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Labour Market Flexibilization: Detrimental or Beneficial to Migrants

To What Extent Does Employment Protection Legislation
Impact the In-work Poverty of Non-EU Born Workers?

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Abstract

Labour market integration of migrants is key for inclusive societies. Employment protection Legislation (EPL) provides the institutional foundations to facilitate such integration. While the effect of EPL on migrant's employment is well studied, migrant's in-work poverty has been relatively overlooked by the academic literature. This thesis therefore seeks to answer the following question: To what extent does Employment Protection Legislation impact the in-work poverty of non-EU born workers? The Insider-Outsider (IO) theory assumes that there are different effects of EPL on insiders (i.e. the employed workers) and outsiders (i.e. the unemployed labour). A set of linear regressions from ordinary least squares to one, and two-way fixed effect models is applied on panel data from Eurostat and the OECD covering 19 EU countries over 10 years to test the corresponding hypotheses such as general employment and in-work-poverty effects on natives and migrants. More specifically, the models consider interaction effects between EPL that regulates permanent and temporary work. The results suggest that the prediction of IO theory about detrimental employment effect of EPL, holds only true for natives but not for migrants. Moreover, for migrants both in-work poverty rate reduces, and employment rates increase, as labour laws tighten. This is in line with the Insider-Outsider theory. It suggests that EPL alters turnover cost as well as the competition between employed and unemployed labour, which in turn changes the bargaining power of workers regarding wage negotiation. Therefore, the results suggest that a simultaneous reform of both temporary and permanent labour laws can have benefits for migrants' and natives' in-work poverty.

Key words: In-work poverty, Employment Protection Legislation, Migrants, Insiders-Outsiders, Precarious Employment
Words: 19007

Table of contents

1 Introduction

Labour market integration is key for inclusive societies and possible benefits of diversity. The labour market represents the source income on which most migrants' quality of life depends as well as the one of their offspring. Additionally, in most countries, employment is a condition to fully access the social security of the welfare state. Beyond its impact on the migrants' economic condition, employment is also identified as key to social well-being (Kraal et al, 2009). An equal employment opportunity is not only detrimental to the minorities but also to the society as a whole. As Nilsson & Wrench (2009) argue, unequal opportunities "undermine the social political system, lead to the waste of human resources and to the underutilisation of skills, knowledge and manpower, and prevent access to the advantages that different types of knowledge can bring in a globalised economy." (p.23)

However, despite their social Welfare and economic development, EU member states face a high level of poverty. In both the academic and public debate, this situation is often reduced to an unemployment issue (Karnani, 2011). However, even if unemployed people face a higher poverty rate (48.6%), workers also endure precarious employment conditions and in-work poverty (10.4%) (Eurostat, 2020). Having more than twice the rate of in-work poverty of natives (20.3% as opposed to 8.3%), migrants constitute a group particularly concerned by this issue (Eurostat, 2020). In accounting for demographic characteristics, Álvarez-Miranda (2011) observes that the gap in in-work poverty between natives and non-EU born workers is equal to 66% in the EU. This inequality is even greater in the case of France and Spain where non-EU born citizens face respectively more than twice and three times the risk of natives.

In the academic literature on migrants' integration, numerous articles analyse the determinants of employment (Lemaître, 2007; Liebig, 2007; Bisin et al, 2011; Constant, 2005; Kogan, 2011a). However, few studies analyse the working condition of migrants. In this regard, Kogan (2011b) investigates a similar topic i.e. the effect of Labour market flexibility on immigrants' employment paths in Germany. Yet, this first approach only focuses on Germany and does not consider the employment precariousness. Respectively, this thesis evidences a knowledge gap in the field of migrant's employment integration regarding the quality component. In order to inform policymaking and discover potential policy avenues to reduce in-work poverty, it insists on the relevance of studying these overlooked aspects.

As a major in in-work poverty research (Herman, 2014; Giesselmann, 2015; Kalinowski, 2019), Employment Protection Legislation (EPL) is considered as a potential key variable to understand the disparity in in-work poverty of migrants around the EU. This thesis aims at investigating the identified knowledge gap by studying the protective labour law factor on the case of migrants' in-work poverty. This leads to the following research question: To what extent does Employment Protection Legislation impact the in-work poverty of non-EU born workers?

In order to understand the potential effect of Employment Protection Legislation (EPL), the thesis applies the insider-outsider (I-O) theory (Lindbeck and Snower, 1990). This body of literature serves as a theoretical ground for this thesis to apprehend the mechanisms at play behind the hypothetical effects of EPL reforms on in-work poverty of migrants. This theory argues that the labour market insiders (i.e. the employed workers) and outsiders (i.e. the unemployed labour) are differently affected by restrictive labour laws (Lindbeck and Snower, 1990). Being legally protected from some precarious and unstable contracting, the former group is considered as the beneficiaries of EPL. Contrastingly, the theory evidences detrimental effect on unemployed labour i.e. barriers to limiting their entry into the labour market due to the reduction in turnover. The I-O theory enables the thesis to lay out a set of hypotheses on the outcome of EPL and the underlying mechanisms to be tested by the statistical models presented below.

The first part of the analysis focuses on the relation between Employment Protection Legislation and the in-work poverty rate of migrants relative to natives. For that purpose, this study covers 19 countries over 10 years using two main databases, Eurostat (SICL & LFS) and the OECD (EPL). The operationalisation rests on three statistical models: (1) Ordinary Least Squares (OLS) approach; (2) a one-way fixed effect to filter otherwise unaccountable country-specific biases; and finally, (3) a two-way fixed effects model to also control temporal effects. The assessment of the marginal effect of EPL on migrants relative to natives is operated via an interaction variable associating EPL with a dummy variable (Native/Non-EU born). In addition to analysing the effect of EPL on in-work poverty, this thesis aims at testing the mechanisms presented by the I-O theory by analysing the effects of EPL on temporary employment and total employment. This is operated by reproducing the test in replacing the independent variable of the previous models (in-work poverty) by the variables: employment rate and share of temporarily employed workers amongst the two communities (natives and migrants).

The thesis starts by introducing the academic literature on recruiting discrimination. This section provides some keys to understanding the differences in recruiting behaviour of employers that might partially explain the gap in employment opportunities and wages. The second section reviews the literature on employment quality and EPL. Then, the thesis presents the theoretical ground of the research, namely the Insider-Outsider theory. With the support of this theoretical model, the thesis elaborates five hypotheses and presents two mechanisms to be tested. The subsequent chapter introduces the epistemological stand. This chapter also defines the data collection process as well as the statistical methodology applied for this study. The theoretical foundation and the design of the thesis introduced, it proceeds to the result section presenting the different statistical output. Finally, the thesis analyses these patterns in relation to the hypothesis and the theory.

2 Literature Review

To situate the study in the academic debate, two fields of study are investigated on the subjects of discrimination and Employment Protection Legislation. The first body of literature contributes to our understanding of the mechanisms behind the in-work poverty gap between migrants and natives. Finally, the thesis concludes this literature review in presenting the work on EPL and employment quality which is the focus of this thesis. It focuses on the definition of the concept of precarious employment and the state of the literature on the topic.

2.1 Employment Discrimination

To start this analysis, we first need to define the concept of otherness in the case of migrants and clarify the concept of discrimination. Simmel (1950) argues that the notion of otherness is intrinsically linked to the nearness and remoteness. The author exemplifies this argument as the following: “The stranger, like the poor and like sundry ‘inner enemies’, is an element of the group itself. His position as a full-fledged member involves both being outside it and confronting it.” (1950, p.1). The character of ‘stranger’ is presented as originating from various attributes: legal, physical appearance, culture and religion, class or any combinations of these elements. This distinction between the members of a group and the outsiders has been identified as the source of discrimination taking place in various domains of life. One prominent element

of discrimination identified by the literature is the racial and ethnical difference. It is defined by the National Reseach Council (2004) on the basis of the to following elements: "(1) differential treatment on the basis of race that disadvantages a racial group and (2) treatment on the basis of inadequately justified factors other than race that disadvantages a racial group" (p.39). This thesis particularly focuses on the occurrence of such practice on the labour market.

Numerous studies have attempted to estimate the rate of discrimination against minority applicants. Zschirnt & Ruedin (2016) conduct a meta-analysis of the 738 correspondence tests in 43 separate studies conducted in OECD countries between 1990 and 2015. Correspondence tests consist in sending two fictitious applications to employers i.e. with equivalent qualification but different ethnic or racial characteristics. The result of this study indicates that minority applicants need to apply 50% more than majority candidates to receive the same amount of interview.

Two different stands can be identified in the literature to apprehend the mechanisms behind employment discrimination i.e. taste-based and statistical discriminations. They represent different understandings of the employer's reasoning behind discrimination behaviour. One the one side, Becker (1971), a proponent of the taste-based argument, claims that employment discrimination occurs when an employer selects applicant for a job or promotion on the basis of personal taste. According to him, this kind of discrimination acts as a barrier to employment which is manifested by wage differentials or precarious working contracts. Conversely, Kenneth Arrow (1973) and Edmund Phelps (1972) consider another rationale behind labour market discriminations. As employers are confronted with imperfect information on applicants, they would resort to statistical information on the productivity of the applicant's group (ethnic, gender, etc.). Being considered as less "statistically" productive by the employer the group discriminated against would lose in value for the employer which is translated into a reduction in opportunities or salary.

Some studies have identified that this type of behaviour is amplified by protective labour laws since the costs of hiring and firing are increased (Kogan, 2006; Larsen & Di Stasio, 2019). In applying a multilevel logistic regression, Kogan (2006) shows that flexible labour laws are positively related to the employment rate of migrants. This conclusion is based on studies examining the decision-making of employers which have identified that the relationship between the expected cost of employing and the estimated productivity of the worker are a prevalent factor in determining who and at what terms to hire. With this in mind, the increase in the cost of hiring and potentially firing is expected to amplify the "risk that statistical or error discrimination' practices intervene in the screening process, causing employers to more readily

act on prejudices" (Kogan, 2006, p.699). Respectively, the academic literature provides a theoretical support to understand the distinction between migrants and natives in the labour market. The role of discrimination (either based on prejudices or so-called statistical productivity gap) can partially explain the disparity between migrants and natives in employment prospects and in-work poverty.

2.2 Employment Protection Legislation and Quality of Employment

The second field of literature essential to investigate the question of in-work poverty is the academic work on precarious employment. Olsthoorn's definition (2014) of employment precarity is generally used in the academic literature to assess the quality of employment. It maintains that this type of jobs occurs at the intersections of three aspects: the income inadequacy, the low degree of support of the social security and insecurity of employment. The in-work poverty represents the first element of the definition, namely income inadequacy. Generally, the notion of in-work poverty is analysed in relative and objective terms i.e. in relation to a threshold commonly set at 60% of the national median income (Olsthoorn, 2014). This definition of poverty has the advantage of comparability across time and space which is particularly beneficial to quantitative studies.

Broughton et al. (2016) argue that the main risks faced by workers are in-work poverty, the lack of social security and the lack of access to labour rights. These types of risks vary to a large extent with the legal status of workers. While open-ended, full-time and part-time, employees have a relatively low risk of precariousness, informal and undeclared workers face comparatively high risks. In addition to these types of contracts, the labour market is constituted of a variety of other legal statuses which stand in the middle of the risk of precariousness scale: Marginal and involuntary part-time work, fixed-term work and involuntary fixed-term work, work and self-employment. Finally, the temporary agency and posted work encounter medium/high levels of risk. Therefore, the precariousness of employment depends significantly on the types of work contract which will determine the access to labour rights, to a decent salary and social security coverage.

In this line, labour market deregulation is generally identified as a major determinant of in-work poverty (Herman, 2014; Giesselmann, 2015; Kalinowski, 2019). For instance, Giesselmann's study (2015) investigates the determinants of in-work poverty by analyzing the structural differences between the UK and Germany. It tests the factor of Protective labour laws

via the EPL index of the OECD which is defined as "The OECD indicators of employment protection legislation measures the procedures and costs involved in dismissing individuals or groups of workers and the procedures involved in hiring workers on fixed-term or temporary work agency contracts" (OECD, 2020). The results confirm the importance of Protective employment legislation (amongst other aspects) in explaining the disparity in in-work poverty between countries.

2.3 Literature Gap

As the EU faces an extreme degree in-work poverty gap between natives and migrants, a better understanding of potential policy solutions is key. Some studies enable to understand probable sources of in-work poverty for migrants namely, employment discrimination and precarious employment. The literature on Employment discrimination is central in understanding the working prospects of migrants (Becker, 1971; Arrow, 1973; Phelps, 1972). This body of literature enables us to understand the mechanisms at play behind employment decision-making and the repercussions on job opportunities as well as on wages. Additionally, Employment Protection Legislation provides some ideas on the potential policy avenue to protect workers from precarious employment. However, there is a lack of research on the case study of migrants.

The case study of migrant's in-work poverty is overlooked by the academic literature. This observation is supported by Álvarez-Miranda (2011)'s conclusion highlighting the need for more studies in order to understand the causes of the gap between natives' and migrants' in-work poverty. The academic literature on migrants' integration to the labour market is abundant in articles analysing the determinants of employment (Lemaître, 2007; Liebig, 2007; Bisin et al, 2011; Constant, 2005; Kogan, 2011a). Few studies analyse the working condition of migrants but rather focuses on the binary employment status: employed or unemployed. One study has investigated a similar topic i.e. the effect of Labour market flexibility on immigrants' employment paths in Germany (Kogan, 2011b). However, it only focuses on Germany and omits to analyse the poverty component of employment precariousness.

3 Theory

3.1 Insider-outsider

The insider-outsider (I-O) theory serves as a theoretical background to this thesis for understanding the implications of Employment Protection Legislation on in-work poverty. Lindbeck and Snower (1990), the founders of this approach, identify two distinct groups that constitute the supply side of the labour market which are differently affected by restrictive labour laws, the insiders (i.e. the employed workers) and the outsiders (i.e. the unemployed). On one side, the insiders are considered as the beneficiaries of the regulation by obtaining protection via more restrictive employment laws. On the other side, the outsiders (unemployed) would face the detrimental effect of the EPL i.e. reduced employment opportunities. This theory has been commonly used in analysing this effect of labour laws on employment in regard to quality and quantity (Blanchard, 1991; Stamper & Masterson, 2002; Solow, 1986; Guerrazzi, 2020, Rueda, D, 2006).

Lindbeck and Snower's I-O theory (1990) continues by presenting the economic mechanisms explaining the effects of EPL on insiders and outsiders. This theory assumes employers to be economically rational. Respectively, it expects these actors to base their hiring/firing decisions on a cost-benefit-analysis and primarily consider the employees turn-over cost (i.e. the price of replacing an employee). On the basis of this assumption, Lindbeck and Snower (1990) argue that EPL constitutes a major factor of the cost evaluation as restrictive labour laws lower the flexibility of hiring/firing workers (i.e. restricting the use of non-standard contracts and dismissals). In practice, in a context of strict EPL, employers are limited in changing their production input when the demand fluctuates. For instance, this reduction of flexibility could prevent them from immediately dismissing employees when the demand reduces. Respectively, when determining whether to employ an additional employee in the context of strict EPL, employers are expected to anticipate the turn-over cost which would lead them to decrease the number of employees recruited and their turn-over. On the basis of this rationale, Lindbeck and Snower (1990) argues that, in modifying the substitutability between employed and unemployed labour, EPL provides stability to workers (i.e. insiders) but reduces the opportunities for outsiders.

Additionally, according to Lindbeck and Snower's theory (1990), Employment Protection Legislation reduces the substitutability of employed and unemployed labour and,

thus, affects competition between employed and unemployed labour. By reducing substitutability, EPL (restricting some forms of non-standard work and dismissal) can represent a source of bargaining power gain for employees. In assuming employees to be economically rational, the theory expects workers to resort to the newly gained influence (obtained by the reduction of labour subsidiarity) to obtain a wage raise. Respectively, in providing stability as well as insurance to workers, strict Employment Protection Legislation is understood as a source of alteration of the negotiation balance which would increase the aggregate workers' income.

The I-O theory assumes the regular and marginal workers to be complementary and, therefore, not to compete with each other (Lindbeck and Snower, 1990). Bellani & Bosio (2019) explain that this assumption has led many governments to asymmetrically deregulate the labour market in reducing protection on temporary contracts and preserving regulation on regular employment. These reforms were implemented to provide opportunities to unemployed labour (the outsiders) and conserve protection for workers contracted on regular contracts. However, focusing on the relationship between regular and marginal workers, Bellani & Bosio (2019) challenge this assumption of the absence of competition. In applying a two-way fixed effect model (on age–occupation–year and country-year), the paper shows that temporary workers have partially replaced previous regular workers. Additionally, it demonstrates that the increase in temporary contracts reduces the bargaining power of regular workers. This phenomenon is conceptualised as the 'knock-on effect'. The mechanism is explained as the following "a raise in the spread of temporary workers is likely to represent a crucial channel through which permanent workers, who generally have better-paid positions, may face a reduction in their bargained wage." (2019, p.2). Respectively, the paper evidences the partial subsidiarity between regular and temporary workers and demonstrates that asymmetric regulation amplifies this phenomenon.

The I-O theory provides some mechanisms behind the relationship between market liberalisation and in-work poverty. However, few studies have investigated these effects on migrants. Some studies can nevertheless provide some indications for this thesis to formulate hypotheses. As presented in the literature review, two studies of Kogan (2006 and 2011b) provide some insights into the impact of employment regulations on working opportunities of migrants. Without explicitly referring to the insider-outsider theory, Kogan presents similar arguments i.e cost-based analysis of hiring behaviour. The author argues that the cost of hiring and the estimated productivity of the worker are major elements determining the choice of employers to hire. He argues that EPL increases the cost of hiring which particularly impacts

migrants considering discrimination practices. With this in mind, the increase in the cost of hiring and potentially firing, induced by EPL, is recognised as an amplifying factor of discrimination practices (Kogan, 2006).

