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No Graduate Left Behind: Resource Configurations Enabling a Successful Labor Market Entry

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No Graduate Left Behind: Resource Configurations Enabling a Successful Labor Market Entry

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A successful transition of young people into the labor market is essential not only for individuals' future careers but also to tackle the shortage of skilled workers that firms are facing globally. While a large empirical literature has studied single determinants of a successful transition into the labor market, little is known about how different determinants interrelate and whether different determinants can complement each other or compensate for the non-existence of another. Drawing on conservation of resources (COR) theory and using a person-centered empirical approach—fuzzy set qualitative comparative analysis (fsQCA)—we theoretically develop and empirically test a configurational approach to study the determinants of a successful labor market entry of young middle-skilled graduates. To test our configurational approach, we use a unique longitudinal dataset that merges comprehensive individual survey data of adolescents in an upper-secondary education and training program with administrative records on employment outcomes within six years of graduation. The findings revealed that it is not single resources but a combination of human, personal, and social capital, along with energy resources that determine a successful labor market entry of young people. Most importantly, the results showed that even when young individuals lack personal or parental resources, firms can offset these individual disadvantages by providing contextual resources during training such as a positive apprentice-supervisor relationship to still ensure a successful labor market entry.

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1. Introduction

As countries worldwide face shortages of skilled workers, a key challenge for firms is attracting and retaining young graduates who enter the labor market for their first regular job (Brunello & Wruuck, 2021; Chao et al., 2024; Holtz-Eakin & Lee, 2019; Ifo, 2022). In many countries, this shortage is particularly pronounced for middle-skilled jobs, i.e., jobs that do not require a college degree but demand specialized professional education and training (Modestino, 2016; Stephens, 2017). To address these labor shortages of middle-skilled workers, the time after finishing formal professional training and the first few years after entering the labor market are critical. These first steps heavily determine individuals' future careers and employability (De Fraja et al., 2021; Grosemans & De Cuyper, 2021; Klug et al., 2019; Koen et al., 2012; Rodrigues et al., 2024; Schmillen & Umkehrer, 2017; Shaw et al., 2019). To ensure that no graduate is left behind at this step, understanding the drivers and circumstances of a successful labor market entry of graduates from middle-skill professional training programs is crucial for firms and for policy makers seeking to support both individuals and firms in thriving.

A large empirical literature has studied a variety of single determinants of early career and labor market success. The studied determinants include personality characteristics (Mendolia & Walker, 2015), parental education (e.g., Karamessini et al., 2019), family wealth (e.g., Schioppa & Lupi, 2002), apprentice-supervisor relationship (Nägele & Neuenschwander, 2016), and friendship networks (e.g., Hällsten et al., 2017). Overall, the literature provides important insights into the determinants of early career and labor market success, demonstrating that a variety of single determinants—i.e., human capital, personal capital, or social capital—can shape early labor market and career success (Caspi et al., 1998; Parker et al., 2009).

However, a focus on single determinants neglects the fact that career success often depends on a combination of determinants. This problem is amplified by the standard use of regressions and variable-centered empirical approaches because they draw attention to linear-additive effects of single determinants, even though the determinants may often be interrelated in complex ways. For example, studies on the importance of the personality trait “grit” (i.e., the perseverance and passion for long-term goals) for educational or career outcomes have led to strong recommendations to teach grit in schools (e.g., Bashant, 2014; Duckworth et al., 2007). However, grit alone might not be sufficient for academic success, and children from affluent or well-educated backgrounds might thrive despite a lack of grit, whereas less privileged children may not. Not surprisingly, educators

and researchers have criticized recommendations to emphasize teaching grit in school. They argue that shifting too much focus to grit may inadvertently overlook pre-existing social inequalities and ultimately result in blaming disadvantaged children for not succeeding, (Metha, 2015; Mineo, 2022). As the example indicates, focusing on the effects of single determinants most likely oversimplifies reality and will not yield the most effective policy recommendations (Hofmans et al., 2020).

To solve this problem, a configurational, person-centered empirical approach is required (Fiss, 2011; Hofmans et al., 2020; Rodrigues et al., 2024), which allows researchers to explore how different determinants sometimes complement each other in synergistic ways, or cancel each other out, and how the existence of one determinant often compensates for the non-existence of another.

This paper aims to develop and test such a configurational framework to study the determinants of a successful labor market entry. In terms of theoretical framework, we apply a conservation of resources (COR) perspective (Hobfoll, 1989; Hobfoll et al., 2018) to study determinants of labor market and career success (e.g., Caspi et al., 1998). COR theory posits that (a) individuals strive to maintain, protect, and obtain resources, (b) resources do not exist individually but are interconnected with each other and with an individual's environment, and (c) individuals with more resources are less vulnerable to resource loss (Hobfoll, 1989; Hobfoll et al., 2018). COR theory thus emphasizes the interconnection of resources and allows for hypotheses on whether, and, if so, how resources complement each other or whether a lack of certain resources or a sudden resource loss can be compensated by other resources.

By integrating COR theory with the literature on the determinants of labor market and career success, we identify key resource types (i.e., energy resources, personal capital, human capital, and social capital resources) and develop configurational hypotheses. Specifically, we hypothesize that (1) combinations of human, personal, and social capital and energy resources—rather than single resources alone—determine young people's successful labor market entry, (2) multiple such resource configurations can lead to a successful labor market entry, (3) that different types of resources can compensate each other, e.g. work-related social capital can compensate a lack of personal and/or human capital resources, and (4) resource losses through adverse life events can also be compensated for by other types of resources to ensure a successful labor market entry.

In terms of empirical methodology, we apply fuzzy set qualitative comparative analysis (fsQCA)—a person-centered, configurational approach that builds on Boolean algebra and identifies different combinations of attributes that are consistently linked to the occurrence of an outcome or to its absence (Fiss, 2011; Ragin, 2008). While prior studies have applied latent profile analysis (LPA) or related techniques to implement person-centered theoretical considerations (Hofmans et al., 2020), a comparison of the two methodologies shows that QCA is better suited to study how an outcome is affected by potentially multiple configurations (Gabriel, 2018).

Studying how resources unfold in complex ways to produce a successful labor market entry for young middle-skilled graduates calls for rich individual-level data and a more long-term analysis. We therefore combine two data sources. Our first data source are rich survey data on a sample of young people during their initial firm-based training after compulsory schooling (i.e., while they are trained for a recognized apprenticeship in Switzerland). Our second data source are administrative register data for the full population of individuals in the education system in Switzerland and their employment spells in the first six years after entering the labor market. We match these two data sets in order to have a combination of rich survey data on an individual's initial firm-based training period and very reliable, administrative data on their first six years after they finished their firm-based training. This longitudinal dataset allows us in particular to study whether and which configurations of different types of resources—such as grit, parental education, and the apprentice-supervisor relationship during the first firm-based training period—in combination with sudden resource losses are linked to a successful labor market entry of middle-skilled graduates in the six years after graduation.

This paper contributes to the literature on the determinants of labor market and career success in three ways. First, it contributes to this literature by providing a theoretical framework on configurations of determinants that shape a successful labor market entry. This theoretical framework allows for different determinants to complement and compensate each other and, therefore, moves beyond traditional variable-centered approaches that focus only on one or a few determinants at a time. Second, the paper contributes to COR theory—one of the most frequently referenced theories in vocational behavior and organizational behavior studies (Halbesleben et al., 2014). While COR theory employs configurational arguments (e.g., emphasizing the interconnectedness of resources), most researchers have in their empirical analyses nevertheless relied on regression-based, variable-centered and therefore linear-additive methods to test their

theory. By providing a configurational empirical approach (fsQCA) to test the core concepts of COR theory, this paper bridges the gap between theory and empirical analyses on COR. Third, the paper contributes to the literature on “grit” as one important determinant of career and life success. For the first time, we explore (a) grit’s configurational interconnections with other determinants of labor market and career success and (b) the long-term labor market consequences of grit by matching survey data with administrative longitudinal data containing employment information on up to ten years after the survey.

2. Theory and Hypotheses Development

To develop hypotheses and a theoretical framework on resource configurations that enable a successful labor market entry, we proceed in three steps. First, we introduce conservation of resources theory (Hobfoll, 1989; Hobfoll et al., 2018). Second, to understand the different types of determinants that contribute to a successful labor market entry, we draw on frameworks from the labor market and career success literature (Caspi et al., 1998; Parker et al., 2009; Spini & Widmer, 2023). Finally, in the third step, we apply conservation of resources theory to the literature on labor market and career success (Caspi et al., 1998; Parker et al., 2009; Spini & Widmer, 2023) to derive hypotheses on resource configurations for a successful labor market entry.

2.1. Conservation of Resources Theory

Conservation of resources (COR) theory (Hobfoll, 1989; Hobfoll et al., 2018) posits that individuals strive to obtain, maintain, and protect resources. COR theory defines resources as those things people centrally value and that support their goals (e.g., employment, money, or personality resources; Hobfoll, 1989; Hobfoll et al., 2018; Halbesleben et al., 2014). Resources can include object resources (e.g., socioeconomic status), conditions (e.g., good work relationships), personal resources (e.g., personality traits), and energy resources (e.g., money), which help individuals to acquire other resources (Hobfoll 1989; Hobfoll, 2011). The theory further includes a set of principles such as the *primacy of resource loss*, *resource investment*, *resource caravans*, and *resource caravan passageways*.

The *primacy of resource loss* principle states that a resource loss is more harmful than a resource gain is helpful, while the *resource investment* principle states that people need to invest resources

to prevent resource loss, recover from resource losses, and gain new resources. From this principle, the theory derives the concepts of *loss and gain spirals*: People who have more resources are “less vulnerable” to losing them and “more capable of orchestrating resource gain” (Hobfoll, 2011, p. 117). In contrast, people who have fewer resources are “more vulnerable to resource loss and less capable of resource gain” (Hobfoll, 2011, p. 117). Finally, COR theory posits that resources do not exist and operate in isolation but are interconnected (a) with one another, that is, they travel in *resource caravans* (Hobfoll, 2011; Layne et al., 2008) and (b) with an individual’s environment (i.e., what the theory calls *resource caravan passageways*).

Because COR theory emphasizes the interconnection of resources, the theory allows for hypotheses on whether, and if so, how a lack or loss of certain resources can be compensated by other resources. Therefore, COR theory constitutes an excellent starting point for developing a configurational theoretical approach for analyzing a successful labor market entry. However, COR theory provides a very broad framework for a wide range of contexts. Thus, to identify particular resource configurations (e.g., for a successful labor market entry), Hobfoll et al. (2018) recommend that researchers integrate it with more context-specific theories. Therefore, we integrate conservation of resources theory with the literature on labor market and career success. We thereby draw on frameworks that identify different types of determinants that contribute to labor market and career success (Caspi et al., 1989; Parker et al., 2009; Spini & Widmer, 2023).

2.2. Labor Market and Career Success Literature

Even though *empirical* studies analyzing labor market and career success have predominantly focused on the effects of single determinants, there are *theoretical* arguments that view labor market and career success as the result of the interplay of multiple dimensions. Caspi et al. (1998) conceptualize individual differences in the transition to the labor market as the result of three types of capital: human capital, social capital, and personal capital.

Human capital encompasses the resources that people possess or acquire for maximizing their employability (Caspi et al., 1998). It includes not only academic achievements and cognitive ability but also parental resources, such as knowledge about the education system and how parents can support their children. *Personal capital* refers to resources affecting “both the motivation and capacity to work” (Caspi et al., 1998, p. 428) and therefore includes personality characteristics.

