Section 3.1) also applies to country clusters for tertiary education systems.

As in the case of the secondary education institutions, a macro-indicator based approach was chosen in some studies. Regarding educational expansion, there are only a few attempts to address this topic in a comparative design across countries and time using macro indicators. A notable exception is the study of Gangl (2002) based on EULFS micro data for twelve European countries. He finds that educational expansion tends to increase the unemployment risks among low qualified school leavers. Furthermore, educational expansion induces downward substitution processes, leaving the lesser qualified with lower status jobs.³² The structural trend of education expansion has been especially made responsible for the phenomenon of overqualification among labor market entrants (Verhaest & van der Velden, 2013).

Reimer et al. (2008) analyze how education expansion moderates the effects of field of study on the labor market integration of university graduates. Applying two-step multilevel models based on ELFS microdata of 22 countries in 2004–2005, the authors show that the horizontal differentiation of higher education, in terms of field of studies, becomes more important the more expanded the tertiary education sector is. The authors also include a macro indicator of occupational specificity of university education, which is measured by the average dispersion of graduates from different fields across occupational categories at the country level. However, no systematic relationship between the occupational specificity and the effects of field of study is found.

Next to the variation across countries, the variation across time could be used in a longitudinal design at the macro-level to identify the impact of tertiary education institutions. However, there is still a lack of studies that measure the impact of the tertiary education system on labor market integration in terms of quantitative indicators for different institutional characteristics in a multilevel design. This can be explained by the fact that expansion and differentiation of higher education is a recent phenomenon. Hence, there is both a lack of comparative macro-indicators on tertiary education institutions and European comparative microdata, which allow for a detailed differentiation of tertiary education degrees.

An alternative approach is followed by empirical studies that measure the impact of tertiary education institutions at the program level (van der Velden & Wolbers, 2007). For example, using micro-data from five Central and Eastern European countries, Noelke et al. (2012) find that the degree level is a central determinant of occupational status in respondents' first job. University MA graduates reach the highest occupational positions, followed by university BA and vocational college graduates. The occupational specificity affects the speed of labor market entry. The slowest transitions into first employment are observed among graduates from least occupation-specific programs. Extending this within-country perspective to a country comparison the authors conclude

³² Gangl (2002) emphasizes that the latter effect can be compensated by an upgrading of the occupational structure due to technological change and changes in job tasks and workplace organizations.

that there are similar patterns of labor market effects of institutional differentiation in higher education in the five post-socialist Central- and Eastern European countries analyzed.

Other studies investigate the impact of privatization and marketization of higher education for the transition from higher education to work. The institutional dimensions of privatization and marketization are seen as further lines of differentiation within the higher education sector. Drawing on school-to-work transition surveys from Poland and Ukraine, Gebel and Baranowska-Rataj (2012) find a trade-off between higher status attainment and slower labor market entry among graduates who studied free-of-charge compared to those students who paid tuitions. Privatization has a negative impact on the chances of finding high-quality jobs. In general, it is shown that the BA–MA differentiation, as well as the academic–vocational distinction, matter more for inequalities in status attainment than the privatization and marketization of tertiary education.

5.3. Employment protection regulation

5.3.1. Theory

Employment protection regulation is seen as the central labor market institution determining youth labor market chances. Employment protection regulation primarily refers to the regulation and protection of permanent employment contracts.

From a theoretical point of view, it is argued that a stronger protection against dismissal for permanent employment contracts enhances the disadvantages for young adults as labor market entrants (Lindbeck & Snower, 1989; Müller & Gangl, 2003b). Employers are critical of new hires because they fear the high costs of dismissal in the event of dismissal. This is particularly true of new hires of labor market entrants whose productivity and training costs are difficult to estimate. Next to refraining from hiring labor market entrants, which results in youth unemployment, it is argued that strict protection against dismissal will create incentives for employers to hire labor market entrants in temporary contracts in order to avert the high potential costs of dismissal in the event of possible dismissal. This is because, fixed-term contracts are associated with significantly lower dismissal costs if the contract is terminated at the end of the contract period. Moreover, employers can use fixed-term contracts as screening mechanisms for newcomers whose productivity and training costs are difficult to assess and then terminate the employment relationships if the matching quality is poor (Korpi & Levin, 2001).³³ Furthermore, employers can use temporary contracts as an incentives by offering the prospect of a later permanent contract, which can be seen as an efficient effort-eliciting tool (Güell, 2000).