In the second analysis, Kogan argues that flexibilization also leads to a more precarious employment path i.e. temporary and more unstable employment. As identified in the academic review, Herman (2014) evidences that the liberalization of the market permits employers to resort to non-standard work contracts which, in turn, leads to an increase in in-work poverty. In regard to this theory and the academic literature, the thesis expects Employment Protection Legislation to be negatively related to in-work poverty. This is particularly the case when combining low temporary and high regular employment regulations.

3.2 Hypotheses and Mechanisms

This thesis aims at testing the I-O theory on a case study that has been neglected by the academic literature i.e. migrants' in-work poverty. The main tenet of the I-O theory can be summarized as a dual effect of protective labour laws conflicting the interest of two groups: the employed and unemployed individuals. On the one hand, workers are presented as the beneficiary of EPL as they gain in protection and, in turn, in wage. On the other side, unemployed workers are claimed to be facing barriers to the labour market (as an effect of increasing labour cost and lower turnover) which is represented by a decrease in employment rate (Lindbeck and Snower, 1990). When applying this model on the case at hand, the paper expects that the positive wage effect of EPL to also affect low wage workers and respectively in-work poverty rate.

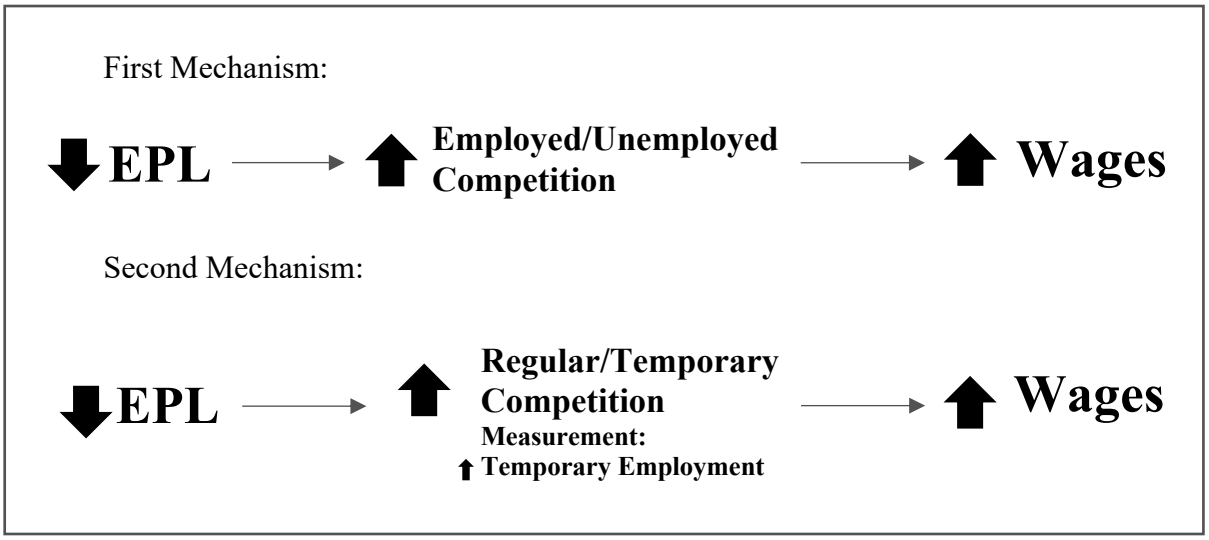
However, they have not considered their effect on migrants. Respectively, the thesis also relies on theories from the literature specific to migrants to refine the original I-O theory (Kogan, 2006 and 2011b). Kogan's papers (2006 and 2011b) argues that strict EPL would improve the quality of migrant's employment (since they would gain in protection) as well as lower their employment opportunities (with the effect of an increase in discrimination practices). In raising the cost of hiring/firing, EPL would induce an intensification of recruitment screening procedures and in turn of discrimination behaviour (Kogan, 2006). In parallel, the ones accessing the labour market would benefit from a higher level of stability and protection (Kogan, 2011b). Respectively, in line with the I-O theory, the thesis expects migrants to be negatively affected (as native) by EPL in terms of employment and in-work poverty. However, with respect to the discrimination factor (Kogan, 2006), it expects them to be

proportionally more affected than natives. Hence, it formulates the first, second and third hypotheses:

> *H1: The increase in EPL is expected to induce a reduction of in-work poverty.*
> *H2: The stricter the EPL, the lower the employment rate is.*
> *H3: Employment Protection Legislation is expected to increase employment gap between natives and migrants*

In the literature on I-O theory (Bellani & Bosio, 2019; Lindbeck and Snower, 1990), there is a relative consensus regarding the theoretical foundation of these two hypotheses. However, we can notice diverging views in respect to the complementarity of temporary and regular workers (Bellani & Bosio, 2019). We can identify two different understandings of the mechanisms behind EPL and its effect on the labour market (Diagram 1). First, the traditional approach of the I-O theory which argues that the decrease in EPL leads to more competition between employed and unemployed labour (Lindbeck and Snower, 1990). This would lead to a bargaining power decrease for workers which would lead to a wage reduction. The second mechanism interprets the positive association between EPL and wage as the effect of an increase in temporary employment. This would compete with regular workers and reduce their negotiation leverage when requesting raises (Bellani & Bosio, 2019).

Diagram 1: Mechanism Associating EPL and Wages



As presented above, the divergence between the two mechanisms resides in the intermediate element. Contrary to the first branch of the theory (Lindbeck and Snower, 1990), the second one articulates a measurable factor i.e. temporary employment. The competition between employed and unemployed workers (in the first mechanism) is a phenomenon complex to estimate. Respectively, the thesis focuses on the intermediate element of the second mechanism. Correspondingly, the outcome on temporary employment serves as a distinguishing factor between the two theories. Additionally, this second mechanism can also be tested on the basis of its argument on asymmetric deregulation. It claims that this form of reform leads to more competition amongst regular and temporary workers leading up to a decrease in wages. On the basis of these conclusions, two hypotheses are formulated to test the mechanism:

H4: As EPL rises, the share of temporary jobs as a percent of total employment is expected to increase.

H5: Asymmetrical deregulation is expected to increase in-work poverty.

Table 1: Hypotheses

Hypotheses	Independent and Dependent Variables	Association
H1	IV: Employment Protection Legislation DV: In-work poverty	-
H2	IV: Employment Protection Legislation DV: Employment	-
H3	IV: Employment Protection Legislation DV: Employment Gap between natives and migrants	+
H4	IV: Employment Protection Legislation DV: Temporary Employment Share	-
H5	IV: Asymmetric Deregulation DV: In-work poverty	+

4 Method

4.1 Epistemological approach

This thesis takes the epistemological and ontological stand of critical realism. On those questions, two main camps exist: the objectivist and the subjectivist. Critical realist's stand lies between the two. Contrary to subjectivists who considers that the world is socially constructed, Critical realist believes that the world exists independently to our knowledge of it. Respectively, as positivists, critical realists defend an objectivist ontology. However, their epistemology stand brings them closer to interpretivism by considering that not all phenomenon are observables. Additionally, even the causalities observable may lead to a false understanding of the object of study.

In practice, critical realists focus on causation but are concern with the limitation in the researcher's ability to observe and understand the world. This leads them to be based on falsification i.e. trial and error. Additionally, they do not only focus on single linear causality (as positivist would do) but implement a series of causal inference with checking mechanism e.g. control variables. They base their work on strong theoretical framework on which to formulate hypotheses. Respectively, this study implements a control mechanism by applying a fixed effect as well as by including individual and structural control variables originating from the literature. In doing so and in accordance with the epistemology of critical realism, the thesis is founded on valid (can accurately analyse the world) and generalizable (exported to another context) outcomes in order to be falsifiable.

4.2 Data

The primary association evaluated by this thesis combines In-work Poverty and Employment Protection Legislation. These variables are sourced respectively Eurostat and the OECD. Eurostat defines the in-work poverty as the following: "the share of persons who are at work and have an equivalised disposable income below the risk-of-poverty threshold, which is set at 60 % of the national median equivalised disposable income (after social transfers)" (Eurostat, 2014, p.120). When the OECD presents their indicator as the measure of "the degree of stringency of employment protection legislation of OECD and G201 countries, to determine, amongst others, its labour market impacts" (OECD, 2020, p.24).

The thesis analyses 10 years (2004-2013) and 19 countries representing the overlapping of data accessible in EU SILC and the EPL. Respectively, thesis selects the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland and the United Kingdom. The dataset is an unbalance panel since from 2004 to 2007 countries have gradually join EU-SILC. However, in 2005, the coverage was already of 27 countries. The country of the thesis' database joining in Switzerland.

When collecting data on in-work poverty, the thesis distinguishes the demographics by gender, birthplace and country of work. Since the data provided by Eurostat are aggregates, these cases represent the percentage of in-work poverty for each case. The thesis decided to distinguish natives to migrants in considering migrants as Non-EU born. The gender and the birthplace are binary female/male and native/non-EU. The age-group considered is the population over 18 years old. Respectively, the N is equal to 744 as it covers 19 countries (with one country missing 4 years), 10 years, 2 genders and 2 birthplaces.

More precisely, the dependent variables, in-work poverty, employment and temporary employment, originate from the Statistics on Income and Living Condition (SICL) and the Labour Force Survey (LFS). Eurostat collects cross-sectional and longitudinal microdata on income, poverty, social exclusion and living conditions. LFS gathers data also across years and countries but on employment and unemployment. The collection of data for both databases are sourced on standardize surveys collected around Europe. The focus given by Eurostat on its harmonization and its coordination policies provide stable grounds for comparability of these cross-sectional and longitudinal data. Additionally, Eurostat databases benefit from large data collection capacities. SICL's sample size varies around 300 000 cases while LFS is approximates 1.5 million. However, due to data access issue, the thesis operates on aggregate data instead of using micro-data.

This indicator EPL is commonly used in the literature to evaluate the degree of employment protection provided by the labour law across countries (e.g. Giesselmann 2015). The standardized calculation is an asset when conducting cross-country analyses. This computation is based a score sheet (see appendix) which assigns points according to the level of protection provided by law on cases of individual dismissals of workers with regular contracts, temporary employment and additional regulations for collective dismissals. These three types of laws form the three sub-indicators of the OECD.

The calculation of these indexes is based on the following aspects. First, the individual regular EPL includes nine elements: notification procedure (oral, written, third party

notification, third party authorisation), notification delay, notice period, severance pay, the definition of unfair dismissal, length of trial period, compensation for unfair dismissal, the possibility of reinstatement following unfair treatment and maximum time to make a claim of unfair dismissal. Second, the strictness of Employment Protection Legislation for temporary employment considers eight aspects: valid cases for the use of fixed-term contracts (FTC), maximum number of successive FTC, the maximum cumulated duration of successive FTC, type of work for which temporary work agency (TWA) is legal, restrictions on the number of renewal, maximum cumulated duration of successive TWA, does the set-up of TWA authorisation or reporting and does regulation ensure equal treatment of regular and agency workers at the user firm. Finally, the regulations on collective dismissal entails only four criteria: the definition of collective dismissal, additional notification requirements, additional delays involved before notice can start and other special costs to employments (see: appendix).

For the control variables, this thesis is using also data from other Eurostat data sources. Their selection is based on Herman (2014) who sources his data collection on country-based aggregate data of Eurostat. This study has identified 7 main variables influencing in-work poverty. These are: real labor productivity, GDP per capita, social expenditure, mean equivalized net income, human development indicator and employment in knowledge-intensive activities. The categories and unit of measurements used for these control variables are provided in table 3. In using the author' control variable, not only the thesis relies on the validity of this research but also aims at allowing for more comparability between the results.

Table 2: Unit of measurements for structural control variables

Control variables	**Unit of measurement**
Real labour productivity	Per hour worked (euro)
GDP per capita	Euro
Social expenditure	Percentage of GDP
Mean equivalised net income	PPS, Net income
Human Development Indicator	Indicator from 0 to 1
Employment in knowledge-intensive activities	Percentage of total employment;

4.3 Statistical models

In order to answer the research question and test hypothesis H_1, this thesis applies regression analysis on the association between the independent variable Employment Protection Legislation (EPL) and the dependent variable in-work poverty (IWP). To be able to consider the difference in the type of labour laws, these models apply three different EPL labour law indicators (i.e. individual dismissal, collective dismissal, and temporary contracts, represented by indexes ind, col, and $temp$, respectively). It starts by an Ordinary Least Squares (OLS) approach and subsequently proceeds to a one-way and finally a two-way fixed effects model. The models include control variables such as birthplace (B), gender (G), social security (S), Human Development index (H), real labour productivity (P), Gross Domestic Product per capita (G), mean equivalised net income (I) and Employment in Knowledge-intensive activities (K). In addition, to evaluate the marginal effect of EPL on migrants relative to natives, an interaction variable is added to the models associating EPL with the dummy variable Birth B. Respectively, the OLS's approach can be formulated as the following equation (1) (also see table 3):

$$IWP_{i,t} = \beta_0 + \beta_1 EPL_{law,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{law,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t} \quad (1)$$

Where, in addition to the variables specified above,

β_0 population wide, average intercept

β_{1-10} represent the variable (slope) coefficients

EPL is the corresponding labour law indicator index by $law \in \{ind, col, temp\}$

$u_{i,t}$ constitutes the residual

In order to control for idiosyncratic, time-constant differences across countries, a country dummy variable is included, generating a one-way country fixed effects model. In comparison to the simple OLS approach, this filters otherwise unaccountable country-specific biases – at least the ones that do not vary over time. Technically, the fixed effects model does so by allowing each country a different intercept (i.e. a dummy variable regression, e.g. substituting α_0 with β_0 to not run into a dummy variable trap). This is done by accounting for the difference between the country-specific observational averages and the population-wide

average. Sometimes this is also called demeaning (Croissant and Millo, 2008). Respectively, the model analyses the marginal effect of EPL on IWP irrespective of the country-specific differences. Yet, as the country-specific dummy is constant over time. This does not account for differences that vary temporally. Nevertheless, this allows for a reduction of omitted or unaccountable confounding variables such as cultural differences or other unobservable factors that makes countries substantially different in their IWP. The country fixed effects approach can be expressed in the following way (equation (2)):

$$IWP_{i,t} = \alpha_i + \beta_1 EPL_{law,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{law,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t} \quad (2)$$

Where, in addition to the specification in equation (1),

α_i= the country-specific intercept for countries $\in \{i, \dots, n\}$

By focusing country-specific time in-variant factors, the model still omits the effect of temporal variations. The time-variant unaccounted factors may remain a source of biases. One approach to account for variations that occur over time and apply to all countries, like common shocks, is a temporal fixed effects model. To control for temporal effects, this thesis supplements models (1) and (2) with time dummy variables, making it a two-way fixed effect model as both country and time specific effects are accounted for. The statistical mechanism behind this calculation is more complex than the one-way fixed effect since it is bi-dimensional. Concretely, it means that beyond the country-specific variation from a population wide average (substituting equation (1)'s α_0 with both β_0 and a time dummy σ_t). This takes out temporal deviations from the mean, e.g. on a yearly basis if that is the measurement as in this IWP model. This approach assumes that there is the temporal variation can be averaged over all countries, that applies equally to all countries and there is no time-effect heterogeneity. This leads to the following formula (equation (3) also see table 3):

$$IWP_{i,t} = \alpha_i + \sigma_t + \beta_1 EPL_{law,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{law,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t} \quad (3)$$

Where, in addition to the specification above,

σ_t= time-specific intercept

Having evaluated the individual effect of this types of laws, this thesis considers not just a two-way fixed effect model but also considers that there may be interactions between the different type of EPL (two by two and all three together, see table 3). Finally, in addition to regression tables, the thesis visually presents the results in multi-dimensional plots of marginal effects plots.

This operationalization to regression analysis aims at understanding the relation between EPL and in-work poverty, but they are not sufficient to solve the research puzzle since the thesis also ambitions to explore the mechanisms at play behind this association. Therefore, the thesis furthermore extents the above analysis by accounting for the effects of different types of EPL labour law on temporary employment $TEMP$ and total employment EMP, that is different dependent variables (see table 3). First, as the theory is grounded on the opposition between insiders I (employed labour benefiting from protection and wage increase) and outsiders O (unemployed workers losing in employment opportunities), the thesis assesses the second tenet of the theory by examining total employment (H_2). This part aims at understanding the side effect of EPL and verify if the I-O applies to the case at hand. Second, as presented in section hypotheses and mechanisms, the thesis distinguishes two branches of the I-O theory which diverge in their understanding of the process behind the correlation between EPL and in-work poverty. Two mechanisms are presented in the theory section which deviate in their intermediate elements. In order to evaluate them, the outcome on temporary employment serves of distinguishing factor (H_4).

This is operationalized in applying the same statistical models (1)-(4) by adapting the dependent variable from IWP from temporal employment $TEMP$ or total employment EMP, respectively (see table). Respectively, systematic testing is applied on each of these regressions by progressively applying OLS, one-way, and two-way fixed effects models on each of these dependent variables. These three successive models are executed on the sub-indicators of EPL individually and in combination. In the last and most complex step, the two-way fixed effect includes the interaction between the different forms of EPL (see table 3).