Finally, *social capital* consists of those relationships providing “access and control” over different kinds of resource (Caspi et al., 1998, p. 428). These relationships can be *work-related* (Prusak & Cohen, 2001), such as the leader-employee relationship (e.g., Harris et al., 2011) or work-unrelated, such as an individual’s network of friends (e.g., Hällsten et al., 2017).

Caspi et al. (1998) argue that a constellation of human, personal, and social capital resources join to shape a successful labor market transition. Even though this proposition has not been tested directly ¹, it is in line with more recent sociological research on vulnerability, which theorizes that different domains (e.g., family and work) interact and thus shape individuals’ life chances (e.g., Spini & Widmer, 2023). Caspi et al.’s (1998) typology is also in line with intelligent career theory (Beigi et al., 2018; Defillippi & Arthur, 1994; Parker et al., 2009), which posits that three “ways of knowing” drive career success: knowing-why (i.e., an individual’s personal capital), knowing-how (i.e., an individual’s human capital) and knowing-whom (i.e., an individual’s social capital). To develop a configurational framework for a successful labor market entry, we now connect this literature on labor market and career success with COR theory.

2.3. A Configurational Framework for a Successful Labor Market Entry

Figure 1 shows our configurational framework for a successful labor market entry that we will explain step by step. In the first step, our framework identifies key resources that promote a successful labor market entry. By integrating COR theory (Hobfoll, 1989; Hobfoll et al., 2018) with the labor market and career success literature (Caspi et al., 1998; Parker et al., 2009; Spini & Widmer, 2023), we argue that human capital, personal capital, and social capital can be seen as key resource types that support a successful labor market entry.

However, while these human, personal, and social capital resources fit well into the definition and categorization of resources in COR theory, these types do not cover one key resource type that plays an important role in COR theory: energy resources (Hobfoll, 1989). Energy resources such as money play a key part in COR theory as they help individuals acquire other resources (Hobfoll, 1989). Because with the help of energy resources such as money individuals can acquire things and skills needed in a given situation (e.g., professional photographs for job applications), we

¹ Caspi et al. (1998) analyzed the isolated effects of the different capitals.

argue that energy resources help shape a successful labor market entry in addition to human, social, and personal capital resources.

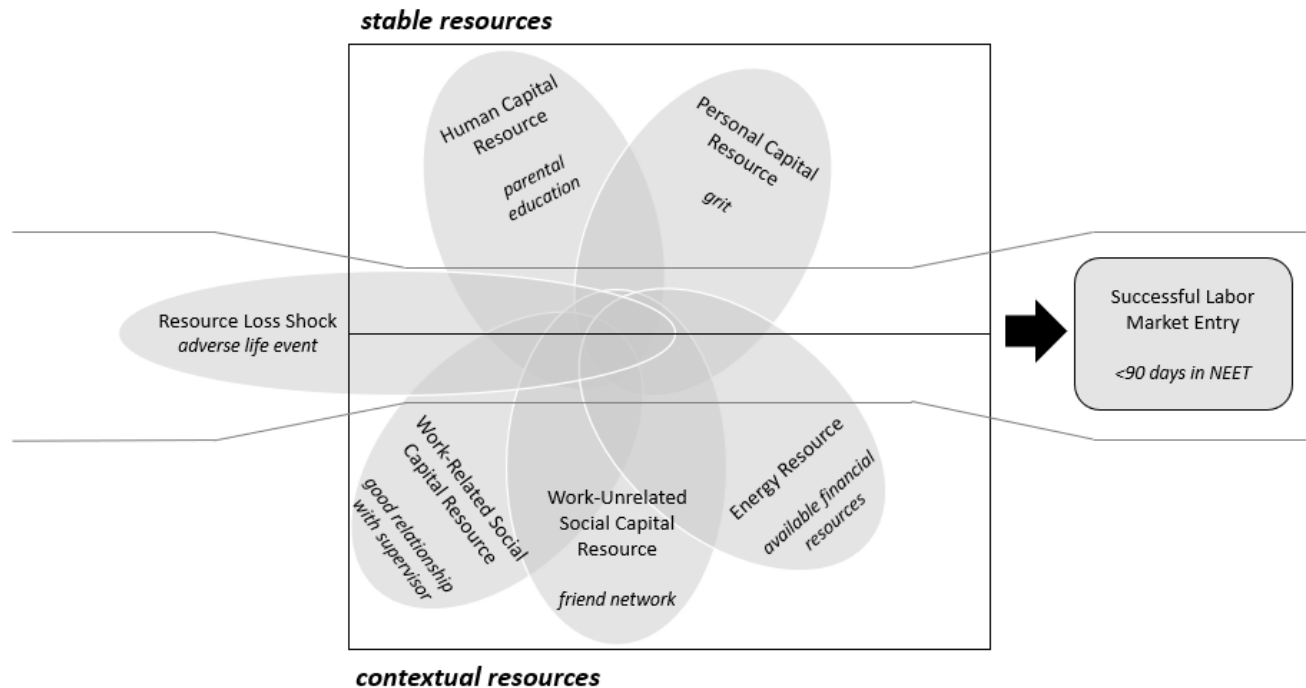


Figure 1: Configurational framework for a successful labor market entry

Notes. Our operationalizations of the resource types and the outcome as discussed in section 3 are written in cursive.

In the second step, we categorize our resources into two groups: *stable* resources, which are those an individual possesses at labor market entry (i.e., personal and human capital) and *contextual* resources, which are more prone to change and can differ according to an individual's environment. We argue that this distinction is useful from a policy perspective because it allows analyzing questions such as whether and, if so, how individuals can achieve a successful labor market entry despite unfavorable individual circumstances such as low personal and human capital resources.

In the third step, we draw on the *resource caravan* principle of conservation of resources theory, which emphasizes that it is rarely a single resource that shapes outcomes but rather a combination of resources (Hobfoll, 2011). We thus conceptualize the resources in our framework as intersecting with other resources—both stable and contextual—and derive our first hypothesis:

Hypothesis 1: It is not single resources but a combination of human capital, personal capital, social capital, and energy resources that determine young people's successful labor market entry.

In addition, from the *resource caravan* principle in combination with the *resource investment* principle we derive that resources can compensate for one another (Hobfoll, 1989; Hobfoll et al., 2018) and, as a result, not only one resource configuration but different resource configurations (i.e., different resource caravans) will be sufficiently linked to a successful labor market entry. We thus derive our second hypothesis:

Hypothesis 2: Multiple resource configurations are linked to a successful labor market entry.

Related to hypothesis 2, we are—from a policy perspective—specifically interested in whether, and if so, how firms can help in keeping young graduates with starting disadvantages in the labor market. We therefore aim to specifically analyze whether contextual resources during training can compensate for a lack of stable individual personal and human capital resources. As a specific theory is missing on how such compensating configurations might look like, we posit this as an empirical research question:

Research Question 1: If young people lack stable individual personal and/or human capital resources, can this lack be compensated for by contextual resources during training in order to ensure a successful labor market entry?

Finally, we add a resource loss shock to our configurational framework to analyze whether, and if so, how resource loss through adverse life events (e.g., parental divorce, parental unemployment, or the death of a relative or close friend) can be compensated by other resources to still ensure a successful labor market entry. The concept of *loss and gain spirals* of conservation of resources theory suggests that those with greater resources are less vulnerable to such resource losses. We therefore expect that resource losses through major adverse life events can be compensated by other resources to ensure a successful labor market entry. However, as a specific theory is missing on which types and combinations of resources can compensate a resource loss through an adverse life event, we posit a second open research question:

Research Question 2: Which resource configurations are sufficient for a smooth labor market entry despite the occurrence of an adverse life event?

3. Data and Empirical Methodology

3.1. Data

To empirically test our configurational framework for a successful labor market entry of middle-skilled graduates, we require longitudinal data that offer detailed individual-level information on the resources and sudden resource losses of individuals, i.e., young adolescents after compulsory education that take their first step into the world of work in the context of a firm-based training program. Additionally, we need objective information on their labor market progress in the years following their initial training period. Switzerland offers a unique opportunity for such data in the context of apprenticeship training, in which 70% of the youth cohorts participate after compulsory education.² New administrative data for the full sample of students ever going through any part of the Swiss education system are available, and the data specifically include information on employment spells after individuals entered the labor market.

For our analysis we are able match these administrative data with rich survey data from a sample of participants in apprenticeship training that have been surveyed from the first week of training until they finished their training (the Leading House Apprenticeship Panel). This setting allows us to not only look at personal and human capital resources of adolescents, but also at resources that firms provide when they initially train these young individuals in the context of their apprenticeship (i.e., work-related social capital).

Specifically, we measure resources and sudden resource losses of young people before labor market entry based on the Leading House Apprenticeship Panel that started in 2009 with adolescents who had just begun their VET program in Switzerland (for a detailed description of the data see Oswald & Backes-Gellner, 2014). The panel followed 265 students in VET from fourteen complete school classes and three occupations, namely commercial employee,

² In Switzerland, two-thirds of the Swiss adolescent population participate in a Vocational Education and Training program after compulsory schooling (approx.. age 15). VET programs typically last three to four years and combine an on-the-job apprenticeship at a training firm (3.5 to 4 weekdays) with formal education at a vocational school (1 to 1.5 weekdays).

mechanical engineer, and electrician. We measure a successful labor market entry after completion of the VET program by merging these Leading House Apprenticeship Panel data with the administrative LABB data from the Swiss Federal Statistical Office from 2012 until 2019 (SFSO, 2020). The LABB data are generated through the linkage of different educational and labor registers and provide detailed information on employment and unemployment spells of individuals.³ The merged sample consists of 256 individuals, of which 217 provided complete information on all measures used in this study.

Figure 2 illustrates the time structure of the data for the VET programs that last four years (mechanical engineer and electrician). The VET programs lasted from 2009 until 2013. During this time, the adolescents were surveyed by the Leading House Apprenticeship Panel. Afterwards, we follow these graduates and their labor market outcomes for six years (from 2013 until 2019) using the administrative LABB data. The data structure for the subsample of the commercial employees is similar with the only difference being that their training program lasts three years, i.e., from 2009 to 2012, after which we also follow them for six years, i.e., until 2018.

For the personal capital resource “grit” we have—compared to previous studies—one of the longest timespans between the measurement of grit and our outcome variables. Since grit was incorporated into the Leading House Apprenticeship Panel right when it was introduced by Duckworth et al. (2007) and Duckworth and Quinn (2009), we are able to measure the importance of grit in connection with other resources for labor market outcomes up to ten years later (unlike most grit studies that use either cross-sectional data, measure outcomes retrospectively, or focus on a time-span of two to three years; Credé et al., 2017; Duckworth et al., 2007; Duckworth & Quinn, 2009).

³ I.e., whether an individual is “in employment”, “in education”, “in education and employment”, “NEET: registered as unemployed”, “NEET: receives disability insurance benefits”, “NEET: receives benefits from the income compensation scheme (Erwerbsersatzordnung)”, or “NEET: other”. NEET stands for “Not in Education, Employment or Training”.