Another argument is that strong protection against dismissal for permanent contracts also reduces the general mobility on the labor market by stabilizing existing employment relationships. This should be beneficial for those labor market entrants who have been successful in finding a first job with a permanent contract. However, a negative side effect of this lower labor market mobility is that fewer vacancies are created for newcomers such that their job-finding rates should be lower in case of strict employment protection. Esping-Andersen (2000) argues that for young people the negative effect of reduced hiring rates tends to dominate the positive effect of reduced dismissal

³³ It is sometimes argued that the *qualifying period* of permanent contracts serves as a functional equivalent to a temporary contract because it allows the employer to dissolve the permanent contract during the first months. However, in contrast to a temporary contract, concluding a permanent contract with a probationary period signals a stronger commitment of the employer to retain the employment relationship given the open-ended nature of the contract. Furthermore, whereas the temporary contract simply expires, employers have to dissolve the permanent contract during the probationary period, which may impose indirect costs in terms of giving notice of the dismissal and psychological costs of actively dismissing a person.

rates such that a strict employment protection regulation should lead to higher youth unemployment rates.

Theoretically, it is important to differentiate the effects of the regulation of temporary contracts from the protection against dismissal for permanent contracts. Although both aspects are seen as part of the employment protection, they partly differ in their expected effects on youth labor market. It is expected that weaker regulation of temporary contracts will lead to higher youth temporary employment rates because employers can more easily use temporary contracts (Baranowska & Gebel, 2010; Gebel & Giesecke, 2016).³⁴ By contrast, the effects on youth unemployment are unclear as there are two opposing scenarios (Gebel & Giesecke, 2016; Gebel, 2010a). According to the integration perspective, a weaker regulation of temporary contracts leads to the creation of new jobs, which in turn reduces the youth unemployment rate. This is because employers are more willing to create fixed-term and temporary jobs than permanent jobs, as these are easily eliminated if economic difficulties arise. Another argument in favor of the integration perspective is that employers can use temporary contracts as screening devices, which should facilitate the matching process and thus reduce the unemployment rate among new entrants to the labor market. According to the segmentation perspective, however, the increased use of fixed-term and temporary jobs only leads to chains of such contracts - without any perspective for permanent jobs. This is accompanied by a higher risk of unemployment. Furthermore, a weaker regulation of temporary contracts is expected to let employers substitute permanent workers with temporary workers. Whether the integration perspective or the segmentation perspective dominates can only be checked in empirical studies.

An interaction effect is expected between the regulation of temporary contracts and the dismissal protection for permanent contracts (Blanchard & Landier, 2002). Reducing the barriers in using temporary contracts should be of greater relevance if there are more incentives for employers to use them as it is the case when dismissal protection of permanent contract is high.

Moderating effects of employment protection can also be expected with respect to the *exit and career dynamics*. If protection of permanent contracts is high, labour market segmentation should be deepened and long-term negative consequences of sub-optimal labour market entries should occur (Amuedo-Dorantes, 2000; Gangl, 2003; Steijn *et al.*, 2006). The stronger segmentation makes conversions of temporary jobs into permanent ones less likely. Particularly young unemployed workers will face problems in gaining access to the highly protected permanent jobs. Moreover, the protection of permanent jobs increases the employment security and, thus, insider power of permanent workers in their negotiation processes on job rewards. This should lead to more permanent negative career effects of temporary jobs compared to permanent contract work at labour market entry.