Table 3: Summary of Formulas

Ordinary Least Squares:

$$IWP_{i,t} = \beta_0 + \beta_1 EPL_{ind,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{ind,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t}$$
$$EPL_{coll,i,t} \quad EPL_{col,i,t}$$
$$EPL_{tem,i,t} \quad EPL_{tem,i,t}$$

$$EMP_{i,t} = \beta_0 + \beta_1 EPL_{ind,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{ind,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t}$$
$$EPL_{coll,i,t} \quad EPL_{col,i,t}$$
$$EPL_{tem,i,t} \quad EPL_{tem,i,t}$$

$$TEM_{i,t} = \beta_0 + \beta_1 EPL_{ind,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{ind,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t}$$
$$EPL_{coll,i,t} \quad EPL_{col,i,t}$$
$$EPL_{tem,i,t} \quad EPL_{tem,i,t}$$

One-way Fixed Effect on country:

$$IWP_{i,t} = \alpha_i + \beta_1 EPL_{ind,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{ind,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t}$$
$$EPL_{coll,i,t} \quad EPL_{col,i,t}$$
$$EPL_{tem,i,t} \quad EPL_{tem,i,t}$$

$$EMP_{i,t} = \alpha_i + \beta_1 EPL_{ind,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{ind,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t}$$
$$EPL_{coll,i,t} \quad EPL_{col,i,t}$$
$$EPL_{tem,i,t} \quad EPL_{tem,i,t}$$

$$TEM_{i,t} = \alpha_i + \beta_1 EPL_{ind,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{ind,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t}$$
$$EPL_{coll,i,t} \quad EPL_{col,i,t}$$
$$EPL_{tem,i,t} \quad EPL_{tem,i,t}$$

Two-way Fixed Effect on time and country:

$$IWP_{i,t} = \alpha_i + \sigma_t + \beta_1 EPL_{ind,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{ind,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t}$$
$$EPL_{coll,i,t} \quad EPL_{col,i,t}$$
$$EPL_{tem,i,t} \quad EPL_{tem,i,t}$$

$$EMP_{i,t} = \alpha_i + \sigma_t + \beta_1 EPL_{ind,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{ind,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t}$$
$$EPL_{coll,i,t} \quad EPL_{col,i,t}$$
$$EPL_{tem,i,t} \quad EPL_{tem,i,t}$$

$$TEM_{i,t} = \alpha_i + \sigma_t + \beta_1 EPL_{ind,i,t} + \beta_2 B_{i,t} + \beta_3 EPL_{ind,i,t} \times B_{i,t} + \beta_4 G_{i,t} + \beta_5 S_{i,t} + \beta_6 H_{i,t} + \beta_7 P_{i,t} + \beta_8 G_{i,t} + \beta_9 I_{i,t} + \beta_{10} K_{i,t} + u_{i,t}$$
$$EPL_{coll,i,t} \quad EPL_{col,i,t}$$
$$EPL_{tem,i,t} \quad EPL_{tem,i,t}$$

Two-way Fixed Effect with interaction:

$$\begin{aligned} IWP_{i,t} = {} & \alpha_i + \sigma_t + \beta_1 B_{i,t} + \beta_2 EPL_{ind,i,t} + \beta_3 EPL_{coll,i,t} + \beta_4 EPL_{tem,i,t} + \beta_5 EPL_{ind,i,t} \times EPL_{col,i,t} + \beta_6 EPL_{ind,i,t} \times EPL_{tem,i,t} \\ & + \beta_7 EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_8 EPL_{ind,i,t} \times EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_9 B_{i,t} \times EPL_{ind,i,t} + \beta_{10} B_{i,t} \times EPL_{coll,i,t} \\ & + \beta_{11} B_{i,t} \times EPL_{tem,i,t} + \beta_{12} B_{i,t} \times EPL_{ind,i,t} \times EPL_{col,i,t} + \beta_{13} B_{i,t} \times EPL_{ind,i,t} \times EPL_{tem,i,t} \\ & + \beta_{14} B_{i,t} \times EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_{15} B_{i,t} \times EPL_{ind,i,t} \times EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_{16} G_{i,t} + \beta_{17} S_{i,t} + \beta_{18} H_{i,t} + \beta_{19} P_{i,t} \\ & + \beta_{20} G_{i,t} + \beta_{21} I_{i,t} + \beta_{22} K_{i,t} + u_{i,t} \end{aligned}$$

$$\begin{aligned} EMP_{i,t} = {} & \alpha_i + \sigma_t + \beta_1 B_{i,t} + \beta_2 EPL_{ind,i,t} + \beta_3 EPL_{coll,i,t} + \beta_4 EPL_{tem,i,t} + \beta_5 EPL_{ind,i,t} \times EPL_{col,i,t} + \beta_6 EPL_{ind,i,t} \times EPL_{tem,i,t} \\ & + \beta_7 EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_8 EPL_{ind,i,t} \times EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_9 B_{i,t} \times EPL_{ind,i,t} + \beta_{10} B_{i,t} \times EPL_{coll,i,t} \\ & + \beta_{11} B_{i,t} \times EPL_{tem,i,t} + \beta_{12} B_{i,t} \times EPL_{ind,i,t} \times EPL_{col,i,t} + \beta_{13} B_{i,t} \times EPL_{ind,i,t} \times EPL_{tem,i,t} \\ & + \beta_{14} B_{i,t} \times EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_{15} B_{i,t} \times EPL_{ind,i,t} \times EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_{16} G_{i,t} + \beta_{17} S_{i,t} + \beta_{18} H_{i,t} + \beta_{19} P_{i,t} \\ & + \beta_{20} G_{i,t} + \beta_{21} I_{i,t} + \beta_{22} K_{i,t} + u_{i,t} \end{aligned}$$

$$\begin{aligned} TEM_{i,t} = {} & \alpha_i + \sigma_t + \beta_1 B_{i,t} + \beta_2 EPL_{ind,i,t} + \beta_3 EPL_{coll,i,t} + \beta_4 EPL_{tem,i,t} + \beta_5 EPL_{ind,i,t} \times EPL_{col,i,t} + \beta_6 EPL_{ind,i,t} \times EPL_{tem,i,t} \\ & + \beta_7 EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_8 EPL_{ind,i,t} \times EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_9 B_{i,t} \times EPL_{ind,i,t} + \beta_{10} B_{i,t} \times EPL_{coll,i,t} \\ & + \beta_{11} B_{i,t} \times EPL_{tem,i,t} + \beta_{12} B_{i,t} \times EPL_{ind,i,t} \times EPL_{col,i,t} + \beta_{13} B_{i,t} \times EPL_{ind,i,t} \times EPL_{tem,i,t} \\ & + \beta_{14} B_{i,t} \times EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_{15} B_{i,t} \times EPL_{ind,i,t} \times EPL_{col,i,t} \times EPL_{tem,i,t} + \beta_{16} G_{i,t} + \beta_{17} S_{i,t} + \beta_{18} H_{i,t} + \beta_{19} P_{i,t} \\ & + \beta_{20} G_{i,t} + \beta_{21} I_{i,t} + \beta_{22} K_{i,t} + u_{i,t} \end{aligned}$$

5 Results

5.1 Parametric Estimates

As previously mentioned, the first part of the analysis focuses on the relation between Employment Protection Legislation and the in-work poverty rate of migrants relative to natives. The operationalisation rests on three statistical models: (1) Ordinary Least Squares (OLS) approach (see: Table 4-6, Model 1); (2) a one-way fixed effect to filter otherwise unaccountable country-specific biases; and finally (see: Table 4-6, Model 2), (3) a two-way fixed effects model to also control temporal effects (see: Table 4-6, model 3). The assessment of the marginal effect of EPL on migrants relative to natives is operated via an interaction variable associating EPL with a dummy variable (Native/Non-EU born). The final model on in-work poverty comprises interaction variables associating different combinations of EPL sub-indicators (see: Table 7, model 4). In addition to analysing the effect of EPL on in-work poverty, this thesis aims at testing the mechanisms presented by the I-O theory by analysing the effects of EPL on temporary employment and total employment. This is operated by reproducing the test in replacing the independent variable of the previous models (in-work poverty) by the variables: employment rate and share of temporarily employed workers amongst the two communities (natives and migrants).

When analysing the three EPL indicators individually, one can notice some degree of divergence among the results. On one side, the output of models analysing the effect of individual dismissal regulations on the in-work poverty rate of migrants show negative coefficient (see: Table 4). On the other side, the analysis evidences positive relations regarding the association factoring the EPL collective dismissal and temporary employment (see: Table 5 & 6). These outcomes are first identified in the OLS tests (model 1) and are confirmed with the more robust models (Model or Table 2 & 3). However, the fixed-effect models do not present any significant consistent effect of EPL (in its three forms) on the general population's (namely natives and Non-EU born workers combined) in-work poverty (see: Table 4-6).

The initial analysis of the individual effects of the EPL sub-indicators on in-work poverty of migrants provides some first indications. However, since the different forms of labour laws always coexist and influence one another, a model measuring the combined effect of the EPL sub-indicators is necessary to provide a more accurate measurement of their socio-

economic effect. (see: Table 7). When analysing the results of the interaction between the different types of EPL, the outcome shows that the combination of strong EPL is reducing in-work poverty for native. Regarding migrants, collective dismissal laws remain detrimental. Respectively, in terms of in-work poverty, their optimal point is identified in the combination of strong individual dismissal and temporary protective legislation.

After testing the association between EPL and in-work poverty, the thesis aims at further testing the effects of the labour regulation on the working conditions of migrants and investigating the mechanisms behind those outcomes. To this end, the previously implemented models are applied to other dependent variables: temporary employment share (see: Table 8 + annexe, Table 14-16) and the employment rate (see: Tables 9-12).

First, analysing temporary employment, the regressions' outcomes suggest that an increase in strictness of regulations would lead to a small and inconsistent increase in temporary employment (see: Table 8 + annexe, Table 14-16). Respectively, the thesis does not discern any evidence to support hypothesis number four. On the contrary, the thesis notices some slight positive association between some EPL sub-indicators (as well as interaction variables) and temporary employment.

Second, regarding the effect of EPL on employment rate (see: Tables 7-12), the models display a negative coefficient for natives and positive for migrants. More particularly, the results indicate that, in the models, the strengthening of EPL significantly increases the employment rate of migrants (all three forms combined). This association is reversed for natives whose employment rate seem to be detrimentally affected by EPL. Respectively, the results for natives seem to support the second tenet of the theory considering labour protection as detrimental to employment in view of the increase in cost for employers. However, the outcomes for migrants differ which could indicate a divergent mechanism specific to their situation. A more detailed analysis of the results is provided in the following section.

5.1.1 In-work Poverty

5.1.1.a In-work Poverty: Individual Dismissal

To start the analysis, the thesis operates tests focusing on the individual effect of the sub-indicators of EPL on the in-work poverty rate. This section is more specifically dedicated to the results on strictness of individual Dismissal laws. We will first analyse the outcome on the OLS to proceed with the one-way and two-way fixed effect models.

The OLS model on individual dismissal already seems to have a good explanatory value as indicated by the adjusted R2 reaching 0.502 (see: Table 4, Model 1). The results of this first model show the existence of a statistically significant positive relationship between the regular employment dismissal protection (coded as EPL Individual Dismissal) and in-work poverty, with a standardized coefficient of 0.11 and a p-value below .05. Regarding the interaction variable combining the factors Birth and EPL Individual Dismissal, we can observe that this factor is negatively related to in-work poverty with a standardized beta of -.23 and a significance below 0.01. Though it is not the focus of this analysis, we can also highlight that some control variables have a statistically significant relation (p>.000) with in-work poverty. Notably, the country of birth, noted as Birth, and the variable Gender have a coefficient of 1.098 and -.140 respectively. The factor Human Development Indicator (HDI) seems to also explain some variation in in-work poverty (β= -.182). Therefore, the OLS model would indicate that the strictness of EPL concerning the individual regular contract protection (EPL Individual Dismissal : BIRTH) might increase the in-work poverty of the general population (natives and non-EU born). However, in the case of the non-EU born individuals, this relation is reversed as indicated by the difference between the coefficient of EPL Individual Dismissal and the one of EPL Individual Dismissal : BIRTH. Hence, the migrants' in-work poverty rate would reduce as the individual dismissal laws tighten. Yet, this improvement of the working conditions of migrants (β= -.23) does not compensate for the gap in in-work poverty (between natives and migrants) which retains the highest coefficient (β= 1.41).

However, these first outcomes might be biased by country-specific factors. In that respect, the thesis applies a country-fixed effect model which takes into account these possible variations (see: Table 4, Model 2). This operation increases the adjusted R2 to .664. The variable EPL Individual Dismissal losses in significance. However, the standardized coefficient of the interaction variable (EPL Individual Dismissal : BIRTH) increases to reach -.24 (p<0.001). The disparities in results between the first and the second model can be attributed to variations across countries. This would particularly concern the ones showing high levels of statistical significance such as Greece, Spain, Poland and Italy. The fixed model confirms the first observations indicating that Regular Employment regulations on individual dismissal reduce the in-poverty of the Non-EU born workers. However, the weak positive relationship between EPL Individual Dismissal and in-work poverty regarding the general population identified in the first model is, here, insignificant (p>0.05).

In order to control for time-variant biases, the thesis proceeds with the last regression adding time as a dummy variable (see: Table 4, Model 3). The effect of complexification of the

model is relatively moderate on the predictability of the model is relatively moderate (adjusted R2= is reaching .665). Regarding the independent variables, no changes is identified detected. Some years seem to have an effect on the model particularly 2008 and to some extent 2011 with coefficients of respectively .43 and .49. Despite the low degree of influence of the additional part of the fixed effect, this operation enables to prevent unaccounted time-variant factors to potentially affect the results.

Table 4: Regression models 1-3: Individual Dismissal / In-work Poverty

	Model 1		Model 2		Model 3	
Predictors	*Estimates*	*p*	*Estimates*	*p*	*Estimates*	*p*
(Intercept)	-0.83	<0.001	-1.25	<0.001	-1.07	<0.001
EPL Individual Dismissal	0.11	0.040	-0.07	0.590	0.08	0.610
BIRTH	1.41	<0.001	1.42	<0.001	1.42	<0.001
Gender	0.29	<0.001	0.29	<0.001	0.29	<0.001
Social Security	-0.07	0.104	0.21	0.143	-0.52	0.152
Human Development Index	-0.18	<0.001	-0.03	0.936	-0.69	0.196
Real Productivity	0.07	0.183	-0.03	0.484	-0.05	0.271
Real GDP	0.00	0.911	-0.01	0.852	-0.05	0.281
Mean Equivalized Income	0.03	0.627	0.01	0.802	-0.06	0.492
Employment in KIA	-0.04	0.536	-0.03	0.594	0.03	0.709
EPL Individual Dismissal : BIRTH	-0.23	0.002	-0.24	<0.001	-0.24	<0.001
BE			0.02	0.929	-0.16	0.540
CH			0.09	0.747	0.15	0.603
CZ			0.58	0.063	-1.00	0.202
DE			0.29	0.179	-0.01	0.971
DK			0.07	0.747	0.23	0.352
EL			1.67	<0.001	0.46	0.454
ES			1.27	<0.001	0.25	0.634
FI			-0.01	0.961	-0.35	0.206
FR			0.09	0.698	-0.02	0.935
IE			-0.36	0.277	-0.77	0.046
IT			0.94	<0.001	0.33	0.386
LU			0.70	0.043	1.66	0.005
NL			0.52	0.797	1.16	0.583
NO			-0.16	0.474	0.07	0.783
PL			1.02	0.004	-0.66	0.428
PT			0.98	0.017	-0.69	0.435
SE			0.29	0.189	0.16	0.490
UK			-0.14	0.681	-0.41	0.260
2005					-0.08	0.649
2006					0.10	0.593
2007					0.03	0.887
2008					0.43	0.069
2009					0.37	0.134
2010					0.36	0.190
2011					0.50	0.083
2012					0.49	0.124
2013					0.52	0.126
Observations	430		430		430	
R^2 / R^2 adjusted	0.514 / 0.502		0.686 / 0.664		0.693 / 0.665	

5.1.1.b In-work Poverty: Collective Dismissal

This section proceeds by focusing on the relation between the strictness of collective dismissal laws (EPL Collective Dismissal) and in-work poverty. As for the previous tests, three models are implemented i.e. first, an OLS model; second, a one-way fixed effects regression; and lastly, a two-way fixed effect model.

The OLS model seems to explain some variations in in-work poverty with an adjusted R2 of .534 (see: Table 5, Model 1). However, regarding the main independent variable, EPL Collective Dismissal, the regression outcomes do not display a significant relation with the in-work poverty rate of the general population. Yet, the model shows a positive significant association between the interaction variable (combining the sub-indicator of EPL and the Birth variable) and in-work poverty, β=.27 and p< .0010, (see variable: EPL Collective Dismissal : BIRTH). These test results indicate that an increase in collective dismissal protective regulations raises the share of migrants in situations of in-work poverty. When examining the case of the general population, the OLS displays no significant association between the EPL indicator on regular contract protection and the in-work poverty of the general population (natives and non-EU born). Migrants' in-work poverty seems to rise as the collective dismissal laws increase. Some control variables also prove to have an influence on the results. This concerns the variables Gender, HDI and social security which, respectively, have a standardized β of .28 ($p<0.001$), -.19 ($p<0.001$) and -.10 ($p<0.015$).

When applying a country fixed effect, its R2 reaches .666 (see: Table 5, Model 2). The interaction variable (EPL Collective Dismissal : BIRTH) retains significance ($p<0.001$) and preserves a similar adjusted coefficient (β= .26). However, the control variables lose in value apart from the Gender (β= .28; $p<0.001$) and Birth factor (β= 1.42; $p<0.001$). Here again, the outlier countries are Greece, Spain, Poland and Italy (the same countries as in the previous model) which have a significance lower than .001 and coefficient higher than .169.

When controlling for time variance with a two-way fixed effect, the adjusted R2 slightly increases to n. .669 (see: Table 5, Model 3). The interaction variable remains at a beta of .26 and a significance at $p<0.001$. The years 2008 and 2013 seem to have some influence on the model. In indicating a positive association between the regular employment regulation on collective dismissal and the in-work poverty of migrants, both the one-way and the two-way fixed effects confirm the OLS observations. Respectively, this type of regulation seems to increase the in-work poverty of migrants.