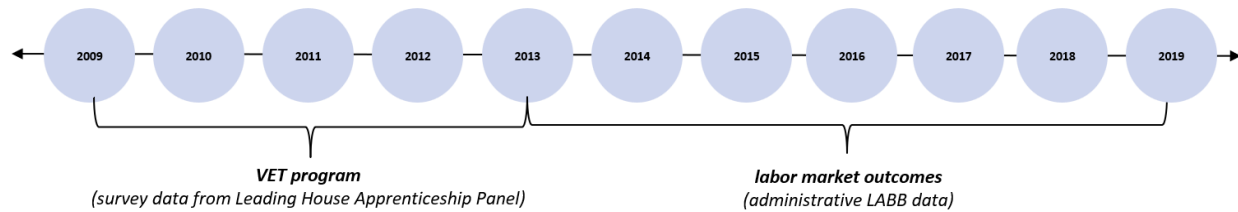


Figure 2: Time structure of data sources

3.2. Analytic approach

We apply fuzzy set qualitative comparative analysis (fsQCA), a variant of qualitative comparative analysis (QCA). QCA is a configurational approach that relies on (fuzzy) logic and set theory (Ragin, 2000, 2008; Schneider & Wagemann, 2012). By uncovering sufficient and necessary conditions, QCA perfectly lends itself to the detection of complex forms of causality, which we expect to find in our research context. First, we expect that resource caravans (i.e., a combination of resources) shape a successful labor market entry (Hypothesis 1). In terms of QCA, this is an example of *conjunctural causation*, i.e., the fact that a causal path consists of a combination of conditions. Second, when we expect resources to be mutually substitutable, this implies that more than one resource combination might be consistent with a successful labor market entry (Hypothesis 2). This is an example of *equifinality* – different paths are linked to the same outcome. Third, following a more inductive research approach, as we do with Research Questions 1 and 2 in our theoretical analysis, is perfectly compatible with QCA methodology (Park et al., 2020). Finally, QCA has been demonstrated to be a uniquely productive methodology to analyze individual data when person-centered approaches are pursued, in which profiles of personal characteristics matter (Gabriel et al., 2018).

3.3. Measures and Calibration

QCA relies on the qualitative distinction between a characteristic being fully present or fully absent in an observed case. But as measures of the characteristics of interest are on a metric scale, we apply the fsQCA variant. Here, the existence of a characteristic can also vary by quantitative degrees (while retaining the qualitative distinction of a characteristic being either rather present or rather absent in a case). For analytic purposes, the raw values of conditions and outcomes are

calibrated into so-called fuzzy values. They range continuously from complete presence (a value of 1.0) to complete absence (a value of 0.0) of a characteristic (Ragin, 2000, 2008; Schneider & Wagemann, 2012). We follow the direct method of calibration, which derives a logistic s-curve of fuzzy values based on three important anchor points: almost full presence (0.95), almost full absence (0.05) and, most importantly, the so-called crossover point (0.5), which denotes the point of maximum ambiguity between presence and absence of a characteristic. The upper and lower anchors are set at 0.95 and 0.05 rather than 1 and 0 to allow a better differentiation between relevant and irrelevant variation. Along the s-curve, cases between 0.95 and 1.0 do not vary much in terms of fuzzy-set values although the raw values might differ considerably. Hence the direct method via the setting of anchor points does not transform raw values in mechanistic ways. Rather, depending on the choice of anchors, the raw values can be compressed or stretched into fuzzy-set values. Importantly, then, the choice of anchors and calibration more generally should be based on prior theoretical or empirical knowledge (Greckhamer et al., 2018). In what follows, we report details on the measurement and calibration of outcomes (for a summary, see Table 1).

Successful Labor Market Entry. The outcome variable “successful labor market entry” is measured with the number of days *not* spent in unemployment in the first six years after graduating from the VET program. Unemployment is defined as either being registered as unemployed or being NEET, i.e., not in education, employment or training. Individuals are not counted as unemployed if they received benefits for being on maternity leave, in the military, or if they received disability insurance benefits. We base the calibration of the outcome variable *successful labor market entry* on prior knowledge from studies of youth unemployment and policy interventions. In these studies, unemployment of 90 days or more is frequently taken as an indicator of poor labor market success (e.g., Carling & Larsson, 2005; Doiron & Gørgens, 2008; Grönqvist, 2011). Therefore, 90 days of unemployment in the first six years after graduation are used as the crossover point (0.5), distinguishing the presence versus absence of *successful labor market entry*. Almost complete presence of successful labor market entry (0.95) is anchored at a raw value of 0 days of unemployment in the first six years after graduation. Determining the anchor for successful labor market entry being almost absent (0.05) is more challenging. Arguably, even shorter unemployment spells should be considered a failed labor market entry. Therefore, we impose a strict anchor for successful labor market entry being almost completely absent (0.95), namely an unemployment length of 270 days or more in the first six years after graduation. This

is three times the 90 days (the 0.5 crossover point) or nine out of 72 months in unemployment. As this implies, workers unemployed for even longer spells than 270 days will all be concentrated on fuzzy-set values from 0.05 to 0.00, reflecting the fact that quantitative differences in this extreme region of the s-curve do not make much of a difference concerning the conclusion on successful labor market entry.

Personal Capital Resources. Our measure for personal capital resources is the personality trait *grit* that was just introduced at the time of the start of the Leading House Apprenticeship Panel (Duckworth et al., 2007; Duckworth & Quinn, 2009). Grit is defined as the perseverance and passion for long-term goals (Duckworth et al., 2007). In the Leading House Apprenticeship Panel, grit was measured in 2009, in the first year of the respondents' VET program, with the 8-item Grit scale developed in Duckworth and Quinn (2009). The Grit scale includes items assessing consistency of interests (e.g., "I have been obsessed with a certain idea or project for a short time but later lost interest"; reverse scored) and perseverance of effort (e.g., "Setbacks don't discourage me") and uses a 5-point Likert-like scale from 1 = not at all like me to 5 = very much like me. In the calibration process, we again use prior empirical knowledge and set the 0.5 crossover point at a raw value of 3.4 on the *grit* scale. The value of 3.4 is not only the mean value of our sample but, more importantly, also the mean of the original study on the Short Grit Scale (Duckworth & Quinn, 2009). We relied on the extreme values on the scale for calibrating the remaining anchors. Therefore, a raw value of 5 is considered to indicate that grit is almost completely present, and a raw value of 1, almost completely absent.

Human Capital Resources. Drawing on the economics of education and labor market literature, we measure human capital resources of an adolescent with the mother's highest educational degree (e.g., Currie & Moretti, 2003; Strauss & Thomas, 1995). The respective question was: "What is the highest educational degree your mother has earned? The possible answers were: 1 "No school-leaving certificate", 2 "Compulsory school", 3 "Vocational education and training degree", 4 "Federal professional examination (e.g., master craftsman)", 5 "Professional schools", 6 "Baccalaureate", 7 "University"). Mother's education rather than an individual's education is chosen because in our setting the respondents themselves all have the same educational background, having just finished compulsory schooling and freshly entered their VET program. However, knowledge of the education system varies in adolescents' personal backgrounds, which is, according to the literature, best represented by the mother's education. For calibrating *higher*

education mother, we set the 0.5 crossover point at a raw value of 3. A value of more than 3 means that the mother's educational level is higher than vocational education and training, which is the current educational level of the adolescents. We argue that if mothers have a higher educational level, they can better support the adolescents during their education. The two remaining anchors were set at the highest values of the scale. An almost complete presence of higher education of the mother (0.95) is defined by a raw value of 7, indicating a university degree, and almost complete absence of higher education (0.05) is defined by a raw value of 1.

Work-Related Social Capital Resources. Work-related social capital resources are measured with the adolescents' individual assessment of the quality of their relationship with their trainers and supervisors at the training company. The adolescents evaluated the relationship with their supervisor in the firm in their second year of training, i.e., in 2010. They responded to the item "Now please think about your training company. How strongly does the following statement apply to you? My interactions with the vocational trainers and supervisors in the company are free of conflict." The item uses a 5-point Likert-like scale from 1 = completely wrong to 5 = completely right. For calibrating *good relationship with supervisor*, the crossover point is marked by 4.5 (i.e., completely agreeing to having a conflict-free relationship with trainers and supervisors). For lack of external knowledge, the anchor was chosen above the sample mean of 4.4. The value for almost complete present (0.59) or present (0.05) was anchored at the extreme values of the scales, i.e., 5 and 1 respectively.

Work-Unrelated Social Capital Resources. Work-unrelated social capital is operationalized with an adolescent's friend network, which was measured in 2010 with the item "How many friends do you have at the moment?" Respondents chose between three levels, namely "up to 10", "10 to 20", and "more than 20." We manually calibrated the three raw values. We posit that for *friend network* the 0.5 crossover point marked by having more than 10 friends is crucial. We therefore set a value of just below the crossover point (0.499) for the option "up to 10" friends. Having "up to 10" friends is considered a fuzzy-set value of 0.0, and having "more than 20" friends a fuzzy-set value of 1.

Energy Resources. Energy resources are operationalized with an adolescent's availability of financial resources in the second year of their training program, i.e., in 2010. The question was: "How difficult is it for you to spontaneously raise CHF 100?". The answers are on a 5-point Likert-

like scale from 1 = very difficult to 5 = very easy. For calibrating *financial resources*, we follow the wording of the scale. The 0.5 crossover point is marked by more than 3. The anchors for being almost present (0.95) and almost absent (0.05) are set at raw values of 5 and 1, respectively.

Resource Loss Shocks. As an important resource loss shock that may endanger young adolescents successful labor market transition phase, we focus on the occurrence of adverse life events during the training period. Adverse life events are measured with the following two questions: First, “When you think about your personal situation, how appropriate are the following statements? I have been affected by a serious change in my family (e.g., divorce, unemployment father or mother, death, illness).” Second, “When you think about your personal situation, how appropriate are the following statements? I have been affected by a serious change outside the family (e.g., death within the school class, at the training place).” Both items use a 5-point Likert scale from 1 = completely wrong to 5 = completely right. For calibrating *adverse life events*, we follow the wording of the empirical scale. Hence, the crossover point is marked by more than 3 (i.e., if a person agrees that he or she has been affected by a difficult change inside or outside the family). The remaining anchors of 0.95 and 0.05 are set 5 and 1, respectively.

Table 1: Calibration of Outcomes and Available Resources

Condition / Outcome	Raw value	Fuzzy-set value
Successful Labor Market Entry	0	1
(i.e., absence of unsuccessful labor market entry)	90	0.501
	270	0
Personal Resources:	5	1
Grit	3.4	0.501
	1	0
Human Capital Resources:	7	1
Higher Education Mother	3 (VET)	0.499
	1	0
Work-Related Social Capital:	5	1
Good Relationship with Supervisor	4.5	0.499
	1	0
Work-Unrelated Social Capital:	More than 20	1
Friend Network	10 to 20	0.499
	Up to 10	0
Energy Resources:	5	1
Availability of Financial Resources	3	0.499
	1	0
Resources Loss Shocks:	5	1
Adverse Life Event	3	0.499
	1	0

Notes: For each condition and outcome, we assign the «raw values» of our data to «fuzzy-set values» that indicate full membership (1), the crossover point (0.501/0.499), and full non-membership (0). The direct method was applied.

3.4. Empirical Analyses

In fsQCA, complex, configurational causal links are examined in two steps, namely the analysis of necessary conditions followed by the analysis of sufficient conditions. In line with fsQCA methodology, we first conducted a necessity analysis. A condition is necessary if, whenever the outcome is present, the condition is present as well. For fuzzy sets, this implies that the value of the condition X exceeds the value of the outcome Y. In noisy data, one cannot expect this rule to hold for each case. Therefore, parameters of fit are utilized to evaluate degrees of necessity, namely consistency and relevance of a condition. We adopted conventional thresholds for those parameters. The consistency score needs to be larger than 0.9 (Ragin, 2006) for a condition to be considered as almost necessary. There is no clear threshold for relevance although it is usually

considered that it should by far exceed 0.5 (Schneider & Wagemann, 2012). Finally, it is recommended that the coverage should be larger than 0.8 (Vos & Cambré, 2017).