5.3.2. Empirical studies

As in the case of empirical studies on the role of education and training institutions there are papers that define and empirically test country typologies that take labor market regulation into account (Gangl, 2001; Saar *et al.*, 2008). Given the limitations of this approach we will focus on studies using quantitative macro indicators to measure employment protection regulation in the following. Most of these studies rely on the OECD Employment Protection Legislation (EPL) index. While some studies use the overall summary EPL index other studies differentiate between sub-indices of the EPL. Specifically, the sub-index "EPL regular" measures the protection against dismissal for permanent contracts. It is related direct costs (e.g. severance payments) and procedural difficulties (e.g. length of notification period) involved in dismissing workers. The sub-index "EPL temporary" refers to restrictions on the use of fixed-term contracts (e.g. rules on the renewal and maximum duration of

³⁴ While a strict regulation of permanent contracts creates *incentives* for the use of temporary contracts, a strict regulation of temporary employment defines the *barriers* to this use (Gebel, 2010a).

fixed-term contracts), as well as restrictions with respect to temporary agency work. Since both dimensions are only weakly correlated with each other, it is possible to include both dimensions in multivariate analyses (Gebel & Giesecke, 2016).

For example, based on macro data and using the EPL regular index Breen (2005) finds that the stronger the dismissal protection for regular contracts is, the higher is youth unemployment rate compared to adult unemployment rate. In terms of a macro-macro interaction effect, Breen also shows that the effect of employment protection is mitigated if a country has a strong vocational training system. Based on multilevel analyses of 2004 EULFS microdata for 23 European countries, and distinguishing between regulations regarding permanent employment and regulations regarding the use of temporary contracts, Baranowska and Gebel (2010) show in a multi-level analysis that neither the protection against dismissal for permanent contracts nor the regulation of temporary contracts explain the country differences in the relative risk of fixed-term contracts for young people (compared with middle-aged adults).

There are also studies that use European comparative individual longitudinal data to analyze the effect of labor market regulation on the career mobility of young adults. For example, using individual longitudinal data from the ECHP for nine countries and a rank ordering of countries with regard to the dismissal regulation of countries, Russell and O'Connell (2001) reveal that strong employment protection reduces the chances of re-employment for young unemployed people. Gangl (2003) demonstrates with data from the ad hoc module School-to-work transitions of the EULFS 2000 that a high summary OECD EPL index reduces upward and downward mobility in early careers.

Using the same data and also the OECD EPL summary index, Wolbers (2007) concludes that the search time for the first job is longer in countries with strong employment protection regulation. However, employment protection also lowers the risk of unemployment or inactivity after having entered a first significant job. Wolbers (2007) findings confirm the hypotheses that strong protection against dismissal makes it more difficult to enter the labor market, but at the same time stabilizes existing employment relationships. Although these studies have the advantage of carrying out dynamic analyses at the micro level, however, the identification of the effect of labor market regulation is still based on a cross-sectional comparison.

However, these studies are limited to a cross-sectional comparison at the country level. This shortcoming has been overcome in recent sociological studies. For example, De Lange et al. (2014) exploit the variation across time next to the variation across countries in multilevel models.³⁵ They can show that a strong employment protection, measured via the OECD EPL summary index, is associated with higher unemployment and fixed-term employment risks. However, this study also suffers from the methodological weakness that the panel data structure was not adequately used at the macro-data level to address the problem of confounding bias due to unobserved variables.

In contrast, other recent studies additionally used the time dimension at the macro level to eliminate time-constant unobserved country effects. For example, Noelke (2015) uses models with fixed country effects and difference-in-differences estimators for macro-panel data of 16 Western European countries and the U.S. for the period 1980–2008. These models allow to eliminate time-constant unobservable heterogeneity at the country level by differencing. Additionally, the difference-in-differences approach eliminates unobserved common time trends. Noelke (2015) finds no robust evidence in the various model specifications for an effect of the protection against dismissal of permanent contracts on the employment opportunities of young people. In contrast, the deregulation of fixed-term contracts and temporary work leads to an increase in youth unemployment and a decline in the employment rate of young people.

Gebel and Giesecke (2016) use three-level models (individuals, countries, time periods) with fixed country effects in order to control unobservable heterogeneity at the country level for constant time. Based on EULFS micro-data from 19 Western and Central European countries for the period 1992 to

³⁵ Multilevel models were specified without random intercept and random slopes.