Table 5: Regression models 1-3: Collective Dismissal / In-work Poverty

	Model 1		Model 2		Model 3	
Predictors	*Estimates*	*p*	*Estimates*	*p*	*Estimates*	*p*
(Intercept)	-0.80	<0.001	-1.26	<0.001	-1.06	<0.001
EPL Collective Dismissal	0.04	0.382	-0.11	0.232	-0.13	0.155
BIRTH	1.41	<0.001	1.42	<0.001	1.42	<0.001
Gender	0.28	<0.001	0.28	<0.001	0.28	<0.001
Social Security	-0.10	0.015	0.24	0.098	-0.57	0.084
Human Development Index	-0.19	<0.001	0.00	1.000	-0.74	0.149
Real Productivity	0.06	0.188	-0.02	0.602	-0.05	0.271
Real GDP	0.02	0.502	-0.01	0.827	-0.05	0.274
Mean Equivalized Income	0.02	0.742	0.00	0.963	-0.07	0.474
Employment in KIA	-0.03	0.655	-0.02	0.730	0.03	0.693
EPL Collective Dismissal : BIRTH	0.27	<0.001	0.26	<0.001	0.26	<0.001
BE			0.09	0.756	-0.15	0.641
CH			0.30	0.216	0.20	0.424
CZ			0.48	0.161	-1.13	0.088
DE			0.19	0.375	-0.04	0.857
DK			0.13	0.562	0.25	0.280
EL			1.65	<0.001	0.37	0.481
ES			1.31	<0.001	0.19	0.688
FI			0.06	0.795	-0.37	0.213
FR			0.19	0.481	-0.02	0.956
IE			-0.03	0.897	-0.74	0.046
IT			0.83	0.001	0.28	0.400
LU			0.67	0.071	1.72	0.002
NL			0.33	0.870	1.20	0.570
NO			-0.15	0.538	0.09	0.722
PL			1.09	0.003	-0.80	0.299
PT			0.57	0.078	-0.88	0.149
SE			0.24	0.297	0.14	0.544
UK			0.22	0.404	-0.37	0.273
2005					-0.07	0.683
2006					0.11	0.553
2007					0.05	0.811
2008					0.45	0.039
2009					0.39	0.083
2010					0.39	0.125
2011					0.54	0.038
2012					0.53	0.055
2013					0.57	0.047
Observations	430		430		430	
R^2 / R^2 adjusted	0.545 / 0.534		0.688 / 0.666		0.697 / 0.669	

5.1.1.c In-work poverty: Temporary Employment

The last sub-indicator of EPL to be analysed individually is the temporary employment regulations. As with the previous EPL indicators, three models are applied from an OLS to two-way fixed effect model.

First, the OLS model seems to have a relatively high explanative value ; adjusted R2 = .559 (see: Table 6, Model 1). As for the previous types of regulations, the general population does not seem to be affected by the legislative framework in terms of in-work poverty since the association between EPL Temporary Employment and in-work poverty is statistically insignificant ($p>.05$). Nevertheless, the interaction variable (coded as EPL Temporary Employment : BIRTH) displays a β coefficient of .35 which is statistically significant ($p<.001$). It indicates that, contrary to the general population, there is a strong positive relation between the temporary employment regulations and the in-work poverty of migrants. Some control variables are showing influence over the model i.e. Birth sex ($\beta= 1.36$ and $p<.001$), social security ($\beta= .27$ and $p<.001$) and HDI ($\beta= -.14$ and $p<.001$).

When applying a country fixed effect, the adjusted R2 reaches .678 (see: Table 6, Model 2). The interaction variable (EPL Temporary Employment : BIRTH) preserves the same adjusted coefficient ($\beta=.35$) and a significance of .000. The variable EPL Temporary Employment substantially gains in significance ($p=.033$) and influence over the model i.e. $\beta= -.19$. Countries like Greece, Spain, Poland and Italy display relative significance with p values under 0.002. This would suggest that the

Finally, the third model, applying a two-way fixed effect, seems to have limited influence over the model (see: Table 6, Model 3). The variable EPL Temporary Employment loses in significance ($p=.055$) and influence over the model i.e. $\beta= -.18$. The interaction variable presents the same output namely an adjusted coefficient ($\beta=.35$) and a significance of .000. In conclusion, the results of these three steps indicate that migrant workers are negatively affected by the temporary employment regulations in terms of in-work poverty while the general population seems to marginally benefit from it.

Table 6: Regression models 1-3: Temporary Contracts / In-work Poverty

	Model 1		Model 2		Model 3	
Predictors	*Estimates*	*p*	*Estimates*	*p*	*Estimates*	*p*
(Intercept)	-0.80	<0.001	-1.23	<0.001	-1.03	<0.001
EPL Temporary Employment	0.06	0.273	-0.19	0.033	-0.18	0.055
BIRTH	1.36	<0.001	1.37	<0.001	1.37	<0.001
Gender	0.27	<0.001	0.27	<0.001	0.27	<0.001
Social_Security	-0.09	0.014	0.23	0.107	-0.57	0.075
Human Development Index	-0.14	<0.001	0.00	0.999	-0.74	0.142
Real Productivity	0.06	0.189	-0.03	0.570	-0.05	0.263
Real GDP	-0.00	0.949	-0.01	0.789	-0.05	0.265
Mean Equivalized Income	-0.03	0.564	0.00	0.994	-0.06	0.462
Employment in KIA	0.00	0.994	-0.02	0.740	0.03	0.687
EPL Temporary Employment:BIRTH	0.35	<0.001	0.35	<0.001	0.35	<0.001
BE			0.17	0.485	-0.15	0.586
CH			0.31	0.182	0.20	0.407
CZ			0.42	0.152	-1.13	0.067
DE			0.20	0.334	-0.04	0.853
DK			0.13	0.554	0.25	0.272
EL			1.66	<0.001	0.38	0.480
ES			1.35	<0.001	0.20	0.694
FI			0.05	0.832	-0.37	0.194
FR			0.16	0.496	-0.02	0.950
IE			-0.05	0.843	-0.74	0.044
IT			0.86	<0.001	0.28	0.388
LU			0.76	0.078	1.73	0.003
NL			0.28	0.888	1.20	0.563
NO			-0.13	0.648	0.09	0.755
PL			1.07	0.002	-0.79	0.288
PT			0.54	0.058	-0.88	0.123
SE			0.21	0.318	0.14	0.516
UK			0.18	0.491	-0.37	0.268
2005					-0.07	0.674
2006					0.11	0.548
2007					0.05	0.810
2008					0.45	0.037
2009					0.39	0.078
2010					0.39	0.118
2011					0.54	0.035
2012					0.53	0.053
2013					0.57	0.045
Observations	430		430		430	
R2 / R2 adjusted	0.569 / 0.559		0.699 / 0.678		0.708 / 0.680	

5.1.1.d In-work Poverty: Interaction effect

Analysing the ELP indicators individually, the first regressions have shown some statistically significant results in the association between in-work poverty of migrants and the three forms of EPL. However, we have to recognise the limitations of this approach as Labour protective

laws are not applied in a vacuum. The different types of laws always coexist which could result in biases. Their effect on in-work poverty might overlap and interact with one another. Therefore, understanding the combined effect of the different forms of EPL is necessary to provide a more representative notion of the reality.

In order to analyse the combined effect of the different EPL sub-indicators, the thesis utilizes interaction variables associating the different forms of EPL and integrate them to the previous two-way fixed effect model (see Table 7, Model 4). This enables the thesis to measure the joint and marginal effect of each EPL on in-work poverty. In addition to the different combinations associating the three types of EPL, the factor Birth is also considered in other interaction variables. These additional interactions including Birth enables the thesis to assess the marginal effect of these combinations of EPL indicators on migrants. Additionally, in order to visually analyse the results of the individual trajectories of migrants and natives in-work poverty, interaction graphs are supplementing the regression tables (Graph 1-4).

First, Model 4 (which comprises the interaction variables associating the different types of EPL) presents interesting results that confirm the mutual influence of the different types of laws. Before analysing the effect of each variable, we can first highlight the relatively explanatory value of this model, with an adjusted R2 of .744. Two variables prove to be particularly relevant associating the variables i.e. BIRTH : EPL temp. : EPL ind. and BIRTH : EPL temp. : EPL col. On the one hand, the former (BIRTH : EPL temp. : EPL col.) is positively correlated to in-work poverty (β=.43, p<.001). On the other hand, in the latter (BIRTH:EPL_temp:EPL_ind.), the standardized Beta coefficient of -.29 (p<.001) shows a negative association with in-work poverty. This difference in coefficient degrees reveals that the effect of temporary employment regulations on the in-work poverty of migrants is highly dependent on the legislative context (i.e. the other EPL). Additionally, the combination of the three EPL seems to have two different effects on migrants and natives since, when adding the birth component to the three-way interaction variable (EPL temp. : EPL col. :EPL ind.), the variable shifts from a negative (β=-.37, p= 0.058) to a positive Beta coefficient (β=.31, p=.011). In brief, this regression table has been permitted to identify different interaction effects between the three EPL indicators. However, due to the complexity of the model inducing different levels of marginal effects, a more comprehensible output is required. The interaction graphs serve this purpose as it visually presents the output of Model 4 on the individual trajectories migrants' and natives' in-work poverty rate.

Table 7: Regression models 4: EPL Interactions / In-work Poverty

	Model 4	
Predictors	*Estimates*	*p*
(Intercept)	-1.16	<0.001
BIRTH	1.37	<0.001
EPL Temporary Employment	-0.32	0.085
EPL Collective Dismissal	0.23	0.273
EPL Individual Dismissal	0.02	0.946
Gender	0.27	<0.001
Social_Security	-0.09	0.830
Human Development Index	-0.43	0.378
Real Productivity	-0.08	0.079
Real_GDP	-0.07	0.083
Mean Equivalized Income	-0.09	0.318
Employment in KIA	0.06	0.433
BE	-1.07	0.180
CH	0.10	0.860
CZ	0.12	0.917
DE	-0.06	0.888
DK	0.25	0.344
EL	1.44	0.078
ES	0.90	0.209
FI	0.36	0.545
FR	0.58	0.282
IE	-0.22	0.832
IT	0.67	0.117
LU	0.99	0.195
NL	1.27	0.502
NO	0.53	0.377
PL	0.50	0.626
PT	0.41	0.718
SE	0.34	0.304
UK	-0.04	0.973
2005	-0.20	0.216
2006	-0.04	0.833
2007	-0.16	0.410
2008	0.21	0.364
2009	0.07	0.795
2010	-0.00	0.989
2011	0.19	0.546
2012	0.09	0.781
2013	0.09	0.797
BIRTH * EPL Temporary Employment	0.31	<0.001
BIRTH * EPL Collective Dismissal	0.05	0.367
EPL Temporary Employment * EPL Collective Dismissal	-0.14	0.609
BIRTH * EPL Individual Dismissal	-0.27	<0.001
EPL Temporary Employment * EPL Individual Dismissal	-0.01	0.973
EPL Collective Dismissal * EPL Individual Dismissal	-0.11	0.439
BIRTH *EPL Temporary Employment * EPL Collective Dismissal	0.43	<0.001
BIRTH * EPL Temporary Employment * EPL Individual Dismissal	-0.29	<0.001
BIRTH * EPL Collective Dismissal * EPL Individual Dismissal	0.01	0.823
EPL Temporary Employment * EPL Collective Dismissal * EPL Individual Dismissal	-0.37	0.058
BIRTH * EPL Temporary Employment * EPL Collective Dismissal * EPL Individual Dismissal	0.31	0.011
Observations	430	
R^2 / R^2 adjusted	0.774 / 0.744	

In order to visually present the result of the last model and better grasp the interaction effects between the different EPL dimissions, the thesis generates various interaction graphs (Graph 1-2). As one can first see, each Panel is constituted of 9 sub-graphs. Each of them represents one scenario where two dimensions of EPL are kept constant (on a low, medium and high value) and one varies. Taking as an example Graph 1 Panel A, the X-axes represent the deviation of EPL individual Dismissal (EPL_ind) from its mean (fixed at 0). While, the Y axis represents the values of in-work poverty relative to its mean. These nine scenarios are ordered according to the level of the EPL indicators, which kept constant at a low, medium and high value. The left column of sub-graphs has an EPL temporary employment (EPL_temp) fixed at -0.91(low), the central column at 0.05 (medium), and the right column at 1(high). The rows display three values of EPL collective dismissal (EPL_col) varying from -1.12 to .86 (from the top to the bottom). Respectively, the top left and the bottom right show two opposite scenarios. The former combines a low EPL_col and low EPL_temp, while the latter consists of high values of EPL_col and EPL_temp. A similar structure is displayed in Graph 2 and 3.

Analysing these graphs (Graph 1-2), one can notice a general pattern to the three graphs: the scenario combining high levels of the three EPL indicators display the lowest level of in-work poverty for natives. This trend is observable in the subgraphs at the bottom right of Graph 1-2 where the native in-work poverty reaches its lowest points of the 9 scenarios. Respectively, in regard to the level of in-work poverty, this scenario associating the highest value of each type of EPL seems to represent the optimal point for natives.

However, regarding non-EU born individuals, this model also indicates that the increase in strictness of EPL collective dismissal is generally detrimental to migrants in terms of in-work poverty. It is, for instance, displayed in Panel B where the gradual increase in EPL collective dismissal is associated with an increase in in-work poverty. A more detailed description of the graphs follows. Hence, the arrangement combining high values of temporary and individual EPL but low level of collective dismissal laws seems to be optimal for migrants' in-work poverty. This generally confirms the analysis of the regression table which highlights the high degree of variation in the effects of EPL temporary employment as evidenced by the interaction variables 'BIRTH * EPL Temporary Employment * EPL Individual Dismissal' and 'BIRTH * EPL Temporary Employment * EPL Collective Dismissal'.

In Panel A, EPL Temporary employment and Collective dismissal are fixed at three values (low, medium and high) and EPL Individual Dismissal varies along the X-axes. A pattern can be observed amongst those subgraphs: increasing the strictness of these two types of EPL

fixed (going from the top left sub-graphs to the one at the bottom right) generally leads to a progressive decrease in the slopes of the curves. For instance, in the top left subgraph (where EPL col. is fixed at a low level and ELP temp. at a low level), the variation in EPL individual dismissal slightly increases in-work poverty of migrants by 0.5 when the one of natives decreases by 1%. On the bottom right subgraph, this same variation of EPL individual dismissal leads to a drop in in-work poverty of more than 3% for migrants and about 2% for natives. This would indicate that stricter EPL would be beneficial for both migrants and natives. However, the analysis of the lowest value of in-work poverty of Panel A reveals a divergence between effects of EPL on natives and migrants. The lowest value of in-work poverty rate for natives (in red) appears at the bottom right at -3% (to mean), where the three EPL sub-indicators are at their maximum. This subgraph indicates that strong levels of the three EPL sub-indicators are beneficial to the native's working conditions (decreasing their in-work poverty). For migrants, the optimal point occurs in the subgraph to the top right (where EPL col. is fixed at a low level and ELP temp. at a high level) when the strictness of EPL individual dismissal is at its maximum. There, the in-work poverty rate drops to -2% Hence, the preferable scenario for migrants appears to be at the junction of high levels of EPL Temporary employment and Individual Dismissal. This difference seems to be attributable to the diverging effect of the variable EPL collective dismissal on natives and migrants. This is further examined in the following Panel.

In Panel B, EPL Temporary employment and Individual dismissal are fixed at three values (low, medium and high) and EPL Collective Dismissal varies along the X-axes. The graphs indicate a positive association between Collective EPL and in-work poverty which seems to be consistent across scenarios as well as across demographic groups. This is evidenced by the positive slope of the natives' and migrants' curves in most subgraphs. The bottom right corner seems to diverge from this general trend in which two opposite trajectories are identified. In this scenario associating strong EPL Individual dismissal and strong EPL Temporary employment, EPL collective dismissal has two opposite effects on natives and migrants. For the former group, its positive slope indicates a positive association between EPL Individual dismissal and in their in-work poverty rate. While, for the latter there is a negative relation between the two variables. Respectively, the effects of EPL on migrants and natives seem to diverge when including EPL collective dismissal into the model.

In Panel C, EPL Collective and Individual dismissal are fixed at three values (low, medium and high) and EPL Temporary employment varies along the X-axes. In each layer, progressing from subgraphs to subgraphs from the left to right (from low to high level from

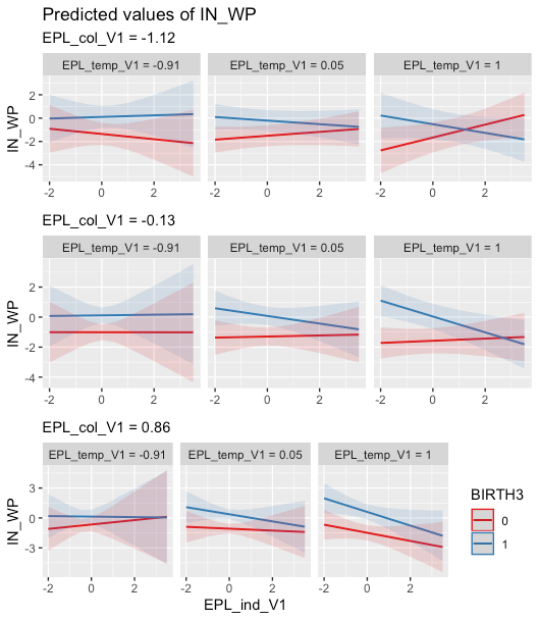
EPL collective) leads to an upward inclination of the migrants' curves while the slope of natives gradually decreases. It seems to confirm that migrants see their in-work poverty increase as the EPL collective dismissal laws become stricter. Respectively, the different effect of EPL collective on natives and migrants can also be observed in this Panel. The lowest level of in-work poverty for migrants (-1.5%) is reached in the scenario combining low levels of EPL collective and high degrees of EPL ind/col (bottom left subgraph). On the contrary, natives are accessing their optimal position (-2.5 %) at high levels of every EPL (bottom right subgraph).