In a second step, sufficient combinations of conditions are analyzed. A condition is sufficient if, whenever the condition is present, the outcome is present as well (Ragin, 2000, 2008; Schneider & Wagemann, 2012). For the analysis of sufficiency, fsQCA makes use of a truth table algorithm. The truth table depicts all logically possible combinations of conditions (see Appendix A). With k denoting the number of conditions, 2^k ideal types are logically possible. We include 6 conditions, leading to 64 possible ideal types. To filter out the ideal types that can be considered sufficient in noisy data, three decisions need to be made, namely cut-offs for frequency of cases, consistency, and PRI (Proportional Reduction in Inconsistency). In large-N QCA samples exceeding 50 cases, it is recommended to impose a minimum number of cases for each ideal type (Greckhamer et al., 2013). We set a frequency cut-off of 3 cases, allowing us to focus on resource combinations that occur more than once or twice. With 88% of cases retained in our sample, we easily surpass the threshold of 80% recommended by Greckhamer et al. (2013). A consistency cut-off is imposed, which determines to what degree an ideal type is considered sufficient for the outcome despite some deviations from perfect sufficiency. A PRI cut-off is imposed because sometimes conditions are skewed, i.e., we observe many cases with values close to 0 and to 1. Then, it is possible to identify an ideal type as being sufficient for the outcome and, at the same time, for the negated outcome, which is analytically possible though inconsistent in theoretical terms. Therefore, only combinations of conditions meeting the minimum PRI threshold should be considered sufficient. We set a consistency threshold of 0.85 and a PRI threshold of 0.75, which are both in line with recommendations for good practice (Greckhamer et al., 2018; Ragin, 2008; Schneider & Wagemann, 2012).

By minimizing the truth table, a solution formula is derived that is more compact and better lends itself to theoretical interpretation. Each conjunction within the solution formula can be considered a causal path or causal recipe. Some ideal types are not observed at all or less than the 3 times we impose as frequency threshold. Therefore, researchers need to make assumptions concerning the expected outcome—absent or present—for unobserved ideal types (“remainders”). From such assumptions, two types of easy-to-interpret solutions can be derived. The most parsimonious solution assumes that all remainders might possibly be connected with the presence of the outcome.

An intermediate solution assumes that only particular conditions or their presence in the remainders will bring about the presence of the outcome. To derive an intermediate solution, we expect the presence of each of the resources grit, the higher education of the mother, a good relationship with the supervisor, financial resources, and an extensive friend network to contribute positively to a successful labor market entry. For adverse life event, conversely, we expect the absence of such an event to contribute positively to the outcome.

4. Results

Table 2 shows the results for the analysis of necessary conditions (Ragin, 2000, 2008; Schneider & Wagemann, 2012). According to our theoretical framework, in which resources operate in caravans, we do not expect any single condition to be necessary.

This is confirmed by our results. There is only one condition – *friend network* – for which the consistency threshold exceeds 0.9. However, its relevance score is only at 0.36, so the condition should not be considered a necessary condition in any causal sense (Schneider & Wagemann, 2012). Apparently, a dense friend network is quite common among young workers with a successful labor market entry. Therefore, though the condition meets the formal requirement of a necessary condition, it should not be considered relevant in explaining the positive outcome. The conditions can still be part of the sufficient combinations of conditions we find.

Table 2: Necessary conditions for a successful labor market entry

Condition	Successful Labor Market Entry		
	Consistency	Relevance of Necessity	Coverage
Adverse Life Event	0.583	0.792	0.740
~ Adverse Life Event	0.553	0.778	0.712
Grit	0.655	0.807	0.789
~Grit	0.594	0.856	0.809
Higher Education Mother	0.631	0.800	0.771
~ Higher Education Mother	0.598	0.845	0.800
Good Relationship with Supervisor	0.766	0.663	0.740
~Good Relationship with Supervisor	0.394	0.884	0.745
Financial Resources	0.806	0.581	0.717
~ Financial Resources	0.355	0.928	0.804
Friend Network	0.935	0.360	0.699
~Friend Network	0.197	0.978	0.869

Notes: The tilde symbol (~) indicates the absence of a condition.

The sufficient configurations for a successful labor market entry are reported in Table 3. In total, five different, equifinal paths to a successful labor market entry are identified: Solution path 1 shows that in the absence of grit and in the absence of a higher education of the mother, the presence of a good relationship with the supervisor at the workplace and an extensive friend network will sufficiently explain a successful labor market entry. In other words, the good relationship with the supervisor and an extensive friend network form a resource combination that compensates for the absence of two resources, namely grit and a highly educated mother. Similarly, solution path 2 again shows that the absence of grit and the absence of a higher education of the mother can be compensated when combined with a good relationship with the supervisor, financial resources and an extensive friend network. In solution path 3, we find the absence of a higher education of the mother compensated by a good relationship with the supervisor, financial resources and a friend network. Next, solution path 4 shows that when individuals are faced with an adverse life event and when a higher education of the mother is missing, they need to combine grit with an extensive friend network for a successful labor market entry. Finally, in solution path 5, an adverse life event and a lack of grit can be compensated with a higher education of the mother along with financial resources and an extensive friend network.

According to these results, we find support for both our Hypothesis 1 and Hypothesis 2: It is not single resources but a combination of human, personal, social capital and energy resources that determine a successful labor market entry of young people (Hypothesis 1) and multiple resource configurations are sufficiently linked to a successful labor market entry (Hypothesis 2).

Specifically, the five paths can be categorized into two broad patterns. The first pattern helps us answer Research Question 1, which asked whether young people can compensate a lack of stable personal and/or human capital resources through contextual resources during training in order to ensure a successful labor market entry. The pattern is represented by the paths 1, 2, and 3. In each of them, adolescents with low grit, low education of the mother or both apparently overcome these individual disadvantages and still achieve a successful labor market entry—but only when they have access to one or several contextual resources during their training period, namely a good relationship with their supervisor, financial resources, or an extensive network of friends, or combinations of those. Most importantly, we find a good apprentice-supervisor relationship in the majority of paths with low grit and/or low education of the mother (paths 1, 2,

and 3), suggesting that this work-related social capital provides a particularly important resource to keep young people with starting disadvantages in the labor market.

A second pattern is represented in paths 4 and 5, in which adolescents experienced an adverse life event during the training phase. This pattern helps us answer Research Question 2, which asked whether resource loss through adverse life events can be compensated by other resources to ensure a successful labor market entry. We find that adolescents who experienced an adverse life event are able to compensate this resource loss and still achieve a successful labor market entry when they either show a high level of grit (path 4) or have a family background with higher levels of education of their mother and financial resources together with an extensive network of friends (path 5). This finding suggests that resource loss through adverse life events can be compensated by other resources to ensure a successful labor market entry. However, this second pattern also suggests that firms cannot always compensate for a lack of resources. In the case of sudden resource loss through adverse life events, help from outside of the firm is often needed.

Table 3: Configurations for the outcome successful labor market entry

(Length of unemployment < 3 months in the first 6 years after graduation)					
Configurations for Successful Labor Market Entry					
	Solution				
	1	2	3	4	5
Adverse Life Event				●	●
Grit	⊗	⊗		●	⊗
Higher Education Mother	⊗	⊗	⊗	⊗	●
Good Relationship with Supervisor	●	●	●		
Financial Resources		●	●		●
Friend Network	●	●	●	●	●
Consistency	0.875	0.877	0.893	0.868	0.856
Raw Coverage	0.375	0.340	0.428	0.479	0.474
Unique Coverage	0.025	0.015	0.012	0.035	0.027
Number of Cases	35	26	40	32	10
Overall Solution Consistency	0.823				
Overall Solution Coverage	0.632				

Notes: Black circles (●) indicate the presence of a condition. Circles with a cross-out (⊗) indicate the absence of a condition. Blank spaces indicate that it does not matter for a solution path whether a condition is present or absent. Large circles indicate a core condition which is a condition that is part of both the parsimonious and the intermediate conditions. Small circles indicate a peripheral condition which is a condition that is only part of the intermediate solution. Blank spaces indicate that it does not matter for a solution path whether a condition is present or absent (Fiss, 2011; Ragin & Fiss, 2008).

Directional assumptions for the intermediate solution: presence of grit, presence of higher education mother, presence of good relationship with supervisor, presence of financial resources, presence of friend network as well as absence of adverse life event. All calculations were made with the QCA package for R provided by Duşa (2018).

5. Robustness Analysis

QCA is distinctive for a causal asymmetry in which the absence of an outcome is not necessarily explained by the reverse configurations that explain the presence of the outcome (Schneider & Wagemann, 2012). In order to explore asymmetry and to exclude that some findings cast doubt on

our conclusions concerning hypotheses and research questions, we conducted a sufficiency analysis for the absence of a successful labor market entry as outcome. Despite lowering the consistency thresholds, however, we did not find any ideal type sufficiently explaining the absence of a successful labor market entry. This finding is in line with the “Anna Karenina effect” (Klein Teeselink & Zauberman, 2023), which describes the phenomenon that there are “unlimited ways to fail”. The finding is also in line with QCA research from other contexts such as the context of poverty, where the researchers argue that one reason for not finding a clear path to poverty is that no one intentionally plans to fail (Ragin & Fiss, 2017). Our finding does thus not imply that all adolescents were successful. However, the unsuccessful ones were so heterogeneous that there does not appear to be a systematic recipe for the absence of a successful labor market entry. Therefore, our analysis shows a strong asymmetry. We are able to uncover systematic causal paths to a successful labor market entry, whereas the reasons for the absence of a successful labor market entry remain idiosyncratic and individualized. There are too many ways to fail, making it impossible to identify common configurations.

We also conducted several robustness tests following Schneider and Wagemann (2012) and Oana and Schneider (2021) (see Appendix C). First, in line with Schneider and Wagemann (2012), we varied thresholds for consistency and calibration decisions. Additionally, we test our frequency threshold. By increasing and decreasing both consistency and frequency, we observe no substantive changes in our results. The same applies to changing the calibration decision for the condition grit from a crossover point at 3.4 to 4.⁴ Some of the original solution paths showed additional conditions. For example, solution path 4 then showed the absence of financial resources instead of the absence of a higher education of the mother. However, most importantly, the changes did not affect the resource compensation mechanisms we observed.

Second, following the robustness test protocol by Oana and Schneider (2021), we calculated and checked additional parameters of fit (see Appendix D). An important element of the robustness test protocol is the idea of a *robust core* (RC). We calculated test solutions, changing the consistency threshold, the calibration of one condition and changing the frequency threshold in

⁴ In our main analysis, we set the crossover point at 3.4, because this value offers a more intuitive interpretation than setting the crossover point, for example, at 4 (as we did in the robustness check). A value of 3.4 represents the mean value of (a) our sample and (b) the original study on the Short Grit Scale (Duckworth & Quinn, 2009) and thus allows for analyzing people with above-average and below-average levels of grit.

addition to a newly calibrated condition, to intersect the test solutions with our initial solution. We find very high values, almost 1, for fit-oriented robustness parameters and high values for case-oriented robustness parameters. This means that our initial solution is again robust against the changes within the test solutions. Lastly, looking at the solution term of the intersection of our initial solution with the test solution, we find the solution paths to be a subset of our initial solution. In particular, we find solution paths 1 and 5 of our initial solution to be part of the robust core. We find a slightly adjusted solution path 2 within the robust core where the education of the mother is now a present condition in the robust core. Overall, we conclude that our results are robust, and that no substantially meaningful deviations can be observed (cf. Schneider & Wagemann, 2012).