2012, they find that deregulation of temporary employment has led to an increase in temporary employment but not to a decrease in unemployment among young adults. For low-skilled young men there is even an increase in unemployment. Consequently, the partial deregulation implemented in many Western European countries has not solved the youth labor market problems and just deepened labor market inequality in terms of an increasing spread of temporary contracts. A further finding is that a reduction in the protection against dismissal of permanent contracts reduces the risks of young adults with fixed-term contracts without simultaneously increasing the risks of unemployment. Thus, the labor market integration of young adults can be improved by reducing the protection against dismissal of permanent contracts (the "insiders").

5.4. Unions

5.4.1. Theory

Trade unions can directly and indirectly influence the entry of young people into the labor market. One strand of the literature argues that trade unions in centralized systems with collective wage bargaining (and provided that there are cooperative relations with employers' organizations) create conditions conducive to the labor market integration of young adults (Müller & Gangl, 2003a; Soskice, 1999). This can include a moderate wage policy which lowers the barriers for employers to hire entrants, particularly those with lower productivity and trainability. Such efforts might also entail corporatist efforts in establishing harmonized training standards and curricula in school-based vocational education and promoting dual systems of vocational training.

It is argued to the contrary that trade unions primarily represent the interests of labor market insiders, which can be to the disadvantage of labor market entrants. Specifically, unions may push for higher wages and employment protection for older workers, which has detrimental effects for youth labor market chances (Bertola et al., 2007; Lindbeck & Snower, 1989; van der Velden & Wolbers, 2003).

5.4.2. Empirical studies

Empirical evidence on unions' influences on youth labor market chances is rather scarce. Empirical studies with comparative data in multi-level design show for Western Europe that a strong trade union influence, measured by the degree of commitment to collective agreements and by the degree of unionization, has no influence on the risks of unemployment and fixed-term employment for young people (van der Velden & Wolbers, 2003). However, Bertola et al. (2007) find that a high degree of unionization causes employment losses among young people. Baranowska and Gebel (2010) extend the study to Central and Eastern European countries where strong trade union influence (measured here by the degree to which collective agreements are binding) means that young people are exposed to higher risks of fixed-term contracts compared with adults. This is interpreted as a deepening of the insider-outsider divide on the labor market.

5.5. Active and passive labor market policy

5.5.1. Theory

Active labor market policy (ALMP) is another labor market institution that is seen as relevant for youth labor market integration. In public discourse and on the political agenda, the AAMP is seen as a crucial institutional tool to solve problems on the labor market for young adults. European

countries have promoted diversified sets of active labor market programs in times of high unemployment as measures to ease labor market integration, particularly for youth. Behind the AAMP is a set of measures, such as job search assistance, training and subsidized employment measures. The aim of most of these measures is to avoid a NEET status by integrating problematic groups into education/training or employment and boosting their employability. The heterogeneity of the AAMP is a challenge both from a theoretical and an empirical point of view (Heckman et al., 1999). The ALMP must be separated from the passive labor market policy (PLMP), which relies on financial support for young people through the unemployment insurance system.

5.5.2. Empirical studies

There are two different quantitative research traditions to study the effect of ALMP. On the one hand, evaluation studies attempt to measure the effectiveness of specific ALMP measures using microdata and methods of modern causal analysis. The heterogeneity of programs renders an overall evaluation in terms of their effectiveness very difficult and existing research confirms that the success rate varies substantially between programs (Heckman et al., 1999). A presentation and criticism of these numerous studies would require an independent contribution. However, meta-studies can be cited in this field of research, which summarize the results of many evaluation studies in quantitative terms. Various such meta-studies paint a less positive picture than the public discourse and political actions would suggest. For example, Kluve (2010: 915) concludes: "programs targeting youths are significantly less likely to be effective". Taru (2016) also stresses in his overview that many evaluation studies do not show any positive effects of AAMP.