Lastly, to analyse the relation between EPL individual dismissal and EPL temporary employment separately, this thesis generates Panel D. It displays strong interaction effects between those two forms of laws. In the last plot, the intersect, corresponding to a case of asymmetric deregulation (namely, strong regulations on individual employment and low legislations on temporary contracts), evidences comparatively high in-work poverty level for migrants. When progressing toward higher levels of EPL temporary employment, the level of in-work poverty significantly lowers. This would support the asymmetric deregulation effect presented in the theory section.

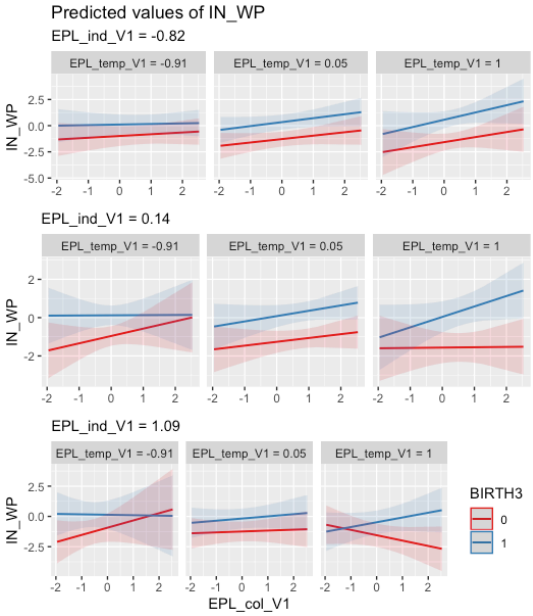
To conclude, the results of graphs and the interaction regression indicate that temporary EPL's correlation with in-work poverty of migrants is considerably dependent on the legislative context of other types of EPL as denoted by Table 7. The EPL temporary employment when combined collective dismissal or individual dismissal varies significantly in effect. When assessing the question of asymmetric deregulation, the results expose some positive association with in-work poverty. Respectively, the results point that the optimal scenario for migrants lies at the junctions between strong individual dismissal and temporary contract protective laws. When only considering the interaction variable associating EPL_ind and EPL_temp, the thesis could come to the conclusion that this is not the case for natives. However, the optimal point for this group is dependent on symmetric regulations. Respectively, both benefit from symmetric regulation seems to indicate the presence of a knock-on effect'.

Interaction Graphs 1: EPL individual and collective dismissal / In-work Poverty

Panel A:
IV: EPL Individual / DV: In-work Poverty

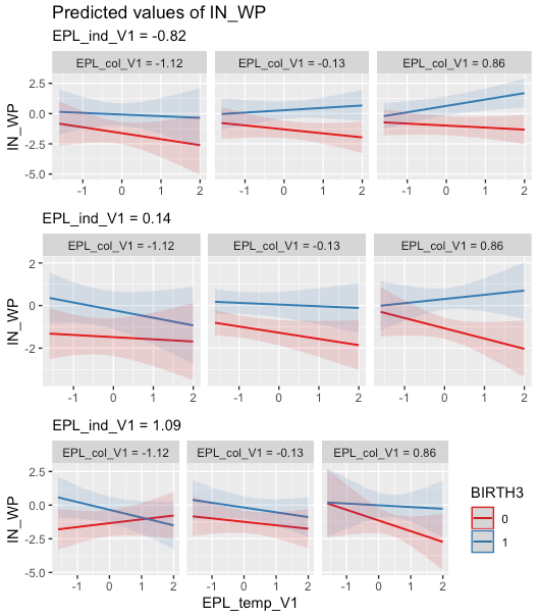


Panel B:
IV: EPL Collective / DV: In-work Poverty

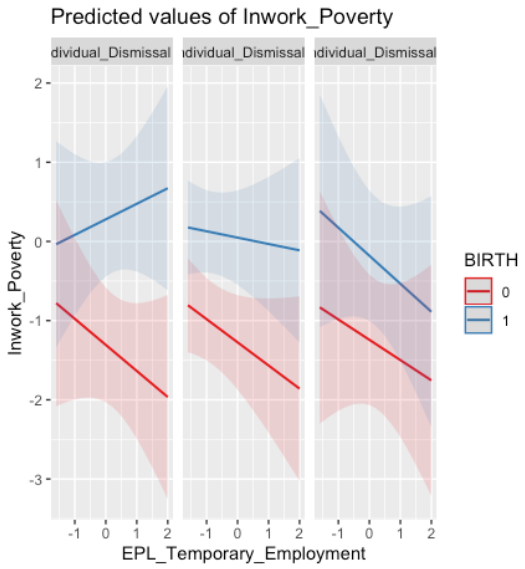


Interaction Graphs 2: EPL temporary / In-work Poverty

Panel C:
IV: EPL Temporary / DV: In-work Poverty



Panel D:
IV: EPL Temporary / DV: In-work Poverty



5.1.2 Temporary employment

As presented in the mechanism section, two divergent understandings of the processes behind the positive relationship between EPL and in-work poverty are identified. One major element of contention is the substantiality or complementarity between regular and temporary workers. The second mechanism (Bellani & Bosio, 2019) questions the theorical underpinning of

Lindbeck and Snower (1990) by presenting these two types of workers as competitors. On the basis of this theory, the thesis has formulated Hypothesis 4 which expect that EPL should be positive associated with the share of temporary employment in the labour market. Respectively, to be able to understand and test further the mechanisms at play behind the association previously analysed, the thesis operated a two-way fixed effect with temporary employment as a dependent variable.

When applying the three first different statistical models on temporary employment (OLS, one- and two-way fixed effect), no consistent and significant results are emerging for the general population (see: Annexe, Table 14-16). In Table 14 and 15, the interaction variables associating EPL collective and individual dismissal with the factor birth display small but significant results. This could indicate that those policies reduce the temporary employment of migrants which is corresponding to the relation predicted by the second mechanisms presented in the literature. However, this need to be tested in the interaction model (see: Table 8, Model 4). The next section presents a more detailed analysis of Model 4.

First, in the two-way fixed effect with the three types of EPL, the adjusted R^2 is of .838 (see: Table 8). The interaction variables displaying significance are BITRH: EPL collective dismissal (p= .007), BIRTH: EPL Collective Dismissal: EPL Temporary Employment (p=.041) and EPL Temporary Employment: EPL Individual Dismissal : EPL Individual dismissal (p=.050). The result of the latter variable and the lack of significance of BIRTH : EPL Temporary Employment: EPL Collective: EPL Individual Dismissal indicate that, in the model, the general population is commonly affected by EPL. Its coefficient of .32 evidences a positive association with temporary employment. When for the second significant variable (BIRTH : EPL Collective Dismissal : EPL Temporary Employment), the outcome indicates that migrants are marginally more affected by the combination of collective and temporary laws (β=.15). Finally, collective dismissal legislations when analysed independently seem to slightly reduce the gap between natives and migrants but not affect the trajectory as exposed by variable BIRTH : EPL Collective Dismissal (β=.15) and graph 9 (Annexe).

These results would suggest that an increase in strictness of regulations would lead to a small and inconsistent increase in temporary employment. Respectively, the thesis does not discern any evidence to support hypothesis number four. On the contrary, the thesis notices

some a slight positive association between some EPL sub-indicators (as well as interaction variables) and temporary employment.

Table 8: Regression models 4: EPL Interactions / Temporary Employment

Predictors	*Estimates*	*p*
(Intercept)	-1.40	<0.001
BIRTH	0.86	<0.001
EPL Temporary Employment	-0.18	0.279
EPL Collective Dismissal	0.10	0.565
EPL Individual Dismissal	0.09	0.681
Gender [1]	-0.23	<0.001
Social Security	-0.03	0.931
Human Development_Index	0.33	0.384
Real_Productivity	0.02	0.519
Real_GDP	0.04	0.207
Mean_Equivalized_Income	-0.06	0.356
Employment_in_KIA	0.03	0.607
GEO [BE]	0.53	0.411
GEO [CH]	0.32	0.513
GEO [CZ]	0.14	0.879
GEO [DE]	1.25	0.001
GEO [DK]	0.57	0.013
GEO [EL]	1.18	0.074
GEO [ES]	2.91	<0.001
GEO [FI]	1.67	0.001
GEO [FR]	1.36	0.004
GEO [IE]	0.02	0.981
GEO [IT]	0.86	0.014
GEO [LU]	0.50	0.442
GEO [NL]	-0.17	0.906
GEO [NO]	1.25	0.017
GEO [PL]	3.17	<0.001
GEO [PT]	1.82	0.051
GEO [SE]	1.05	<0.001
GEO [UK]	-0.02	0.981
TIME [2005]	0.24	0.089
TIME [2006]	0.07	0.602
TIME [2007]	0.12	0.420
TIME [2008]	0.09	0.614
TIME [2009]	0.01	0.974
TIME [2010]	0.07	0.737
TIME [2011]	0.11	0.620
TIME [2012]	-0.10	0.699
TIME [2013]	-0.00	0.987
BIRTH * EPL Temporary Employment	0.06	0.270
BIRTH * EPL Collective Dismissal	-0.15	0.007
EPL Temporary Employment * EPL Collective Dismissal	0.23	0.329
BIRTH * EPL Individual Dismissal	0.03	0.683
EPL Temporary Employment * EPL Individual Dismissal	0.19	0.426
EPL Collective Dismissal * EPL Individual Dismissal	-0.10	0.420
BIRTH *EPL Temporary Employment * EPL Collective Dismissal	0.15	0.041
BIRTH * EPL Temporary Employment * EPL Individual Dismissal	-0.06	0.344
BIRTH * EPL Collective Dismissal * EPL Individual Dismissal	-0.03	0.504
EPL Temporary Employment * EPL Collective Dismissal * EPL Individual Dismissal	0.32	0.050
BIRTH * EPL Temporary Employment * EPL Collective Dismissal * EPL Individual Dismissal	-0.10	0.360
Observations	389	
R^2 / R^2 adjusted	0.858 / 0.838	

5.1.3 Employment

As analysed in previous sections, the three EPL sub-indicators seem to be correlated to in-work poverty. The thesis has also identified the optimal point for natives and migrants which generally is in scenario combining strong EPL. However, no indication has yet been analysed on the effect of these policies on employment which is a major component defining the working condition and opportunities of these groups. Additionally, employment represents the second tenet of the Insiders-Outsiders theory. Respectively, this element is also relevant to this thesis in regard to its objective to test the theory and the mechanism at play. The same testing process as for in-work poverty is applied to employment. The first phase consists in analysing each EPL individually which is followed by an assessment of the interaction effects.

5.1.3.a Employment: EPL Individual Dismissal

First, the thesis assesses the statistical association between individual dismissal laws and employment rate. The model on individual dismissal on employment seems to be a robust model as indicated by the adjusted R^2 reaching 0.473 (Table 9, Model 1). Some control variables revealed to have some influence over the model i.e. gender (β=1.22), social security (β=.38) and human development index (β=.17). No significant correlation between the variable EPL individual dismissal and the employment rate of the general population is showing in the results. However, the interaction variable considering birthplace (EPL Individual Dismissal : BIRTH) has explanative value with a coefficient of .32 and p under .001. Considering that the general effect of this EPL is almost not existent, in this model, the marginal effect on migrants can be interpreted as the overall effect on migrants. Respectively, this model indicates that, when analysed independently to the other sub-indicators, EPL individual dismissal seems to be positively associated with the employment rate of migrants. In practice, this can be formulated as: an increase in strictness of EPL individual dismissal would lead to an increase in employment rate for migrants.

The second statistical test (i.e. one-way fixed effect on country) complements the model with country dummy variables. This leads to an increase in adjusted R^2 to 0.680 (see: Table 9, Model 2). As an effect of the country dummies, the control variable social security and HDI lose in value when gender retains a high estimate (β=1.23) and birth emerges (β=-.12). The countries presenting a strong p-value are Switzerland, Norway, Poland, Sweden and the United Kingdom. In this model, the EPL individual dismissal variable presents some correlation with the employment rate of the general population (β=.29) and particularly of migrants (migrants'

marginal effect, β=.29). As indicated by the interaction variable results (β=.29), migrants are especially benefiting from this form of EPL in terms of employment rate. Accordingly, this second regression seems to confirm the positive association between migrants' employment rate and EPL individual dismissal. Additionally, the general population appears to be also affected positively by such measures but to a lesser extent than migrants.

However, this last result loses value when controlling for time variation (Graph 9, model 3). The EPL variable has a coefficient of .23 but lacks significance. When for the interaction factor, it is both significant and relatively robust (β=.30). Therefore, the two-way fixed effect confirms the results on the strong positive relation between EPL individual dismissal and employment of migrants but discounts the ones on the general population.

Table 9: Regression models 1-3: Individual Dismissal / Employment

	Model 1		Model 2		Model 3	
Predictors	*Estimates*	*p*	*Estimates*	*p*	*Estimates*	*p*
(Intercept)	-0.53	<0.001	-0.57	0.015	-0.50	0.074
EPL Individual Dismissal	0.09	0.102	0.29	0.025	0.23	0.146
BIRTH	-0.12	0.129	-0.12	0.065	-0.13	0.048
Gender	1.22	<0.001	1.23	<0.001	1.22	<0.001
Social Security	0.38	<0.001	-0.04	0.782	-0.03	0.947
Human Development Index	0.17	<0.001	0.08	0.857	0.05	0.926
Real Productivity	-0.11	0.036	-0.03	0.477	-0.04	0.483
Real GDP	-0.00	0.948	-0.00	0.888	-0.08	0.089
Mean Equivalized Income	-0.03	0.606	-0.02	0.733	-0.10	0.290
Employment in KIA	-0.03	0.605	0.00	0.948	0.08	0.344
EPL Individual Dismissal : BIRTH	0.32	<0.001	0.29	<0.001	0.30	<0.001
BE			-0.33	0.219	-0.37	0.189
CH			1.21	<0.001	1.07	<0.001
CZ			0.00	0.996	0.05	0.956
DE			-0.15	0.547	-0.16	0.577
DK			0.26	0.278	0.20	0.447
EL			-0.47	0.101	-0.46	0.485
ES			-0.23	0.405	-0.24	0.679
FI			0.01	0.951	0.06	0.839
FR			-0.23	0.385	-0.17	0.550
IE			1.01	0.005	0.97	0.019
IT			-0.39	0.140	-0.31	0.448
LU			0.23	0.525	0.19	0.756
NL			-0.64	0.752	-0.42	0.840
NO			1.00	<0.001	0.98	<0.001
PL			-1.51	<0.001	-1.52	0.084
PT			-0.72	0.095	-0.58	0.534
SE			0.68	0.006	0.68	0.010
UK			0.86	0.015	0.75	0.055
2005					-0.21	0.289
2006					-0.13	0.513
2007					-0.06	0.780
2008					0.21	0.381
2009					0.04	0.876
2010					-0.19	0.490
2011					0.01	0.979
2012					-0.12	0.701
2013					-0.16	0.640
Observations	402		402		402	
R2 / R2 adjusted	0.486 / 0.473		0.702 / 0.680		0.708 / 0.678	

5.1.3.b Employment: EPL Collective Dismissal

The second sub-indictor of EPL to be analysed on employment rate is the Collective Dismissal laws. When applying the OLS, the adjusted R^2 equals to 0.458 (see: Table 10, Model 1). EPL show seems to correlate negatively to the employment rate of the general population. Some control variables display influence over the model i.e. gender (β=1.22), social security (β=.34),

HDI (β=.18) and real productivity (β=-.11). Nevertheless, the variable factoring the birth component and the EPL lacks significance. These first results seem to indicate that the general population is negatively affected by EPL in terms of employment. Additionally, no marginal effect on migrants is evidenced.

Nevertheless, the second and more robust model presents diverging outcomes (see: Table 10, Model 2). Its adjusted R^2 is up to 0.657. The country dummies with significant results are Belgium (p= 0.012), Switzerland (p= 0.013), Norway (p<.000), Poland (p<.000) and Sweden (p<.000). The association between the EPL collective dismissal and the employment for the general population loses significance (p = 0.602). When for the variable integrating the birth factor (EPL Collective Dismissal : BIRTH), it gains value (β= .14; p= 0.036). This would indicate a moderate positive effect on the collective dismissal laws on migrants' employment rate.

These outcomes are confirmed by the two-way fixed effect (see: Table 10, Model 3) which presents an insignificant result for the general population (p = 0.725) and a positive relation between the interaction variable and employment (β = 0.13). Respectively, these tests seem to indicate a lack of effect on the general population and a positive effect of collective dismissal protective laws on migrant's employment. Concretely, in this model, the stricter the collective dismissal laws are, the more employment for migrants.