6. Discussion

A successful transition of young graduates into the labor market is essential not only for individuals' future careers, earnings and life satisfaction but also to tackle the major shortage of skilled workers that firms are facing around the world (e.g., Brunello & Wruuck, 2021; Möller & Umkehrer, 2015; Mroz & Savage, 2006). While a large empirical literature has studied the determinants of labor market success in terms of the effects of single determinants (e.g., Duckworth et al., 2007; Engzell et al., 2020), little is known about how different determinants interrelate and whether different determinants can complement each other, cancel each other out, or compensate for the non-existence of another.

The goal of this paper was to theoretically develop and empirically test a configurational, person-centered approach to study the determinants of a successful labor market entry of young middle-skilled graduates. The paper integrated conservation of resources (COR) theory (Hobfoll, 1989) with research on the determinants of labor market and career success (e.g., Caspi et al., 1998; Parker et al., 2009) to develop configurational hypotheses on how different types of resources (such as personal, human and social capital resources) in combination with sudden resource losses are linked to a successful entry into the labor market. To test the configurational hypotheses, the paper applied fuzzy set qualitative comparative analysis (fsQCA)—a person-centered, configurational approach—to a longitudinal dataset that merges rich individual survey data of adolescents during their initial firm-based training program after compulsory schooling (i.e., while they are trained for a recognized apprenticeship in Switzerland) with administrative records on labor market outcomes in the first six years after they finished their firm-based training.

The findings revealed that it is not single resources but a combination of human, personal, social capital and energy resources that determine a successful labor market entry of young people. Most importantly, the results showed that even when young individuals lack personal or parental resources, firms can offset these disadvantages by providing a positive apprentice-supervisor relationship to still ensure a successful labor market entry.

6.1. Implications for Theory and Research

Our study advances the literature on the determinants of career and labor market success and conservation of resources theory in three key ways. First, we contribute to research on the determinants of labor market and career success by integrating COR theory with the labor market and career success literature. Through integration of these theories, we build a configurational theoretical framework on resource configurations that shape a successful labor market entry. In this framework, different resources (personal capital, human capital, social capital, and energy resources) can both complement and compensate one another. This framework allows for multiple paths to a successful labor market entry and thus moves beyond variable-centered perspectives that focus on linear-additive effects of determinants.

Second, we contribute to COR theory—one of the most commonly cited theories in vocational behavior and organizational behavior research (Halbesleben et al., 2014)—by theorizing and empirically showing how COR theory can be tested with a configurational approach. Even though COR theory uses configurational arguments (e.g., emphasizes the interconnection of resources), researchers have predominantly tested the theory with variable-centered, regression-based approaches. We thus bridge the gap between COR theory and empirical studies by demonstrating a new approach to test key concepts of COR theory.

Third, we contribute to the literature on the personal capital resource grit by (a) analyzing the importance of grit for success on the labor market in the context of other resources (versus analyzing grit in isolation) and (b) employing a long-term longitudinal design with the labor market outcomes being measured up to six years after graduation and up to ten years after measuring grit. Our results suggest that—in face of adverse life events—grit can indeed be helpful in promoting a successful labor market entry. However, grit was neither a single necessary condition for a successful labor market entry nor was it present in the majority of paths to a

successful labor market entry. In contrast, our results suggest that a lack of grit can be compensated by other resources such as work-related social capital. Taken together, these findings suggest that while grit can help in difficult situations, there are many paths to success on the labor market that do not require high levels of grit. Our findings thus stress the importance of moving beyond the analysis of grit as a single explanatory variable and towards analyzing grit in context of an individual's other resources or lack of resources.

6.2. Practical Implications

Our research also offers several practical implications. First, our results on work-related social capital during the training period of an individual suggest that firms can play an important role in keeping young middle-skilled graduates with starting disadvantages successfully in the labor market. Specifically, a good apprentice-supervisor relationship can compensate a lack of the personal capital resource *grit* and the human capital resource *low education of the mother* in order to still ensure a successful labor market entry. This finding is noteworthy given the skill shortages firms around the globe are struggling with. The finding indicates that firms can play an active role in reducing such skill shortages by providing training and integrating young people with disadvantaged individual circumstances.

Second, however, our results on sudden resource losses suggest that firms cannot always compensate a lack of resources. Specifically, our results suggest that the work-related social capital resource *good apprentice-supervisor relationship* cannot compensate for a sudden loss of resources through adverse life events. In these cases, help from outside of the firm is needed, for example through a systematic case management as it exists in the Swiss education and labor market system, where students in difficult and complex situations are supported through a targeted system of stakeholder collaboration (e.g., social workers, the child and adult protection authority, school administration, and psychologists).

Third, our results have implications for public discussions on how much emphasis should be placed on individuals' personal capital resource *grit* in the education system (Mehta, 2015; Mineo, 2022). Our findings suggest that grit can indeed be helpful in promoting long-term outcomes such as success in the labor market (measured up to ten years after measuring grit). However, our results also suggest that grit (a) is only one of many determinants of a successful labor market entry, and

(b) is intertwined with other determinants. That is, grit can be compensated for by other resources, and grit itself can compensate for resource losses. These results imply that viewing grit as one component of resource caravans that is helpful but neither necessary nor sufficient on its own for success, may be more effective than a narrow focus on promoting and encouraging individuals' grit in isolation.

6.3. Conclusion

With firms worldwide struggling to find skilled workers, it is crucial not to lose young labor market entrants in early career stages. While previous research has predominantly focused on studying the effects of single determinants of early labor market success, we adopt a person-centered approach to identify which configurations of different types of resources in combination with sudden resource losses during an upper secondary training program are linked to a successful labor market entry in the six years after graduating from such programs. Our findings suggest that (a) it is not single resources but a combination of human, personal, social capital and energy resources (i.e., what COR theory refers to as “resource caravans”) that determine a successful labor market entry of young people, (b) the path to a successful labor market entry is wide, with several different resource configurations similarly producing a successful labor market entry, and (c) if young people lack stable personal and/or human capital resources, this lack can be compensated through contextual resources during training (e.g., a good apprentice-supervisor relationship) in order to still ensure a successful labor market entry. Our research points to the opportunities of using configurational approaches to uncover the complex interconnections of resources and life events that shape success on the labor market.

Appendix A. Truth Table

Table A.1: Excerpt of the truth table

Adverse Life Event	Higher Education Mother	Grit	Good Relationship with Supervisor	Financial Resources	Friend Network	Successful Labor Market Entry	n	Raw consist.	PRI consist.
1	0	1	0	0	1	1	7	0.934	0.809
1	0	0	1	1	1	1	9	0.916	0.830
1	0	1	1	0	1	1	5	0.910	0.800
1	0	1	0	1	1	1	6	0.907	0.780
1	0	0	1	0	1	1	9	0.906	0.783
0	0	0	1	0	1	1	8	0.904	0.765
0	0	0	1	1	1	1	8	0.903	0.792
1	1	0	0	1	1	1	5	0.897	0.764
1	1	0	1	1	1	1	5	0.896	0.797
0	1	0	1	1	1	1	4	0.889	0.772
1	0	1	1	1	1	1	13	0.889	0.793
0	0	1	1	1	1	1	10	0.881	0.763
0	0	1	1	1	0	0	4	0.910	0.703
1	0	0	0	0	1	0	4	0.909	0.731
0	0	0	0	0	1	0	10	0.904	0.694
0	1	1	1	1	0	0	3	0.903	0.694
0	0	0	0	1	0	0	5	0.900	0.474
0	0	1	0	0	1	0	7	0.895	0.666
0	1	0	1	0	1	0	4	0.892	0.741
1	0	0	0	1	1	0	10	0.886	0.731
0	0	1	1	0	1	0	8	0.886	0.737
1	1	1	0	1	1	0	3	0.881	0.726
0	1	0	0	1	1	0	5	0.878	0.731
0	0	1	0	1	1	0	10	0.875	0.710
0	1	1	0	1	1	0	8	0.874	0.722
0	0	0	0	1	1	0	12	0.871	0.704
0	1	1	1	1	1	0	6	0.866	0.740
0	0	1	0	0	0	?	1	0.958	0.613
1	1	0	0	0	0	?	1	0.957	0.686
1	0	0	0	0	0	?	1	0.956	0.635
0	0	0	0	0	0	?	1	0.952	0.548
1	0	1	1	0	0	?	2	0.939	0.705
1	0	0	0	1	0	?	1	0.937	0.661
0	0	0	1	0	0	?	1	0.926	0.632
1	0	1	1	1	0	?	2	0.924	0.739
0	1	0	0	0	1	?	2	0.918	0.718
0	1	0	0	1	0	?	1	0.918	0.622
0	0	1	1	0	0	?	2	0.917	0.630
0	0	0	1	1	0	?	2	0.915	0.686
0	1	0	1	1	0	?	2	0.914	0.701
1	1	1	0	0	1	?	1	0.913	0.747
1	1	0	0	0	1	?	1	0.909	0.736
0	1	0	0	0	0	?	0	-	-
0	1	0	1	0	0	?	0	-	-
0	1	1	0	0	0	?	0	-	-
0	1	1	0	0	1	?	0	-	-

Appendix B. XY Plots of the Sufficient Solution Paths

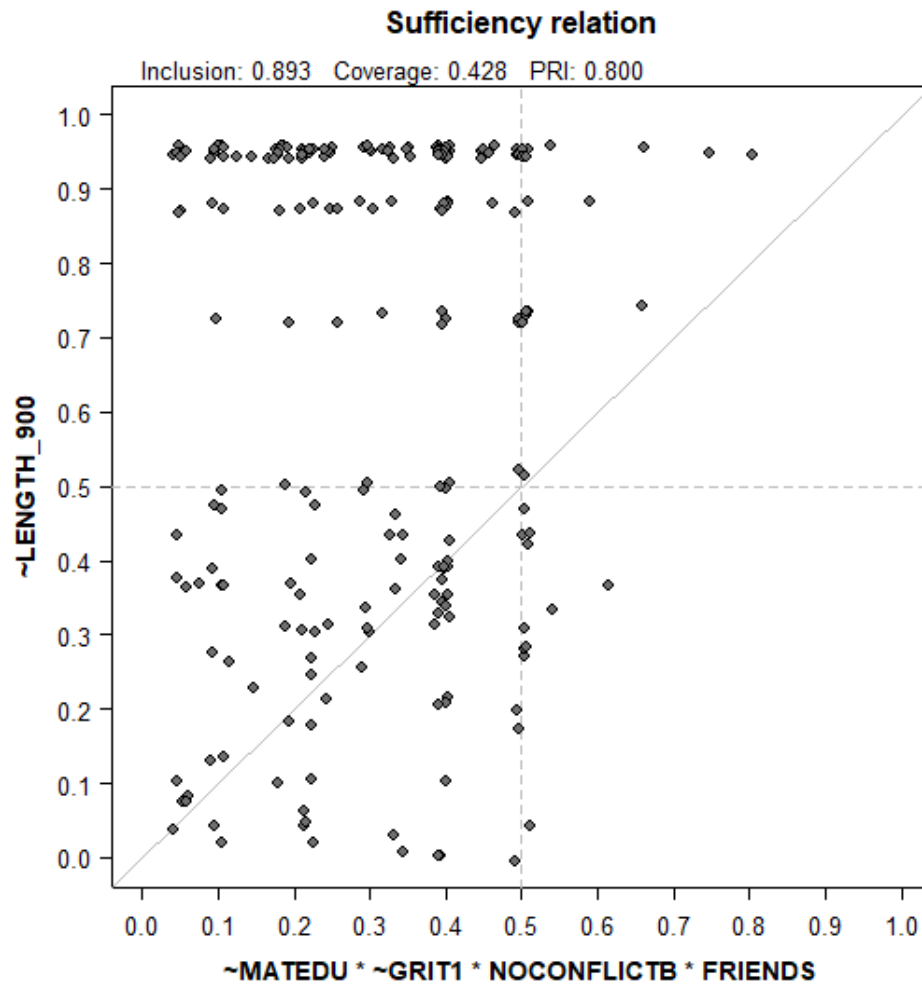


Figure B.1: Intermediate solution for solution path 1

Notes: The tilde symbol (~) indicates the absence of a condition. *Matedu* stands for *higher education mother*, *GRIT1* stands for *grit*, *NOCONFLICTB* stands for *good relationship with supervisor*, *friends* stands for *friend network*, and *LENGTH_900* stands for *successful labor market entry*.