Alternatively, an attempt is made to determine the effect of AAMP employing a composite measure of the size of ALMP at the macro level. To this end, macro indicators on expenditure, numbers of participants and the program structure of the ALMP are included in multi-level analyses. For example, Russell and O'Connell (2001), in a study using individual longitudinal data from the ECHP for nine European countries, find that the more money a country spends on AAMP, the higher are the chances of re-employment for unemployed young people. From a methodological perspective, such macro-level studies have the advantage that, in contrast to evaluation studies at the micro-level, they take into account displacement and substitution effects. They are hampered by the endogeneity problem, since the expenditure, number of participants and program structures of the AAMP at country level change in response to labor market problems.

5.6. Minimum wages

5.6.1. Theory

Minimum wages are used as an instrument to counteract low wage employment and to pursue social policy through wage policy. However, negative employment effects are suspected as an unintended side effect following standard neoclassical economic theory.³⁶ This should particularly affect young adults, who are more likely to be employed in the low-wage segment as labor market entrants, whereas older workers benefit from seniority pay. High minimum wages also reduce the incentives for young people to invest in high education, as the relative returns to education decrease.

³⁶ There are deviations from this neoclassical view in specific cases of efficiency-wage models and monopsonistic labor markets, which predict nor or even positive employment effects of minimum wages.

5.6.2. Empirical studies

In a macro-panel data analysis, for example, Neumark and Wascher (2004) show that higher minimum wages are accompanied by job losses among young people. In their comprehensive literature review Neumark and Wascher (2007) conclude that the great majority of empirical studies confirm the negative employment effects of minimum wages.

So far, no European comparative multi-level analyses of the effect of minimum wages are known, since minimum wages have been ignored in sociological research on the entry of young people into the labor market. Consequently, there is still a considerable need for sociological comparative research in this area.

5.7. Macro-structural influences

5.7.1. Theory

Besides macro-institutional influences, it is argued that the transition from education to work is also influenced by macro-structural conditions (Müller & Gangl, 2003b). Unfavorable economic conditions are assumed to tighten the competition among graduates and hinder a successful youth labor market integration, especially for low educated young adults (Gangl, 2002; Wolbers, 2007). It is also expected that there is more competition among young job seekers if larger cohorts enter the labor market. Demographic pressures in terms of larger youth cohort sizes should make it more difficult for young people to find a job and lower their labor market outcomes. Another structural factor that has been highlighted in recent research is globalization (Blossfeld et al., 2008). Educational expansion is sometimes classified as a macro-structural factor. In this working paper the topic of education expansion and the potential compensation by occupational upgrading has already been discussed in Section 3.2.

5.7.2. Empirical studies

Unfavorable economic conditions, measured by the youth unemployment rate or the business cycle, tighten the competition among graduates and hinder a successful youth labor market integration, especially for low educated young adults (Gangl, 2002; Verhaest & Van der Velden, 2012; Wolbers, 2007).

Based on EU-LFS data from 12 countries in the 1990s, Gangl (2002) shows that a higher aggregate unemployment rate increases the individual probability of being unemployed, particularly for low-educated young people, but it does not substantially alter the individual occupational status in the first job. In random and fixed effect macro panel regression models Gebel and Jungblut (2012) find a negative effect of adult unemployment rate and a positive effect of GDP growth rate on youth NEET rates. Similarly, based on EU-LFS ad-hoc module data from 2000, Wolbers (2007) shows that aggregate unemployment rate reduces the hazard rate of finding a first job. In contrast to Gangl (2002) he finds that a higher aggregate unemployment rate also leads to a lower occupational status in the first job as well as higher subsequent unemployment and inactivity risks.

In his study, Gangl (2002) concludes that a stronger competition due to demographic pressures, as measured by youth cohort size, does not seem to be an important explanatory factor for youth labor market problems. In contrast, Bassanini and Duval (2006) show in macro data analyses that an increase in youth cohort size lowers youth employment chances. Similarly, using fixed effect macro panel regression models Gebel and Jungblut (2012) show that the larger the relative youth cohort size the higher is the risk of being NEET.

The quantitative empirical evidence on the impact of globalization is still scarce and rather ambiguous. All in all, although these recent studies emphasize the role of structural factors, quantitative empirical research on the impact of structural factors is still rather scarce.

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