Table 10: Regression models 1-3: Collective Dismissal / Employment

	Model 1		Model 2		Model 3	
Predictors	*Estimates*	*p*	*Estimates*	*p*	*Estimates*	*p*
(Intercept)	-0.57	<0.001	-0.61	0.013	-0.64	0.028
EPL Collective Dismissal	-0.27	<0.001	0.05	0.602	0.04	0.725
BIRTH	-0.08	0.294	-0.07	0.319	-0.07	0.284
Gender	1.22	<0.001	1.22	<0.001	1.22	<0.001
Social Security	0.34	<0.001	-0.06	0.691	0.42	0.248
Human Development Index	0.18	<0.001	-0.02	0.973	0.43	0.425
Real Productivity	-0.11	0.035	-0.04	0.344	-0.04	0.485
Real GDP	0.00	0.987	0.00	0.875	-0.06	0.169
Mean Equivalized Income	-0.01	0.898	0.02	0.680	-0.06	0.533
Employment in KIA	-0.07	0.306	-0.03	0.555	0.05	0.563
EPL Collective Dismissal : BIRTI	0.09	0.247	0.14	0.036	0.13	0.049
BE			-0.88	0.012	-0.65	0.073
CH			0.62	0.013	0.60	0.017
CZ			0.57	0.133	1.43	0.053
DE			-0.03	0.916	0.08	0.771
DK			0.17	0.486	0.04	0.879
EL			-0.43	0.154	0.32	0.589
ES			-0.39	0.183	0.29	0.589
FI			0.05	0.844	0.33	0.328
FR			-0.22	0.469	-0.06	0.858
IE			0.26	0.368	0.75	0.069
IT			-0.31	0.275	0.11	0.753
LU			0.06	0.885	-0.56	0.346
NL			0.03	0.987	-0.49	0.822
NO			1.08	<0.001	0.89	0.002
PL			-1.60	<0.001	-0.53	0.532
PT			0.49	0.174	1.28	0.062
SE			0.94	<0.001	0.94	0.001
UK			0.22	0.441	0.54	0.153
2005					-0.15	0.470
2006					-0.15	0.465
2007					-0.15	0.472
2008					0.06	0.810
2009					-0.14	0.558
2010					-0.39	0.145
2011					-0.27	0.335
2012					-0.43	0.140
2013					-0.53	0.081
Observations	402		402		402	
R2 / R2 adjusted	0.472 / 0.458		0.681 / 0.657		0.690 / 0.658	

5.1.3.c Employment: EPL Temporary Employment

The final test on employment investigates the relation between temporary employment protection legislation and employment rate. Similar to previous tests, the OLS model indicates some negative effect over employment for the general population and no deviation for migrants. In the two other tests, the general population does not seem to be commonly affected by this type of EPL. However, migrants seem to be experiencing a slight positive effect.

With an adjusted R^2 of .424, the OLS reports significant negative coefficient for the independent variable namely, EPL temporary employment (β= -.15). The p-value of the interaction factor indicates no significant deviation of migrants results from the general population tendency. Some control variables indicate influence over the model: gender (β= 1.22), social security (β= .32) and HDI (β= .15). One could interpret these outcomes as the evidence of a negative association between the EPL temporary employment and employment of the general population. However, this in contradicted by the fixed effect models.

The second model displays an adjusted R^2 of 0.661 and only two significant factors: gender and the interaction variable. The former and the latter hold respectively a coefficient of 1.22 and .18. The EPL temporary on its own does not pass the test of the p-value having an outcome higher than .05. The country dummies with robust results are Belgium, Switzerland, Norway, Greece, Spain, Poland, Sweden and to some extent France. Respectively, the results reject the first observation of the OLS as the independent variable EPL temporary loses value. Additionally, it reveals some positive deviation for migrants. These trends are confirmed by the last test. The two-way fixed effect model has similar adjusted R^2 i.e. .662. Additionally, it also only contains two factor showing significance: gender and the interaction variable.

Table 11: Regression models 1-3: Temporary Employment / Employment

	Model 1		Model 2		Model 3	
Predictors	*Estimates*	*p*	*Estimates*	*p*	*Estimates*	*p*
(Intercept)	-0.53	<0.001	-0.48	0.053	-0.51	0.074
EPL Temporary Employment	-0.15	0.009	0.12	0.227	0.10	0.327
BIRTH	-0.08	0.311	-0.10	0.116	-0.11	0.098
Gender	1.22	<0.001	1.22	<0.001	1.22	<0.001
Social_Security	0.32	<0.001	-0.06	0.685	0.38	0.280
Human Development Index	0.15	<0.001	0.02	0.970	0.42	0.432
Real Productivity	-0.12	0.032	-0.04	0.406	-0.04	0.477
Real GDP	0.03	0.460	0.01	0.787	-0.06	0.173
Mean Equivalized Income	0.00	0.952	0.02	0.755	-0.05	0.576
Employment in KIA	-0.06	0.346	-0.03	0.648	0.06	0.530
EPL Temporary Employment:BIRTH	0.12	0.151	0.18	0.009	0.17	0.012
BE			-0.83	0.003	-0.64	0.037
CH			0.74	0.003	0.70	0.005
CZ			0.43	0.202	1.24	0.074
DE			-0.02	0.935	0.06	0.823
DK			0.11	0.649	-0.00	0.985
EL			-0.69	0.030	0.05	0.940
ES			-0.66	0.044	0.01	0.984
FI			-0.26	0.326	0.04	0.891
FR			-0.54	0.060	-0.34	0.265
IE			0.43	0.148	0.87	0.037
IT			-0.32	0.235	0.07	0.857
LU			-0.38	0.427	-0.91	0.152
NL			-0.05	0.981	-0.51	0.815
NO			0.60	0.056	0.48	0.162
PL			-1.75	<0.001	-0.74	0.372
PT			0.16	0.610	0.94	0.146
SE			0.91	<0.001	0.92	<0.001
UK			0.33	0.257	0.63	0.100
2005					-0.20	0.335
2006					-0.14	0.504
2007					-0.13	0.534
2008					0.07	0.773
2009					-0.14	0.568
2010					-0.40	0.135
2011					-0.25	0.354
2012					-0.39	0.184
2013					-0.50	0.099
Observations	402		402		402	
R2 / R2 adjusted	0.439 / 0.424		0.685 / 0.661		0.693 / 0.662	

5.1.3.d Employment: Interaction

The same testing process as for in-work poverty is applied to the variable employment rate. The first phase consists in analysing each EPL individually which is followed by an assessment of the interaction effects. As presented above, in the OLS (see: Table 9-11, Model 1), there seems to be some evidence of negative association between EPL collective dismissal/temporary employment and employment for the general population. However, these effects lose in significance on models 2 and 3 (see: Table 9-11). In those tests, the interaction variables, associating the EPL sub-indicator and the variable Birth, are displaying positive significant coefficients (particularly EPL Individual Dismissal) indicating that the increase in strictness of laws would improve the employment rate of migrants. This provides a first indication of the relation between those factors. Nevertheless, in order to reach a more accurate picture of reality, the thesis assesses the mutual influence of the different types of laws.

Table 12 presents the results of a two-way fixed effect with interaction effect variables associating different combination of EPL sub-indicators. The model seems to be robust with an adjusted R^2 of 0.745. When analysing the effect on the general population, the only EPL displaying a common significant effect on natives and migrants seems to be the EPL collective dismissal with a coefficient of -.47 and a p-value of .045. The lack of significance of the other variables might be due to the asymmetric effect (native/migrants) of EPL on employment. This is indicated by the results of the three-indicator combining the Birth and one EPL sub-indicator. When most of variables analysing the general population are displaying negative value, the variables focusing on migrants present positive and significant values which evidence different trajectories between natives and migrants. The one with the highest coefficient result is the individual EPL (BIRTH : EPL Ind.) i.e. .526. The two others have respectively a value of .253 (for BIRTH : EPL Temp.) and .233 (for BIRTH : EPL Col.).

The following factor of the model is the interaction effect between the different forms of EPL. The results of the interaction variable combining different types of EPL (for instance, Birth and three sub-indicators with a value of .817) seems to display an accentuating effect. The combinations between BIRTH, EPL temporary and EPL collective/individual presents coefficient values of respectively .38 and .69 ($p<.001$). When for the variable associating the three EPL and Birth, it obtains the highest coefficient amongst them with .817 and a $p<.001$. Accordingly, this would indicate that migrants and natives are oppositely affected by EPL. When natives see their employment slightly decrease with the strengthening of Employment Protection Legislation, migrants seem to be considerably benefiting from these reforms.

Table 12: Regression models 1-3: EPL Interactions / Employment

Predictors	*Estimates*	*p*
(Intercept)	-0.13	0.682
BIRTH	-0.33	<0.001
EPL Temporary Employment	0.32	0.137
EPL Collective Dismissal	-0.47	0.045
EPL Individual Dismissal	-0.44	0.141
Gender	1.21	<0.001
Social Security	0.01	0.975
Human Development Index	0.10	0.841
Real Productivity	-0.02	0.731
Real GDP	-0.06	0.122
Mean Equivalized Income	-0.05	0.608
Employment in KIA	0.05	0.533
BE	-0.51	0.550
CH	-0.10	0.874
CZ	0.13	0.911
DE	0.49	0.334
DK	-0.24	0.424
EL	-1.01	0.241
ES	-0.76	0.321
FI	-0.92	0.161
FR	-1.30	0.036
IE	-1.24	0.284
IT	0.19	0.675
LU	-0.74	0.381
NL	0.36	0.850
NO	0.02	0.976
PL	-1.90	0.078
PT	-1.21	0.321
SE	0.74	0.054
UK	-1.61	0.237
2005	-0.23	0.221
2006	-0.12	0.519
2007	-0.10	0.625
2008	0.13	0.580
2009	-0.03	0.908
2010	-0.26	0.369
2011	-0.09	0.767
2012	-0.15	0.654
2013	-0.21	0.565
BIRTH * EPL Temporary Employment	0.25	<0.001
BIRTH * EPL Collective Dismissal	0.23	0.001
EPL Temporary Employment * EPL Collective Dismissal	-0.07	0.826
BIRTH * EPL Individual Dismissal	0.53	<0.001
EPL Temporary Employment * EPL Individual Dismissal	0.39	0.217
EPL Collective Dismissal * EPL Individual Dismissal	-0.23	0.149
BIRTH *EPL Temporary Employment * EPL Collective Dismissal	0.38	<0.001
BIRTH * EPL Temporary Employment * EPL Individual Dismissal	0.69	<0.001
BIRTH * EPL_Collective Dismissal * EPL Individual Dismissal	-0.06	0.361
EPL Temporary Employment * EPL Collective Dismissal * EPL Individual Dismissal	-0.25	0.241
BIRTH * EPL Temporary Employment* EPL Collective Dismissal * EPL Individual Dismissal	0.82	<0.001
Observations	402	
R^2 / R^2 adjusted	0.776 / 0.745	

These conclusions are further tested by visualising those effects in using graphs. As presented in the previous section in-work poverty, each of these graphs is constituted of 9 charts. Each of them represents one scenario with a different degree of each type of EPL. The three graphs keep two types of EPL constant on a low, medium and high value, while the third type of EPL varies and is assigned to the X-axes of each chart for which the value represents the variation from its mean.

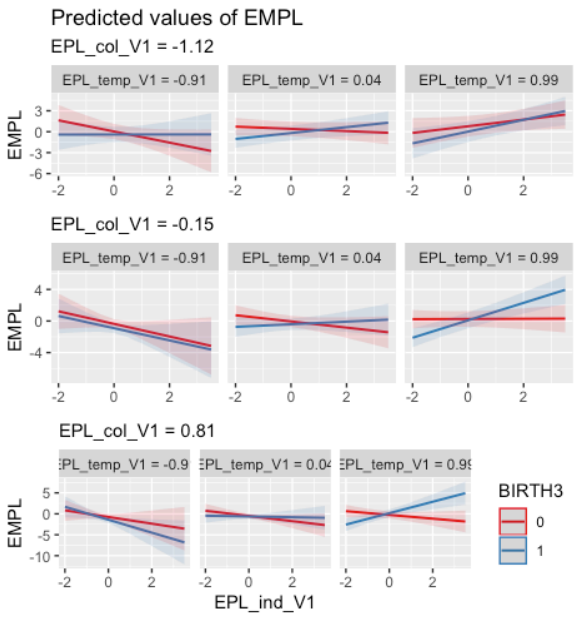
When analysing graph 5-7, a consistent trajectory of the blue line (i.e. migrants) can be observed i.e. notable increase in employment as the effect of stricter Employment Protection Legislation. As previously indicated by the regression results, this is particularly for temporary (Graph 7) and individual EPL (Graph 5) in which the line for migrants (the blue line=1) presents strong positive inclination which well compensates for the initial disadvantage of migrants. This is to some extent the case for the collective EPL (Graph 6) but some scenarios present negative slops for migrants. The optimal point for migrants seems to in scenarios combining strong values of the three sub-indicators of EPL. On the contrary, natives' employment opportunities seem to reduce as the EPL increase. This is indicated by the red line on the graph which is generally negatively sloped and tilt further down in scenarios associating strong EPL. Respectively, this confirms the table analysis indicating a slight decrease for natives and a strong positive association for migrants.

The outcomes on the employment rate of natives seem to correspond to the hypothesis formulated on the basis of the I-O theory. As the legislative framework becomes stricter, their employment rate decrease. However, the graphs and the interaction tables indicate that migrants are significantly benefiting from such measures. Respectively, in terms of employment, the optimal point for migrants is identified at the intersection of strong level for the three EPL.

Interaction Graph 5 and 6: EPL Individual and Collective Dismissal / Employment

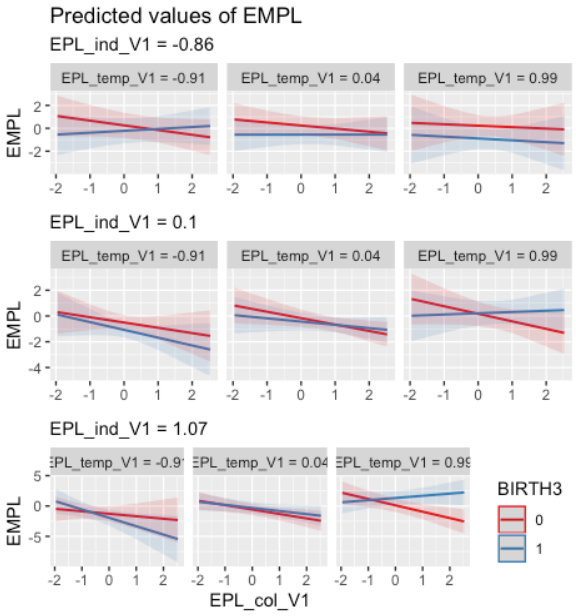
Panel A:

IV: EPL Individual / DV: Employment



Panel B:

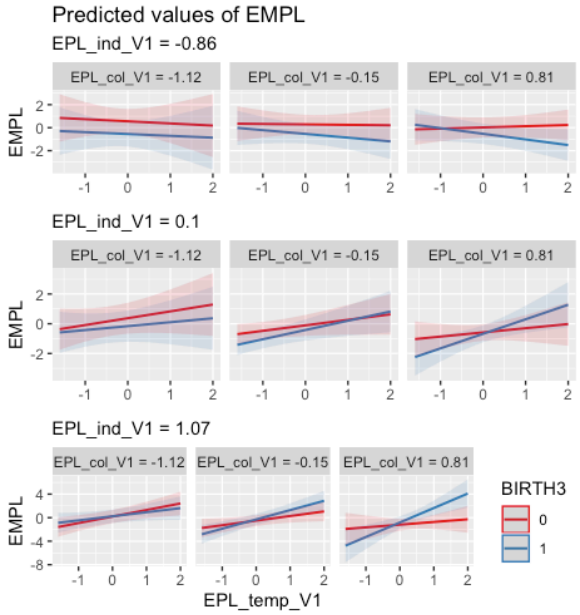
IV: EPL Collective / DV: Employment



Interaction Graph 7: EPL temporary / Employment

Panel C:

IV: EPL Temporary / DV: Employment



6 Discussion

By covering the relevant academic literature, the thesis has defined the notions of employment discrimination and precarious employment, as well as introduced the state of the research in the topic. On the basis of this academic review, the thesis noticed that the effect of the labour market regulations on the quality of employment of migrants has been neglected by the academic research. This leads the thesis to apply the Outsider-Insider theory to understand the mechanisms at play behind this relationship (Lindbeck and Snower, 1990). The thesis applies various statistical tests (OLS, one-way and two-way fixed effect) to first evaluate the relation between EPL and in-work poverty of migrants. It goes one step further by testing the theory in assessing the relations between the degree of employment protection and the rate of total/temporary employment.

The most notable result of this research is the evidence of the negative association between Employment Protection Legislation and the in-work poverty rate of both migrants and natives (H1). It indicates that stricter labour laws improve the working conditions of these workers in terms of in-work poverty. However, when focusing on specific sub-indicators, the results of the regressions indicate diverging effects on in-work poverty (see: Tables 4-6). While the first indicator, EPL individual dismissal, is negatively related to in-work poverty (see table 1), the two others exhibit positive coefficients (i.e. EPL collective dismissal and EPL temporary employment, see table 2 and 3). These contradicting results lead the thesis to analyse the interaction effect between the different types of EPL, which indicate that, when combined, the effect of these laws on in-work poverty alter notably (see: Table 7).

Focusing on migrants, the results of the regression and graphs comprising the interaction variables (combining the different laws) indicate that the correlation between temporary EPL and in-work poverty is considerably dependent on the legislative context of other types of EPL as denoted by table 7. For instance, this is evidenced by the two following combinations: collective dismissal/temporary and individual regulation/temporary employment laws. These arrangements display diverging effects. When the collective dismissal and temporary EPL are merged, their effect on in-work poverty is positive (the stricter the laws, the more in-work poverty). On the contrary, the influence of the second association is reversed. Respectively, the effect of temporary employment regulation is highly dependent on the legislative setting. This also confirms the first indications of the OLS model evidencing a detrimental effect of collective dismissal protective laws on migrants' in-work poverty.

Parallel to this analysis of the regression tables, the thesis presents the outcomes on interaction graphs which permits a better visualisation of the trajectories (see: Graph 1-4). This enables the thesis to identify the optimal degree of Employment Protection Legislation for migrants' and natives' economic integration. With regard to in-work poverty, the ideal combination for migrants is identified at the junction of strong temporary and individual dismissal regulations. When for natives, the scenario associating the highest value of each type of EPL seems to be the most beneficial. These two results support the income effect on insiders presented by the O-I theory (Lindbeck and Snower, 1990). Additionally, it corroborates with Kogan's study (2011b) which argues that flexibilization leads to more precarious employment path i.e. temporary and more unstable employment.