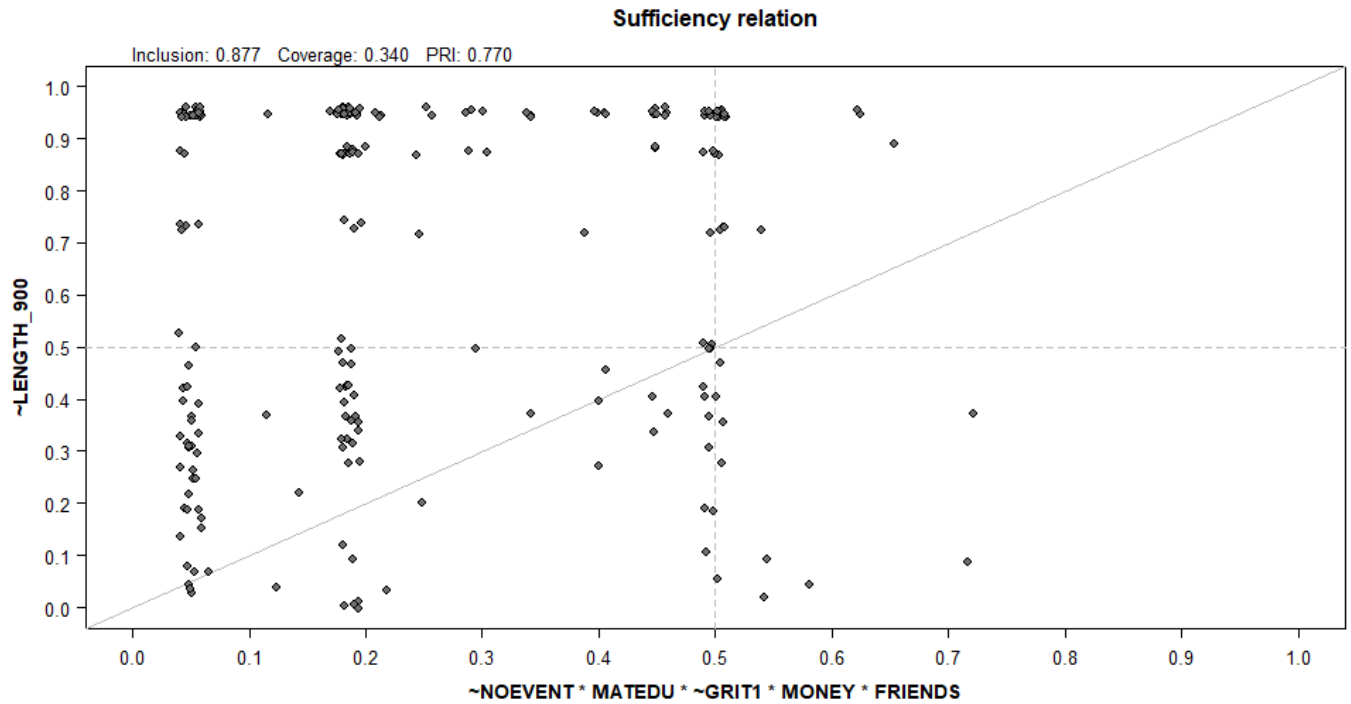


Figure B.2: Intermediate solution for solution path 2

Notes: The tilde symbol (~) indicates the absence of a condition. *Matedu* stands for *higher education mother*, *GRIT1* stands for *grit*, *NOEVENT* stands for *no adverse life event*, *money* stands for *financial resources*, *friends* stands for *friend network*, and *LENGTH_900* stands for *successful labor market entry*.

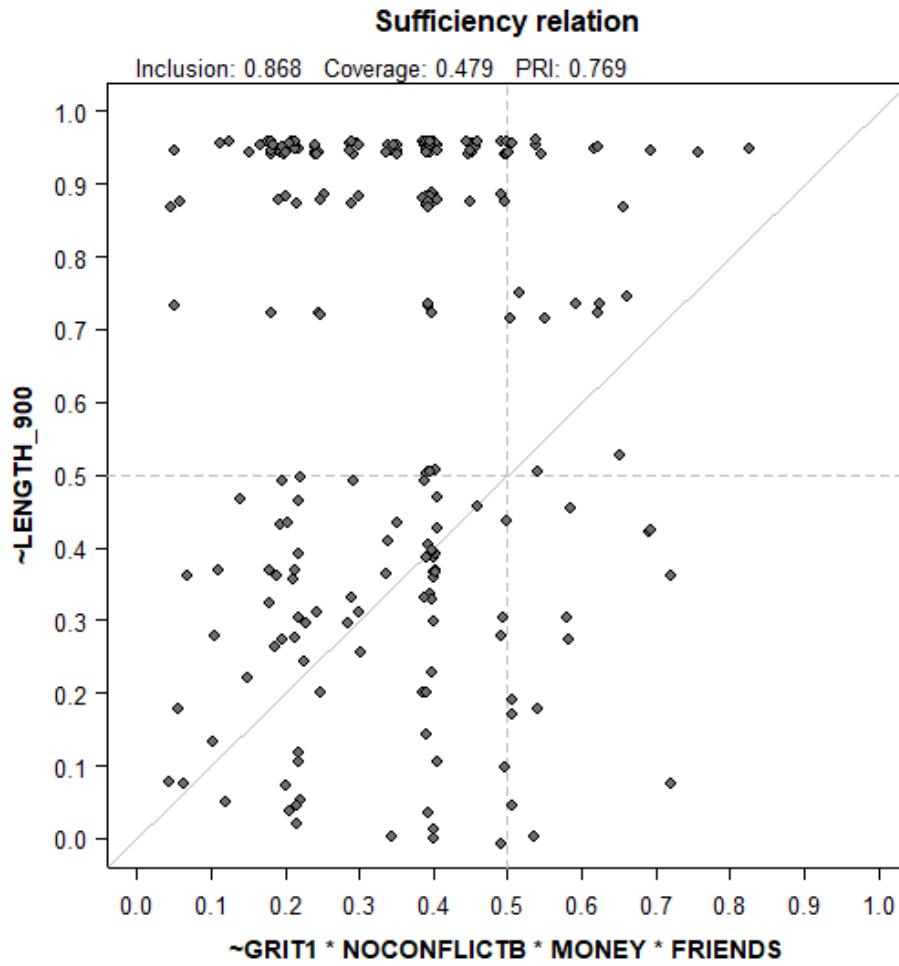


Figure B.3: Intermediate solution for solution path 3

Notes: The tilde symbol (~) indicates the absence of a condition. *GRIT1* stands for *grit*, *NOCONFLICTB* stands for *good relationship with supervisor*, *money* stands for *financial resources*, *friends* stands for *friend network*, and *LENGTH_900* stands for *successful labor market entry*.

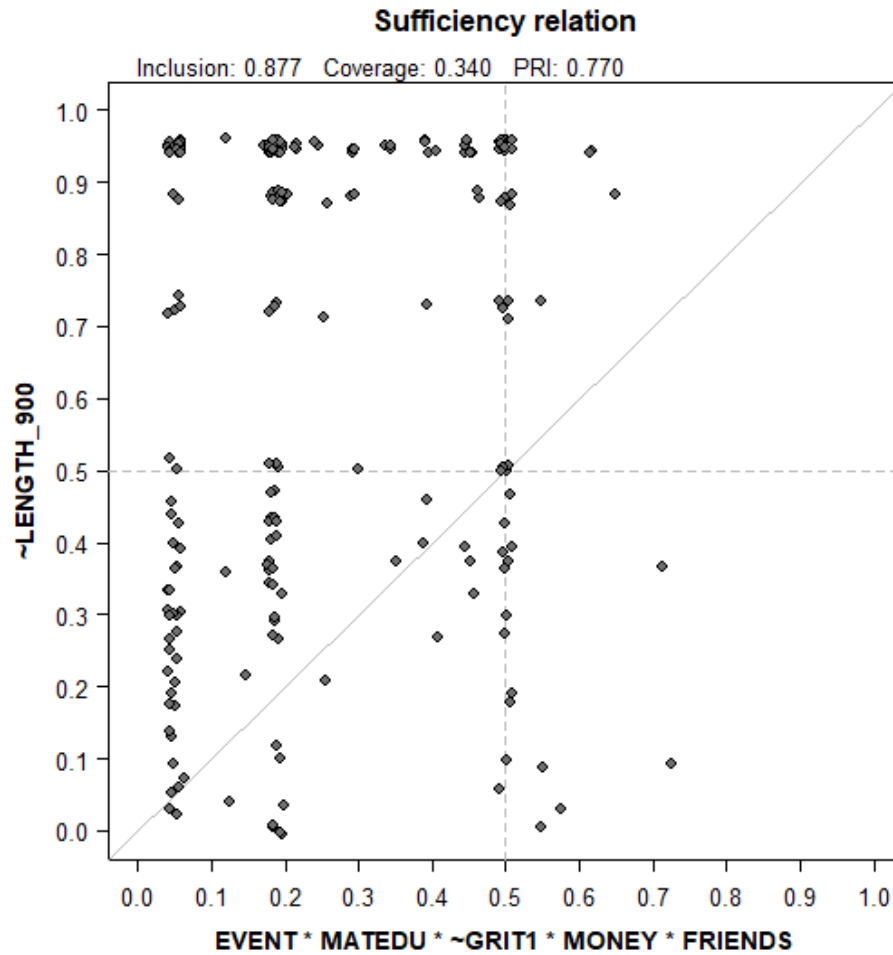


Figure B.4: Intermediate solution for solution path 4

Notes: The tilde symbol (~) indicates the absence of a condition. *EVENT* stands for *adverse life event*, *MATEDU* stands for *higher education mother*, *GRIT1* stands for *grit*, *money* stands for *financial resources*, *friends* stands for *friend network*, and *LENGTH_900* stands for *successful labor market entry*.