When testing the second tenet of the theory (namely the negative effect of employment protection on employment opportunities for outsiders), the various tests (particularly the two-way fixed effect) display interesting results (see: Tables 9-12). Two distinct trajectories are identified. On the one hand, migrants see their employment rate increase as Employment Protection Legislation become stricter. On the other hand, natives experience a reduction in employment. Respectively, the results on natives (which represent the biggest share of the population) correspond to the I-O theory (H2) which indicate that employment rate decreases as an effect of growing cost for employers (turn-over costs). However, the outcomes for migrants evidence a different effect for which the I-O theory does not provide explanations (Lindbeck and Snower, 1990). This is consistent with the type of case study on which the theory is built on. The theory being based on population wide samples (prevalently constituted on natives), it fails to capture the specific circumstance of migrants. This all the more justifies the need for studies focusing on migrants which seems to be differently affected by Employment Protection Legislation.

However, the theory section has identified diverging views in respect to the mechanisms at play behind the association presented in H1 and H2. First, the traditional approach of the I-O theory which argues that the decrease in EPL leads to more competition between employed and unemployed labour (Lindbeck and Snower, 1990). This would lead to a bargaining power decrease for workers which would lead to a wage reduction. The second mechanism interprets the positive association between EPL and wage as the effect of an increase in temporary employment. This type of employment would compete with regular workers and reduce their negotiation leverage when requesting raises (Bellani & Bosio, 2019). This thesis tests these mechanisms by assessing the relation between EPL and temporary employment.

When applying equivalent test as for the in-work poverty and employment rate to the variable temporary employment, this study does not discern any evidence to support hypothesis number four (corresponding to the second mechanism presented above). On the contrary, it notices a slight positive association between some EPL sub-indicators (as well as interaction variables) and temporary employment (see: Table 8). This partially questions the mechanism of knock-on effect since no significant spread of temporary workers is evidenced. As previously presented, the knock-on effect is a concept developed by Bellani & Bosio (2019) which proposes an alternative explanation to the positive association between EPL and in-work poverty. As opposed to the original mechanism presented by the I-O theory, it starts by questioning the assumption of complementarity between regular and temporary workers and argues that those forms of employment are substitutive to each other. According to this view, asymmetric deregulations of the labour market (i.e. in reducing protection on temporary contracts and preserving regulation on regular employment) would increase competitive pressure on regular workers (replacing previous regular workers by temporary ones). Subsequently, this would weaken the bargaining power of workers which ultimately would influence their wage negotiation. Yet, in regard to the results provided by this thesis, this 'knock-on effect' mechanism is rejected for its lack of explanative value on the case at hand (H4).

The case at hand seems to better correspond to the first mechanism in which EPL leads to a modification of employing behaviour and an alteration of the wage negotiation balance between employers and employees. According to Lindbeck and Snower's theory (1990), Employment Protection Legislation reduces the subsidiarity of employed and unemployed labour and respectively their competition. By reducing subsidiarity, labour protective laws (restricting some forms of non-standard work and dismissal) is presented as a source of bargaining power gain for employees. Additionally, this theory understands this evolution as a source of income growth. In assuming employees to be economically rational, the theory expects workers to resort to the influence, obtained by the reduction of labour subsidiarity, to obtain a wage raise. Respectively, in providing stability as well as insurance to workers, strict Employment Protection Legislation is understood as a source of alteration of the negotiation balance which would explain the negative association evidenced between EPL and in-work poverty.

Asymmetric deregulation (Bellani & Bosio, 2019) seems to play a role in the increase of in-work poverty (H3). This is evidenced by the results on the combined effect of the variables EPL individual dismissal and temporary. The mutual dependencies of those two factors

evidence that asymmetric deregulation would lead to a significant increase in in-work poverty. Respectively, the results point that the optimal scenario for migrants lies at the junctions between strong individual dismissal and temporary contract protective laws. However, the optimal point for this group is dependent on symmetric regulations.

When testing the literature specific to migrants, this thesis assesses three elements: the presence of an in-work poverty gap between natives and migrants and the detrimental effect of EPL on migrants (leading to an increasing employment gap). First, on the basis of the academic literature on employment discrimination (Becker, 1971; Arrow, 1973; Phelps, 1972) and Álvarez-Miranda's results (2011), the thesis expects a gap between natives and migrants regarding in-work poverty. The observations made by this thesis seems to correspond to the approach provided by the employment discrimination literature according to which employers would discriminate on the ground of the origin of applicants.

The hypothesis concerning the in-work poverty gap between migrants and natives is confirmed by the results of the statistical models. Throughout all test (see: Table 4-7), the factor birthplace is statistically significant and increasing considerably the in-work poverty of the cases concerned. These outcomes support Álvarez-Miranda's results (2011) which displays substantial differences in in-work poverty rate between natives and migrants. Such observations also correspond to the assumptions of the literature on employment discrimination which present discriminative behaviour leading to an income gap between natives and foreigners (Becker, 1971; Arrow, 1973; Phelps, 1972). In the literature section, two different arguments are identified i.e. the taste-based and the statistical discrimination. When one argues that employers discriminate on the basis of productivity disparity presented by statistics, the other argues that the core reason for this mechanism is based on the prejudices. Even if one could consider the second analysis as a more credible argument, this thesis does not test this aspect. In any case, both branches of the literature recognise employment discrimination behaviour as a source of an undervaluation of migrant. This is considered it as a potential explaining factor to understand the gap evidenced by the models. However, the extent of the gap presented in the results could also partially be explained by demographic characteristic (e.g. education, age).

The second element of this body of literature to be tested is the increase of discrimination practices with the strengthening of EPL (H3). This hypothesis is based on Kogan's paper (2006) which argues that the cost of hiring and the estimated productivity of the worker are major elements determining the decision of employing a specific individual. As the I-O theory (Lindbeck and Snower, 1990), he considers EPL has a source of hiring cost increase. However, Kogan argues that contrary to natives, migrants are also experiencing employment

discriminations. This issue is supposed to increase with the strengthening of EPL since the "risk" taken by an employer is increased leading the employer to choose a "safer" employee (in reference to the taste-based and the statistical discrimination). However, as mentioned previously, the results of the analysis do not confirm this assumption since they indicate that migrant's employment seems to benefit from EPL while natives experience a reverse effect (see: Tables 9-12). Respectively, this theis rejects hypothesis 3.

To conclude, the thesis identifies various associations between EPL and in-work poverty, total employment as well as temporary employment. These results confirm many hypotheses found on the existing literature but also rejects some of them (see: Table 13). Regarding the first hypothesis (H1), by identifying a negative correlation between EPL and in-work poverty (of both migrants and natives), the thesis supports the I-O theory and its wage effect on insiders (Lindbeck and Snower, 1990). Additionally, it corroborates Kogan's (2011b) findings on the detrimental effect of flexibilization on the quality of migrants' employment. When for the results concerning H2, the results are bidirectional. On the one hand, as EPL increase, natives experience a reduction in employment rates. On the other hand, migrants are significantly benefiting from such reforms. Respectively, the former observation (on native) corresponds to the I-O theory. However, the results for migrants diverges. Additionally, this effect on the in-work poverty rate of migrants is contrasting with H3 (Kogan, 2006), which expects an increase in discriminative employing behaviour (represented as a barrier for migrants' labour market integration). When trying to assess the mechanisms at play behind these associations, the thesis examines the H4 which assesses the relation between EPL and temporary employment. This hypothesis is finally rejected since no negative association is found in the different regression outcomes. Respectively, the second mechanism presented in the theory section rejected, the thesis supports an understanding based on Lindbeck and Snower's theory (1990) arguing that EPL alters the competition between employed and unemployed labour. Finally, the question of asymmetric deregulation seems to play a role in the increment of in-work poverty since the combined effect between the regular and temporary labour laws (H5).

Table 13: Hypotheses Results

Hypotheses	Independent and Dependent Variables	Association	Results
H1	IV: Employment Protection Legislation DV: In-work poverty	-	Confirmed
H2	IV: Employment Protection Legislation DV: Employment	-	Partially confirmed
H3	IV: Employment Protection Legislation DV: Employment Gap between natives and migrants	+	Rejected
H4	IV: Employment Protection Legislation DV: Temporary Employment Share	-	Rejected
H5	IV: Asymmetric Deregulation DV: In-work poverty	+	Confirmed

6.1.1 Limitations

The thesis aims at understanding the relation between EPL and in-work poverty as well as testing the I-O theory (Lindbeck and Snower, 1990). This initial objective has partially been reached by the study. However, some limitations are considered. These are of two sorts: methodologic and scope. An important limitation of this study rests in the non-experimental nature of the study which hinders the possibility to randomize its selection procedure. Since in non-experimental studies the pre-selection of cases is not dependent on the researcher, this type of analysis is unable to completely neutralize the pre-treatment attributes. Respectively, it can

only attempt to reduce the occurrence of omitted variables by statistically controlling for confounding factors. In view of these conditions, fixed effect models are a robust method to reduce these shortcomings of the non-experimental study but can only partially decrease the effect of confounding variables.

Another important element to consider is the lack of microdata. Not having been granted microdata access by Eurostat, the thesis focuses on aggregate data. Even though it relies on a relatively large number of cases, the thesis could benefit from a greater N provided by the Eurostat micro-data as it would increase the internal validity of the results. Additionally, it would permit to better control for demographic-specific feature as well as better specify the case selection. For instance, the thesis has not been able to directly account for some aspects such as the education level of the demographic groups. However, this is to some extent controlled by country and time fixed effect. By including such aspect, the thesis could better trace back which factor improves or hinders the employment integration of migrants.

The thesis is also able to identify the relation between Employment Protection Legislation and in-work poverty/employment. Hence, it has reported evidence supporting the I-O theory for natives and partially for migrants (Lindbeck and Snower, 1990). Nevertheless, migrants deviate from the hypotheses as its employment increase in relation to a raise in EPL. This demonstrates the importance of researching this neglected case study and reveals a gap in the literature. More study would be required to understand the mechanism at play behind this phenomenon. This could be operated by considering the limitation presented in this section. Respectively, a micro-data analysis of the relation between Employment Protection Legislation and in-work poverty/employment could be a potential avenue for future research.

Additionally, the thesis analyses poverty in a relative and objective manner (i.e. 60% of the national median income) which provides comparability necessary for quantitative research. However, this measurement does not evaluate the subjective experience of the population analyzed. This exemplified by Álvarez-Miranda (2011) with the case of migrants. As their perception can be influenced by the living standards of their country of origin, some migrants in situation of in-work poverty may view their condition in a different light than natives. This may lead some of them to "perceive their income as an achievement, a marker of social mobility that evidences the success of their migration project, while from the point of view of analysts and policy makers in their country of residence they are suffering poverty." (Álvarez-Miranda, 2011, p. 251). Respectively, the thesis's measurement of in-work poverty is restricted to a relative definition of in-work poverty and could gain from a supplementary analysis on the subjective perception of migrants on their own living conditions.

7 Conclusion

The thesis starts in observing the substantial level of poverty amongst migrants in the EU. The situation often being reduced to an unemployment issue, it attempts to move away from existing literature focusing primarily on employment rate by analysing employment quality. In line with Olsthoorn's definition (2014) of employment precarity, the thesis measures the employment quality in terms of in-work poverty. As presented by Álvarez-Miranda (2011), the gap in in-work poverty between natives and migrants in the EU is evaluated as reaching 66%. The author identifies a high degree of variance (i.e. twice or three times) between different EU countries and insists on the need for more study to understand this variation. Respectively, this thesis aims at understanding the source of migrants' in-work poverty by investigating the labour market regulation as a potential source of disparity. This leads to the following research question: To what extent does Employment Protection Legislation impact the in-work poverty of non-EU born workers?

In order to define the main concepts employed in this study and clarify the academic gap, the thesis starts by presenting the state of the academic literature in the field of employment discrimination and Employment Protection legislation. The first subsection identifies two different arguments in this domain i.e. the taste-based and the statistical discrimination (Becker, 1971; Arrow, 1973; Phelps, 1972). When the former argues that the source of employers' discrimination behaviour is based on statistically grounded productivity argument, the latter claims that the core reason for this mechanism is based on prejudices. In any case, both literature evidence employment discrimination behaviour on the basis of undervaluation of migrants. This mechanism assists the thesis in the interpretation of the gap in wages and access to the labour market. In the second subsection on Employment Protection Legislation, the thesis presents the literature on EPL which enables the identification of a knowledge gap i.e. the effect of the labour market regulations on the quality of employment of migrants. In this respect, it concludes that more research is needed to inform policymaking about the potential strategies to tackle the issue of in-work poverty among migrants.

This leads the thesis to attempt to understand the relation between EPL and in-work poverty. Being commonly used to understand the effect of laws on the labour market, the I-O model serves of theoretical foundation to this thesis. The general tenets of the I-O theory are to consider the labour market supply side as constituted of two distinct groups differently affected by restrictive labour laws labour: the insiders (i.e. the employed workers) and the outsiders (i.e. the unemployed). On the one side, the insiders are considered as the beneficiaries of these

policies in obtaining protection via more restrictive employment laws limiting the use of precarious contracts and increasing their bargaining power. On the other side, the theory identifies unemployed as outsiders facing the detrimental effects of EPL namely reduced employment opportunities due to a reduction of labour turnover and hiring (as the result of labour cost increase).

The major finding of this thesis is the identification of a negative association between Employment Protection Legislation and in-work poverty for both natives and migrants. This corresponds to the hypothesis laid out on the basis of the I-O theory regarding wages (Lindbeck and Snower, 1990). On the other hand, this theory also provides indications on potential detrimental effects of these policies on employment (i.e. on outsiders). When analysing the results for natives, as expected, this thesis evidence a reduction in employment which relates to the I-O theory. However, in view of the outcome on the positive association between EPL on the rate of employment of migrants, the study displays some degree deficiencies of the I-O theory to capture the mechanism at play for this specific case. This is consistent with the type of case study on which the theory (i.e. population-wide samples) is built which all the more justifies the need for studies investigating further the situation of migrants (apparently differently affected by Employment Protection Legislation).

After having analysed the main associations (EPL to in-work poverty/employment rate), the thesis aims at examining the mechanism behind theses relations. Two different mechanisms are presented in the theory section and tested in the analysis. The first understands the negative association between EPL and in-work poverty as the consequence of an alteration of the competition between employed and unemployed labour. The second considers this relation to be caused by an increase in the number of temporary workers leading to a decrease in bargain power of regular workers and, therefore, to a reduction in their salary. To determine which branch of the I-O theory is the most compatible with the case at hand, the thesis tests the presence of an increase in temporary employment. The association between EPL and temporary employment lacking consistency and significance, the thesis's outcome diverges from Bellani & Bosio's conclusion (2019) on which the second mechanism is based. Respectively, the results on migrants seem to better correspond to the first mechanism. It would suggest that the employment protection laws alter the competition between insiders (i.e. employed labour) and outsiders (i.e. unemployed labour) and in turn change the bargaining power of employed workers. This would modify the wage negotiation balance and translate into in-work poverty reduction/increase.

In respect to these results, the thesis supports policy aiming at increasing in Employment Protection Legislation. This is viewed as a factor of in-work poverty reduction for both migrants and natives. Additionally, the thesis evidences a significant beneficial outcome on the employment rate of migrants. The only detrimental result identified is the moderated decrease in employment for natives. However, behind these general trends, it also identifies substantial divergences amongst the different types of laws. The conclusions of the interaction models present the optimal scenario for natives' in-work poverty to be at the intersection of strong levels of the three types of EPL. The optimal point for migrants is identified in the scenario associating strong individual dismissal and temporary Employment Protection Legislation. It recommends strong protective law in these two domains to foster a reduction of the poverty experienced by workers (natives and migrants) and increase the employment opportunities of migrants.

To conclude, the findings of the thesis evidence that migrants are generally positively affected by Employment Protection Legislation in terms of in-work poverty but also in their employment rate. This later effect displays a divergence between the situation of migrants and natives which is not explained by existing literature. This observation coupled with the limitation of the thesis in terms of data leads the thesis to encourage future research to investigate further this relation with the support of micro-data.

8 References

Álvarez-Miranda, B., 2011. *In-work poverty among immigrants*. In Working Poverty in Europe (pp. 250-277). Palgrave Macmillan, London.

Arrow, K. (1973). *The theory of discrimination*. In: Discrimination in labor markets, 3(10), 3-33.

Ballarino, G., & Panichella, N., 2015. *The occupational integration of male migrants in Western European countries: assimilation or persistent disadvantage?*. International Migration, 53(2), 338-352.

Bellani, D., & Bosio, G., 2019. *Knockin'on heaven's door? Reframing the debate on temporary employment and wages: evidence from Europe*. Socio-Economic Review.

Bisin, A., Patacchini, E., Verdier, T., & Zenou, Y., 2011. *Ethnic identity and labour market outcomes of immigrants in Europe*. Economic Policy, 26(65), 57-92.

Blanchard, O. J., 1991. *Wage bargaining and unemployment persistence* (No. w3664). National Bureau of Economic Research.

Broughton, A., Green, M., Rickard, C., Swift, S., Eichhorst, W., Tobsch, V., & Tros, F. 2016. *Precarious employment in Europe: Patterns, trends and policy strategies*. Brussels: Policy Department A/European Union.

Buchele, R., & Christiansen, J., 1995. *Productivity, Real Wages and Worker Rights: A Cross-National Comparison*. Labour, 9(3), 405-422.

Constant, A., & Zimmermann, K. F. (2005). *Immigrant performance and selective immigration policy: a European perspective*. National Institute Economic Review, 194(1), 94-105.

Croissant, Y., & Millo, G., 2008. *Panel data econometrics in R: The plm package*. Journal of statistical software, 27(2), 1-43.

Freeman R, Medoff J, 1984. *What do Unions do?* New York: Basic Books.