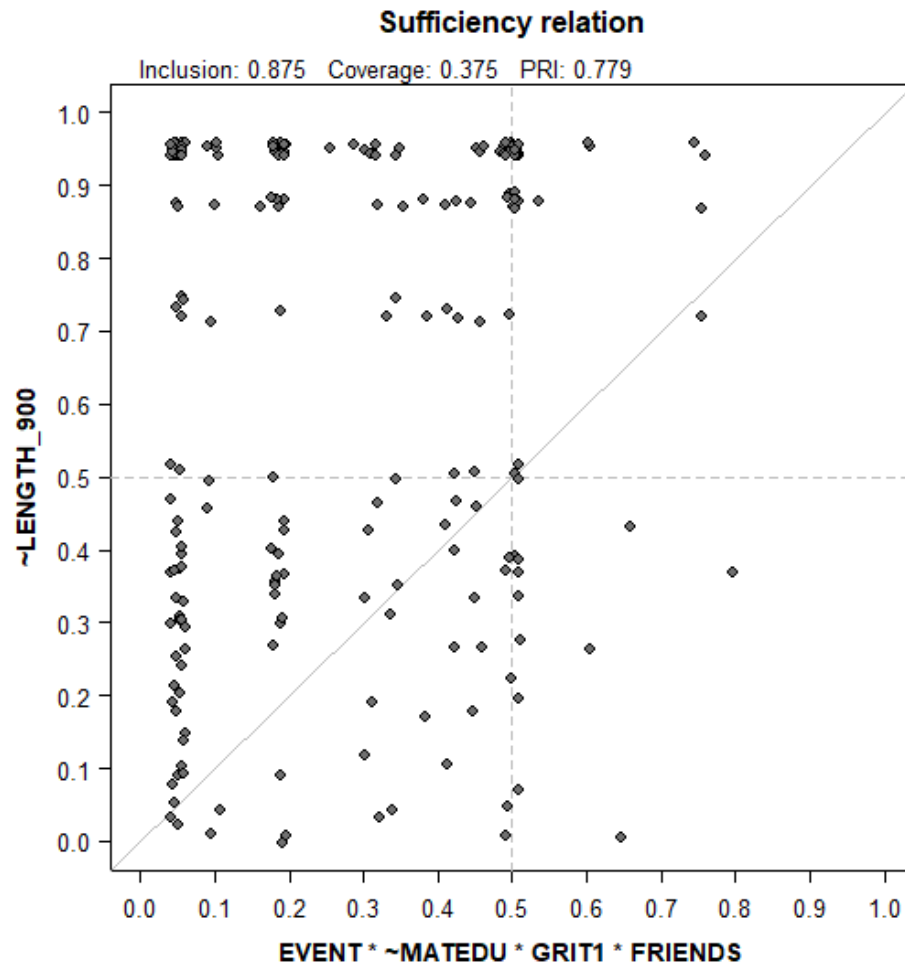


Figure B.5: Intermediate solution for solution path 5

Notes: The tilde symbol (~) indicates the absence of a condition. *EVENT* stands for *adverse life event*, *MATEDU* stands for *higher education mother*, *GRIT1* stands for *grit*, *friends* stands for *friend network*, and *LENGTH_900* stands for *successful labor market entry*.

Appendix C. Robustness Checks

Table C1: Configurations for successful labor market entry, robustness 1

	Solution				
	1	2	3	4	5
Adverse Life Event				●	●
Grit	⊗	⊗		●	⊗
Higher Education Mother	⊗	⊗	⊗	⊗	●
Good Relationship with Supervisor	●	●	●		
Financial Resources		●	●		●
Friend Network	●	●	●	●	●
Consistency	0.875	0.877	0.893	0.868	0.856
Raw Coverage	0.375	0.340	0.428	0.479	0.474
Unique Coverage	0.025	0.015	0.012	0.035	0.027
Overall Solution Consistency		0.823			
Overall Solution Coverage		0.632			

Notes: New: Consistency threshold of 0.75; PRI threshold of 0.75 and frequency threshold of 3 as in the original model. Black circles (●) indicate the presence of a condition. Circles with a cross-out (⊗) indicate the absence of a condition. Blank spaces indicate that it does not matter for a solution path whether a condition is present or absent. Large circles indicate a core condition which is a condition that is part of the parsimonious and intermediate conditions. Small circles indicate a peripheral condition which is a condition that is only part of the intermediate solution.

Table C.2: Configurations for successful labor market entry, robustness 2

	Solution		
	1	2	3
Adverse Life Event	●	●	
Grit		●	⊗
Higher Education Mother		⊗	⊗
Good Relationship with Supervisor	●	⊗	●
Financial Resources	⊗		●
Friend Network	●	●	●
Consistency	0.873	0.901	0.900
Raw Coverage	0.239	0.222	0.405
Unique Coverage	0.040	0.035	0.168
Overall Solution Consistency		0.869	
Overall Solution Coverage		0.486	

Notes: New: Consistency threshold of 0.90; PRI threshold of 0.75 and frequency threshold of 3 as in the original model. Black circles (●) indicate the presence of a condition. Circles with a cross-out (⊗) indicate the absence of a condition. Blank spaces indicate that it does not matter for a solution path whether a condition is present or absent. Large circles indicate a core condition which is a condition that is part of the parsimonious and intermediate conditions. Small circles indicate a peripheral condition which is a condition that is only part of the intermediate solution.

Table C.3: Configurations for successful labor market entry, robustness 3

	Solution				
	1	2	3	4	5
Adverse Life Event	●	●			
Grit		●		⊗	⊗
Higher Education Mother	●		⊗	⊗	
Good Relationship with Supervisor			●	●	●
Financial Resources	●		●		●
Friend Network	●	●	●	●	●
Consistency	0.843	0.837	0.856	0.893	0.868
Raw Coverage	0.395	0.443	0.474	0.428	0.479
Unique Coverage	0.022	0.040	0.027	0.012	0.035
Overall Solution Consistency	0.801				
Overall Solution Coverage	0.665				

Notes: New: Frequency threshold of 4; PRI threshold of 0.75 and consistency threshold of 0.85 as in the original model. Black circles (●) indicate the presence of a condition. Circles with a cross-out (⊗) indicate the absence of a condition. Blank spaces indicate that it does not matter for a solution path whether a condition is present or absent. Large circles indicate a core condition which is a condition that is part of the parsimonious and intermediate conditions. Small circles indicate a peripheral condition which is a condition that is only part of the intermediate solution.

Table C.4: Configurations for successful labor market entry, robustness 4

	Solution				
	1	2a	2b	3	4
Adverse Life Event	●	⊗	⊗	●	
Grit		⊗	⊗	●	
Higher Education Mother		●	●		⊗
Good Relationship with Supervisor	●	•			●
Financial Resources	•		•	⊗	●
Friend Network	•	•	•	•	●
Consistency	0.837	0.902	0.882	0.870	0.856
Raw Coverage	0.424	0.292	0.299	0.251	0.474
Unique Coverage	0.056	0.007	0.012	0.027	0.050
Overall Solution Consistency		0.810			
Overall Solution Coverage		0.627			

Notes: New: change in calibration of condition *Grit* ($e=1$, $c=3.9$, $i=5$); PRI threshold of 0.75 and consistency threshold of 0.85 as in the original model. Black circles (●) indicate the presence of a condition. Circles with a cross-out (⊗) indicate the absence of a condition. Blank spaces indicate that it does not matter for a solution path whether a condition is present or absent. Large circles indicate a core condition which is a condition that is part of the parsimonious and intermediate conditions. Small circles indicate a peripheral condition which is a condition that is only part of the intermediate solution.

Appendix D. Robustness Test Protocol (Oana & Schneider, 2021)

Table D.1: Robustness test protocol

Successful Labor Market Entry				
Sensitivity Ranges				
	Condition	0	0.5	1
Calibration anchors	Adverse Life Event	Lower: NA Upper: 2.4	Lower: 3.1 Upper: 3.4	Lower: 4.2 Upper: 5.6
	Higher Education Mother	Lower: -1 Upper: 2	Lower: 3.1 Upper: 3.1	Lower: 5 Upper: NA
	Grit	Lower: NA Upper: 2.5	Lower: 3.3 Upper: 3.4	Lower: 4.3 Upper: 6.3
	Good Relationship with Supervisor	Lower: -1.1 Upper: 2	Lower: 4.2 Upper: 4.8	Lower: 4.5 Upper: 5.1
	Financial Resources	Lower: NA Upper: NA	Lower: 3 Upper: 3	Lower: 4.5 Upper: NA
	Friend Network	Lower: NA Upper: NA	Lower: 1 Upper: 1.2	Lower: NA Upper: NA
Parameters	Raw consistency	Lower: NA	Threshold: 0.85	Upper: 0.85
	Frequency	Lower: 2.1	Threshold: 3	Upper: 3
Robustness parameters				
Fit oriented	RF _{cons} : 0.989	RF _{cov} : 0.979	RF _{SC_minTS} : 0.969	RF _{SC_maxTS} : 0.956
Case oriented	RCR _{typ} : 0.792	RCR _{dev} : 0.821	RCC_Rank: 2	

Table D.2: Solution path of robust core (RC)

Solution			
Adverse Life Event		●	
Grit	⊗	⊗	⊗
Higher Education Mother	⊗	●	●
Good Relationship with Supervisor	●		●
Financial Resources		●	●
Friend Network	●	●	●

References

- Bashant, J. (2014). Developing grit in our students: Why grit is such a desirable trait, and practical strategies for teachers and schools. *Journal for Leadership and Instruction*, 13(2), 14-17.
- Beigi, M., Shirmohammadi, M., & Arthur, M. (2018). Intelligent career success: The case of distinguished academics. *Journal of Vocational Behavior*, 107, 261-275.
<https://doi.org/https://doi.org/10.1016/j.jvb.2018.05.007>
- Brunello, G., & Wruuck, P. (2021). Skill shortages and skill mismatch: A review of the literature. *Journal of Economic Surveys*, 35(4), 1145-1167.
<https://doi.org/10.1111/joes.12424>
- Carling, K., & Larsson, L. (2005). Does early intervention help the unemployed youth? *Labour Economics*, 12(3), 301-319. <https://doi.org/10.1016/j.labeco.2003.12.001>
- Caspi, A., Bradley, R. E. W., Moffitt, T. E., & Silva, P. A. (1998). Early failure in the labor market: Childhood and adolescent predictors of unemployment in the transition to adulthood. *American Sociological Review*, 63(3), 424-451.
<https://doi.org/10.2307/2657557>
- Chao, G. T., Deal, C., & Migliano, E. N. (2024). Occupational exoskeletons: Supporting diversity and inclusion goals with technology. *Journal of Vocational Behavior*, 104016.
<https://doi.org/https://doi.org/10.1016/j.jvb.2024.104016>
- Credé, M., Tynan, M. C., & Harms, P. D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and Social Psychology*, 113(3), 492.
<https://doi.org/10.1037/pspp0000102>
- Currie, J., & Moretti, E. (2003). Mother's education and the intergenerational transmission of human capital: Evidence from college openings. *The Quarterly Journal of Economics*, 118(4), 1495-1532. <https://doi.org/10.1162/003355303322552856>
- De Fraja, G., Lemos, S., & Rockey, J. (2021). The wounds that do not heal: The lifetime scar of youth unemployment. *Economica*, 88(352), 896-941. <https://doi.org/10.1111/ecca.12384>
- Defillippi, R. J., & Arthur, M. B. (1994). The boundaryless career: A competency-based perspective. *Journal of Organizational Behavior*, 15(4), 307-324.
<https://doi.org/10.1002/job.4030150403>
- De Vos, A., Jacobs, S., & Verbruggen, M. (2021). Career transitions and employability. *Journal of Vocational Behavior*, 126, 103475. <https://doi.org/10.1016/j.jvb.2020.103475>
- Doiron, D., & Gørgens, T. (2008). State dependence in youth labor market experiences, and the evaluation of policy interventions. *Journal of Econometrics*, 145(1), 81-97.
<https://doi.org/10.1016/j.jeconom.2008.05.010>
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087-1101. <https://doi.org/10.1037/0022-3514.92.6.1087>
- Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the short grit scale (Grit-S). *Journal of Personality Assessment*, 91(2), 166-174.
<https://doi.org/10.1080/00223890802634290>
- Dusa, A. (2018). *QCA with R: A Comprehensive Resource*. Springer International Publishing.
- Engzell, P., Mood, C., & Jonsson, J. O. (2020). It's all about the parents: Inequality transmission across three generations in sweden. *Sociological Science*, 7(10), 242-267.
<https://doi.org/10.15195/v7.a10>

-
- Fiss, P. C. (2011). Building better causal theories: A fuzzy set approach to typologies in organization research. *Academy of Management Journal*, 54(2), 393-420.
<https://doi.org/10.5465/amj.2011.60263120>
- Gabriel, A. S., Campbell, J. T., Djurdjevic, E., Johnson, R. E., & Rosen, C. C. (2018). Fuzzy profiles. *Organizational Research Methods*, 21(4), 877-904.
<https://doi.org/10.1177/1094428117752466>
- Grosemans, I., & De Cuyper, N. (2021). Career competencies in the transition from higher education to the labor market: Examining developmental trajectories. *Journal of Vocational Behavior*, 128, 103602. <https://doi.org/10.1016/j.jvb.2021.103602>
- Greckhamer, T., Furnari, S., Fiss, P. C., & Aguilera, R. V. (2018). Studying configurations with qualitative comparative analysis: Best practices in strategy and organization research. *Strategic Organization*, 16(4), 482-495. <https://doi.org/10.1177/1476127018786487>
- Greckhamer, T., Misangyi, V. F., & Fiss, P. C. (2013). The two QCAs: From a small-N to a large-N set theoretic approach. In P. C. Fiss, B. Cambré, & A. Marx (Eds.), *Configurational theory and methods in organizational research* (Vol. 38, pp. 49-75). Emerald Group Publishing Limited. [https://doi.org/10.1108/S0733-558X\(2013\)0000038007](https://doi.org/10.1108/S0733-558X(2013)0000038007)
- Grönqvist, H. (2011). Youth unemployment and crime: New lessons exploring longitudinal register data. *Swedish Institute for Social Research Working Paper No. 7/2011*.
- Halbesleben, J. R., Neveu, J.-P., Paustian-Underdahl, S. C., & Westman, M. (2014). Getting to the “COR” understanding the role of resources in conservation of resources theory. *Journal of Management*, 40(5), 1334-1364. <https://doi.org/10.1177/0149206314527130>
- Hällsten, M., Edling, C., & Rydgren, J. (2017). Social capital, friendship networks, and youth unemployment. *Social Science Research*, 61, 234-250.
<https://doi.org/10.1016/j.ssresearch.2016.06.017>
- Harris, K. J., Wheeler, A. R., & Kacmar, K. M. (2011). The mediating role of organizational job embeddedness in the LMX–outcomes relationships. *The Leadership Quarterly*, 22(2), 271-281. <https://doi.org/10.1016/j.leaqua.2011.02.003>
- Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44(3), 513. <https://doi.org/10.1037/0003-066X.44.3.513>
- Hobfoll, S. E. (2011). Conservation of resource caravans and engaged settings. *Journal of Occupational and Organizational Psychology*, 84(1), 116-122.
<https://doi.org/10.1111/j.2044-8325.2010.02016.x>
- Hobfoll, S. E., Halbesleben, J., Neveu, J.-P., & Westman, M. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behavior*, 5(1), 103-128.
<https://doi.org/10.1146/annurev-orgpsych-032117-104640>
- Hofmans, J., Wille, B., & Schreurs, B. (2020). Person-centered methods in vocational research. *Journal of Vocational Behavior*, 118, 103398. <https://doi.org/10.1016/j.jvb.2020.103398>
- Holtz-Eakin, D., & Lee, T. (2019). *Projecting future skill shortages through 2029*. American Action Forum. Retrieved 6 Nov 2023 from <https://www.americanactionforum.org/research/projecting-future-skill-shortages-through-2029/>
- ifo. (2022). *Shortage of skilled workers in Germany reaches an all-time high*. Retrieved 6 November 2023 from <https://www.ifo.de/en/press-release/2022-08-02/shortage-skilled-workers-germany-reaches-all-time-high>

-
- Karamessini, M., Symeonaki, M., Stamatopoulou, G., & Parsanoglou, D. (2019). Chapter 3: Factors explaining youth unemployment and early job insecurity in Europe. In *Youth Unemployment and Job Insecurity in Europe*. Edward Elgar Publishing.
<https://doi.org/10.4337/9781788118897.00009>
- Klein Teeselink, B., & Zauberman, G. (2023). The Anna Karenina income effect: Well-being inequality decreases with income. *Journal of Economic Behavior & Organization*, 212, 501-513. <https://doi.org/10.1016/j.jebo.2023.05.036>
- Klug, K., Drobnič, S., & Brockmann, H. (2019). Trajectories of insecurity: Young adults' employment entry, health and well-being. *Journal of Vocational Behavior*, 115, 103308. <https://doi.org/https://doi.org/10.1016/j.jvb.2019.05.005>
- Koen, J., Klehe, U.-C., & Van Vianen, A. E. M. (2012). Training career adaptability to facilitate a successful school-to-work transition. *Journal of Vocational Behavior*, 81(3), 395-408. <https://doi.org/10.1016/j.jvb.2012.10.003>
- Layne, C. M., Beck, C., Rimmasch, H., Southwick, J., Moreno, M., & Hobfoll, S. (2008). Promoting “resilient” posttraumatic adjustment in childhood and beyond. In R. P.-H. Danny Brom, Julian D. Ford (Ed.), *Treating traumatized children: Risk, resilience, and recovery* (pp. 13-47). Routledge.
- Mehta, J. (2015, April 27). The problem with Grit. *Education Week*.
<https://www.edweek.org/education/opinion-the-problem-with-grit/2015/04>
- Mendolia, S., & Walker, I. (2015). Youth unemployment and personality traits. *IZA Journal of Labor Economics*, 4(19), 1-26. <https://doi.org/10.1186/s40172-015-0035-3>
- Mineo, L. (2022, September 6). How ‘cult of grit’ masks myths about U.S. society. *The Harvard Gazette*. <https://news.harvard.edu/gazette/story/2022/09/how-cult-of-grit-masks-myths-about-u-s-society/>
- Modestino, A. S. (2016). The importance of middle-skill jobs. *Issues in Science and Technology*, 33(1), 41-46.
- Möller, J., & Umkehrer, M. (2015). Are there long-term earnings scars from youth unemployment in Germany? *Jahrbücher für Nationalökonomie und Statistik*, 235(4-5), 474-498. <https://doi.org/10.1515/jbnst-2015-4-509>
- Mroz, T. A., & Savage, T. H. (2006). The long-term effects of youth unemployment. *Journal of Human Resources*, XLI(2), 259-293. <https://doi.org/10.3368/jhr.XLI.2.259>
- Nägele, C., & Neuenschwander, M. P. (2016). Apprentice–trainer relationship and work group integration in the first months of an apprenticeship. *Empirical Research in Vocational Education and Training*, 8(4), 1-18. <https://doi.org/10.1186/s40461-016-0030-3>
- Oana, I.-E., & Schneider, C. Q. (2021). A robustness test protocol for applied QCA: Theory and R software application. *Sociological Methods & Research*.
<https://doi.org/10.1177/00491241211036158>
- Oswald, Y., & Backes-Gellner, U. (2014). Learning for a bonus: How financial incentives interact with preferences. *Journal of Public Economics*, 118, 52-61.
<https://doi.org/10.1016/j.jpubeco.2014.06.003>
- Park, Y., Fiss, P. C., & El Sawy, O. A. (2020). Theorizing the multiplicity of digital phenomena: The ecology of configurations, causal recipes, and guidelines for applying QCA. *Management of Information Systems Quarterly*, 44, 1493-1520.
<http://dx.doi.org/10.2139/ssrn.4158044>

-
- Parker, P., Khapova, S. N., & Arthur, M. B. (2009). The intelligent career framework as a basis for interdisciplinary inquiry. *Journal of Vocational Behavior*, 75(3), 291-302.
<https://doi.org/10.1016/j.jvb.2009.04.001>
- Prusak, L., & Cohen, D. (2001). How to invest in social capital. *Harvard business review*, 79(6), 86-97.
- Ragin, C. C. (2000). *Fuzzy-set social science*. University of Chicago Press.
- Ragin, C. C. (2008). *Redesigning social inquiry. Fuzzy sets and beyond*. University of Chicago Press.
- Ragin, C. C., & Fiss, P. C. (2008). Net effects analysis versus configurational analysis: an empirical demonstration. In C. C. Ragin (Ed.), *Redesigning social inquiry. Fuzzy sets and beyond* (pp. 190-212). University of Chicago Press.
- Ragin, C. C., & Fiss, P. C. (2017). *Intersectional inequality*. The University of Chicago Press.
- Rodrigues, R., van Harten, J., De Cuyper, N., Grosemans, I., & Butler, C. (2024). On your marks, get set, go! Jumping the hurdles of employability development at an early career stage. *Journal of Vocational Behavior*, 151, 103999.
<https://doi.org/10.1016/j.jvb.2024.103999>
- Schioppa, F. K. P., & Lupi, C. (2002). Family income and wealth, youth unemployment and active labour market policies. *International Review of Applied Economics*, 16(4), 407-416. <https://doi.org/10.1080/02692170210161147>
- Schmillen, A., & Umkehrer, M. (2017). The scars of youth: Effects of early-career unemployment on future unemployment experience. *International Labour Review*, 156(3-4), 465-494. <https://doi.org/10.1111/ilr.12079>
- Schneider, C. Q., & Wagemann, C. (2012). *Set-theoretic methods for the social sciences*. Cambridge University Press.
- SFSO. (2020). *Bundesamt für Statistik: Längsschnittanalysen im Bildungsbereich LABB und Leading House Apprenticeship Panel [Federal Statistical Office: Longitudinal Analyses of Education and Training LABB and Leading House Apprenticeship Panel] [Dataset]*. Swiss Federal Statistical Office.
- Shaw, S., Gordon, H. R., Xing, X., & Carroll, M. C. (2019). Why apprenticeship programs matter to 21st century postsecondary education. *The CTE Journal*, 7(2), 1-11.
- Spini, D., & Widmer, E. (2023). Introduction: Inhabiting vulnerability throughout the life course. In *Withstanding vulnerability throughout adult life: Dynamics of stressors, resources, and reserves* (pp. 1-13). Springer.
- Stephens, R. (2017). *Mind the Gap: The State of Skills in the U.S.* Third Way. Retrieved 19 June 2023 from <http://thirdway.imgix.net/pdfs/mind-the-gap-the-state-of-skills-in-the-u-s.pdf>
- Strauss, J., & Thomas, D. (1995). Human resources: Empirical modeling of household and family decisions. In *Handbook of Development Economics* (Vol. 3, pp. 1883-2023). Elsevier. [https://doi.org/10.1016/S1573-4471\(05\)80006-3](https://doi.org/10.1016/S1573-4471(05)80006-3)
- Vos, A., & Cambré, B. (2017). Career management in high-performing organizations: A set-theoretic approach. *Human Resource Management*, 56(3), 501-518.
<https://doi.org/10.1002/hrm.21786>