Giesselmann, M., 2015. *Differences in the patterns of in-work poverty in Germany and the UK*. European Societies, 17(1), 27-46.

Goodman, S. W., 2018. *Indexing immigration and integration policy: Lessons from Europe*. Policy Studies Journal.

Guerrazzi, M., 2020. *Wage and employment determination in a dynamic insider–outsider model*. Evolutionary and Institutional Economics Review, 17(1), 1-23.

Herman, E., 2014. *Working poverty in the European Union and its main determinants: An empirical analysis*. Inzinerine Ekonomika-Engineering Economics, 25(4), 427-436.

Heyes, J., & Lewis, P., 2014. *Employment protection under fire: Labour market deregulation and employment in the European Union*. Economic and Industrial Democracy, 35(4), 587-607.

Kalinowski, S., 2019. *Employment Precarisation in the Contemporary Economy*. Ekonomista, 1, 73-92.

Karnani, A., 2011. *Reducing poverty through employment. Innovations: Technology, Governance*, Globalization, 6(2), 73-97.

Kogan, I., 2006. *Labor markets and economic incorporation among recent immigrants in Europe*. Social Forces, 85(2), 697-721.

Kogan, I., 2011a. *New immigrants—old disadvantage patterns? Labour market integration of recent immigrants into Germany*. International Migration, 49(1), 91-117.

Kogan, I., 2011b. *The price of being an outsider: Labour market flexibility and immigrants' employment paths in Germany*. International Journal of Comparative Sociology, 52(4), 264-283.

Kraal, K., Roosblad, J., & Wrench, J., 2009. *Equal opportunities and ethnic inequality in European labour markets: discrimination, gender and policies of diversity.* Amsterdam University Press.

Larsen, E. N., & Di Stasio, V., 2019. *Pakistani in the UK and Norway: different contexts, similar disadvantage.* Results from a comparative field experiment on hiring discrimination. Journal of Ethnic and Migration Studies, 1-21.

Lemaître, G., 2007. *The Integration of Immigrants into the Labour Market*. OECD social, employment and migration working papers.

Liebig, T., 2007. *The labour market integration of immigrants in Australia*. OECD Social, Employment, and Migration Working Papers, (49), 1.

Lindbeck, A., & Snower, D. J., 1989. The insider-outsider theory of employment and unemployment. MIT Press Books, 1.

National Research Council., 2004. *Measuring Racial Discrimination.* Washington, DC: The National Academies Press. doi: 10.17226/10887.

Nilsson, A., & Wrench, J., 2009. *Ethnic inequality and discrimination in the labour market*. In: Equal opportunities and ethnic inequality in European labour markets, 23.

Nolan P., 1994. *Labour market institutions, industrial restructuring and unemployment in Europe*. In: Grieve-Smith J, Michie J (ed.) Unemployment in Europe: Policies for Growth. London: Academic Press, pp. 61–71.

OECD, 2020. *OECD Employment Outlook 2020 : Worker Security and the COVID-19 Crisis*, OECD publishing, Paris.

Olsthoorn, M., 2014. *Measuring precarious employment: A proposal for two indicators of precarious employment based on set-theory and tested with Dutch labor market-data.* Social Indicators Research, 119(1), 421-441.

Penninx, R., 2004. *Integration of Migrants: Economic, Social, Cultural and Political Dimension*s, background paper for the UNECE Conference 12-14 January 2004.

Phelps, E. S., 1972. The statistical theory of discrimination. American Economic Review, 62(4), 659-661.

Rueda, D., 2006. *Social democracy and active labour-market policies: Insiders, outsiders and the politics of employment promotion*. British Journal of Political Science, 36(3), 385-406.

Simmel, G., 1950. *The stranger*. In: The Sociology of Georg Simmel, 402, 408.

Solow, R. M., 1986. *Insiders and outsiders in wage determination. In Trade unions, wage formation and macroeconomic stability* (pp. 269-286). Palgrave Macmillan, London.

Stamper, C. L., & Masterson, S. S., 2002. *Insider or outsider? How employee perceptions of insider status affect their work behavior*. Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 23(8), 875-894.

Storm S, Naastepad CWM, 2009. *Labour market regulation and productivity growth: Evidence for twenty OECD countries (1984–2004)*. Industrial Relations 48(4): 629–654.

Zschirnt, E., & Ruedin, D., 2016. *Ethnic discrimination in hiring decisions: a meta-analysis of correspondence tests 1990–2015*. Journal of Ethnic and Migration Studies, 42(7), 1115-1134.

9 Appendix:

Table 1. Quantifying the 21 basis measures of employment protection strictness

A. Individual dismissals of workers with regular contracts

	Original unit and short description of typical cases		Assignment of numerical strictness scores						
			Assigned scores						
			0	1	2	3	4	5	6
1: Notification Procedures	Scale 0-3 0 when an oral statement is enough; 1 when a written statement of the reasons for dismissal must be supplied to the employee; 2 when a third party (such as works council or the competent labour authority) must be notified; 3 when the employer cannot proceed to dismissal without authorisation from a third party.		Scale (0-3) × 2						
2: Delay involved before notice can start	Days Estimated time includes, where relevant, the following assumptions: 6 days are counted in case of required warning procedure, 1 day when dismissal can be notified orally or the notice can be directly handed to the employee, 2 days when a letter needs to be sent by mail and 3 days when this must be a registered letter.		≤ 2	< 10	< 18	< 26	< 35	< 45	≥ 45
3: Length of the notice period at	9 months tenure	Months	0	≤ 0.4	≤ 0.8	≤ 1.2	< 1.6	< 2	≥ 2
	4 years tenure	Months	0	≤ 0.75	≤ 1.25	< 2	< 2.5	< 3.5	≥ 3.5
	20 years tenure	Months	< 1	≤ 2.75	< 5	< 7	< 9	< 11	≥ 11
4: Severance pay at	9 months tenure	Months pay	0	≤ 0.5	≤ 1	≤ 1.75	≤ 2.5	< 3	≥ 3
	4 years tenure	Months pay	0	≤ 0.5	≤ 1	≤ 2	≤ 3	< 4	≥ 4
	20 years tenure	Months pay	0	≤ 3	≤ 6	≤ 10	≤ 12	≤ 18	> 18
5: Definition of justified or unfair dismissal	Scale 0-3 0 when worker capability or redundancy of the job are adequate and sufficient ground for dismissal; 1 when social considerations, age or job tenure must when possible influence the choice of which worker(s) to dismiss; 2 when a transfer and/or a retraining to adapt the worker to different work must be attempted prior to dismissal; 3 when worker capability cannot be a ground for dismissal.		Scale (0-3) × 2						
6: Length of trial period	Months Period within which, regular contracts are not fully covered by employment protection provisions and unfair dismissal claims can usually not be made.		≥ 24	> 12	> 9	> 5	> 2.5	≥ 1.5	< 1.5
7: Compensation following unfair dismissal	Months pay Typical compensation at 20 years of tenure, including back pay and other compensation (e.g. for future lost earnings in lieu of reinstatement or psychological injury), but excluding ordinary severance pay.		≤ 3	≤ 8	≤ 12	≤ 18	≤ 24	≤ 30	> 30

	Original unit and short description of typical cases	Assignment of numerical strictness scores						
		Assigned scores						
		0	1	2	3	4	5	6
8: Possibility of reinstatement following unfair dismissal	Scale 0-3 0 no right or practice of reinstatement; 1 reinstatement rarely or sometimes made available; 2 reinstatement fairly often made available; 3 reinstatement (almost) always made available;	Scale (0-3) × 2						
9: Maximum time to make a claim of unfair dismissal	Months Maximum time period after dismissal notification up to which an unfair dismissal claim can be made.	Before dismissal takes effect	≤ 1	≤ 3	≤ 6	≤ 9	≤ 12	> 12

B. Temporary employment

	Original unit and short description	Assignment of numerical strictness scores						
		Assigned scores						
		0	1	2	3	4	5	6
10: Valid cases for use of fixed-term contracts (FTC)	Scale 0-3 0 fixed-term contracts are permitted only for "objective" or "material situation", *i.e.* to perform a task which itself is of fixed duration; 1 if specific exemptions apply to situations of employer need (*e.g.* launching a new activity) or employee need (*e.g.* workers in search of their first job); 2 when exemption exist on both the employer and employee sides; 3 when there are no restrictions on the use of fixed-term contracts.	6-(Scale (0-3) × 2)						
11: Maximum number of successive FTC	Number	No limit	≥ 5	≥ 4	≥ 3	≥ 2	≥ 1.5	< 1.5
12: Maximum cumulated duration of successive FTC	Months	No limit	≥ 36	≥ 30	≥ 24	≥ 18	≥ 12	< 12
13: Types of work for which temporary work agency (TWA) employment is legal	Scale 0-4 0 when TWA employment is illegal; 1 only allowed in specified industries; 2 only allowed for "objective reasons"; 3 generally allowed, with specified exceptions; 4 generally allowed, no (or minimal) restrictions.	6-(Scale (0-4) × 6/4)						
14: Restrictions on number of renewals.	Yes/No	-	-	No	-	Yes	-	-
15: Maximum cumulated duration of TWA assignments	Months	No limit	≥ 36	≥ 24	≥ 18	≥ 12	> 6	≤ 6

	Original unit and short description		Assignment of numerical strictness scores						
			Assigned scores						
			0	1	2	3	4	5	6
16: Does the set-up of a TWA require authorisation or reporting obligations	Scale 0-3		Scale (0-3) × 2						
	0	no authorisation or reporting requirements;							
	1	requires special administrative authorisation;							
	2	requires periodic reporting obligations;							
	3	both authorisation and reporting requirements.							
17: Do regulations ensure equal treatment of regular and agency workers at the user firm?	Scale 0-2		Scale (0-2) × 3						
	0	no requirement for equal treatment;							
	1	equal treatment regarding pay or working conditions;							
	2	equal treatment regarding pay and working conditions.							

C. Additional regulations for collective dismissals

	Original unit and short description		Assignment of numerical strictness scores						
			Assigned scores						
			0	1	2	3	4	5	6
18: Definition of collective dismissal	Scale 0-4		Scale (0-4) × 6/4						
	0	if there is no additional regulations for collective dismissals;							
	1	if specific regulations apply from 50 dismissals upward;							
	2	if specific regulations apply from 20 dismissals onward;							
	3	if specific regulations apply at 10 dismissals;							
	4	if specific regulations start to apply at below 10 dismissals;							
19: Additional notification requirements	Scale 0-2		Scale (0-2) × 3						
	There can be notification requirements to *works councils* (or employee representatives), and to *government authorities* such as public employment offices. Countries are valued according to whether there are additional notification requirements on top of those requirements applying to individual redundancy dismissal.								
	0	no additional requirements;							
	1	when one more actor needs to be notified;							
	2	when two more actors need to be notified.							
20: Additional delays involved before notice can start	Days Delays in addition to those in the case of individual dismissal		0	< 25	< 30	< 50	< 70	< 90	≥ 90
21: Other special costs to employers	Scale 0-2		Scale (0-2) × 3						
	This refers to whether there are additional *severance pay* requirements and whether *social compensation plans* (detailing measures of reemployment, retraining, outplacement, etc.) are obligatory or common practice								
	0	no additional requirements;							
	1	additional severance pay or social compensation plans required;							

	Original unit and short description		Assignment of numerical strictness scores						
			Assigned scores						
			0	1	2	3	4	5	6
	2	additional severance pay and social compensation plans required.							

After converting each item to a cardinal scale, the synthetic indicators are calculated using the weights shown in Tables 2 and 3. There are two sub-indicators measuring the strictness of regulation on regular contracts. They concerns regulations on individual dismissals and additional provisions for collective dismissals. Then, the synthetic indicator for individual and collective dismissals for workers with a regular contract (EPRC) encompasses these two indicators. A synthetic indicator for temporary contracts (EPT) is also available.

The OECD presents three versions of synthetic indicators, reflecting changes over time in the breadth of information incorporated into them. Nevertheless, the methodology applied for Latin American countries uses the latest version[2].

[2] Called "version 3"by the OECD, available since 2008.

Table 14: Regression models 4: Individual Dismissal /Temporary Employment

	Model 1		Model 2		Model 3	
Predictors	*Estimates*	*p*	*Estimates*	*p*	*Estimates*	*p*
(Intercept)	-0.24	<0.001	-1.23	<0.001	-1.43	<0.001
EPL Individual Dismissal	0.11	0.033	0.18	0.043	0.09	0.401
BIRTH	0.83	<0.001	0.92	<0.001	0.91	<0.001
Gender	-0.22	0.003	-0.23	<0.001	-0.23	<0.001
Social Security	-0.44	<0.001	-0.10	0.357	0.13	0.619
Human Development Index	-0.16	<0.001	0.10	0.740	0.42	0.258
Real Productivity	0.18	0.001	0.03	0.304	0.03	0.362
Real GDP	0.10	0.009	0.03	0.112	0.03	0.271
Mean Equivalized Income	0.00	0.996	0.00	0.924	-0.02	0.790
Employment in KIA	0.06	0.385	-0.00	0.948	0.00	0.935
EPL Individual Dismissal : BIRTH	0.12	0.115	0.13	0.002	0.13	0.003
BE			0.80	<0.001	0.84	<0.001
CH			0.70	<0.001	0.64	0.002
CZ			0.27	0.244	0.85	0.135
DE			0.98	<0.001	1.15	<0.001
DK			0.57	0.001	0.55	0.002
EL			0.84	<0.001	1.30	0.004
ES			2.70	<0.001	3.10	<0.001
FI			1.45	<0.001	1.63	<0.001
FR			1.13	<0.001	1.23	<0.001
IE			0.67	0.006	0.76	0.007
IT			0.67	<0.001	0.93	0.001
LU			0.57	0.026	0.33	0.433
NL			0.56	0.689	-0.11	0.940
NO			0.59	<0.001	0.56	0.004
PL			2.87	<0.001	3.45	<0.001
PT			1.39	<0.001	2.09	0.001
SE			1.23	<0.001	1.37	<0.001
UK			0.48	0.046	0.57	0.032
2005					0.18	0.199
2006					0.13	0.323
2007					0.14	0.321
2008					0.09	0.573
2009					0.01	0.975
2010					0.03	0.855
2011					0.03	0.890
2012					-0.14	0.533
2013					-0.09	0.709
Observations	389		389		389	
R2 / R2 adjusted	0.463 / 0.448		0.846 / 0.834		0.849 / 0.834	

Table 15: Regression models 4: Collective Dismissal / Temporary Employment

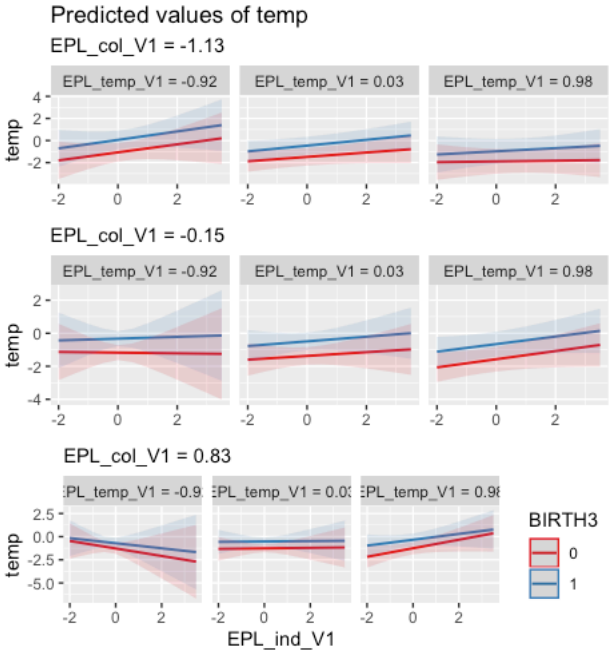
	Model 1		Model 2		Model 3	
Predictors	*Estimates*	*p*	*Estimates*	*p*	*Estimates*	*p*
(Intercept)	-0.23	0.001	-1.23	<0.001	-1.45	<0.001
EPL Collective Dismissal	0.04	0.457	0.06	0.384	0.05	0.459
BIRTH	0.83	<0.001	0.92	<0.001	0.91	<0.001
Gender	-0.22	0.004	-0.23	<0.001	-0.23	<0.001
Social Security	-0.50	<0.001	-0.12	0.269	0.29	0.230
Human Development Index	-0.17	<0.001	0.05	0.862	0.57	0.110
Real Productivity	0.17	0.001	0.02	0.433	0.03	0.373
Real GDP	0.12	0.002	0.04	0.101	0.03	0.266
Mean Equivalized Income	0.01	0.927	0.02	0.569	-0.01	0.836
Employment_in_KIA	0.05	0.451	-0.02	0.569	-0.00	0.977
EPL Collective Dismissal : BIRTH	-0.10	0.191	-0.11	0.011	-0.11	0.011
BE			0.62	0.007	0.80	0.001
CH			0.41	0.014	0.47	0.005
CZ			0.49	0.057	1.32	0.008
DE			1.02	<0.001	1.20	<0.001
DK			0.50	0.003	0.47	0.007
EL			0.86	<0.001	1.59	<0.001
ES			2.64	<0.001	3.31	<0.001
FI			1.41	<0.001	1.69	<0.001
FR			1.11	<0.001	1.27	<0.001
IE			0.27	0.166	0.68	0.014
IT			0.78	<0.001	1.14	<0.001
LU			0.55	0.044	0.09	0.814
NL			0.87	0.537	-0.19	0.895
NO			0.59	0.001	0.49	0.010
PL			2.80	<0.001	3.81	<0.001
PT			1.97	<0.001	2.75	<0.001
SE			1.34	<0.001	1.45	<0.001
UK			0.09	0.631	0.46	0.067
2005					0.17	0.228
2006					0.11	0.432
2007					0.10	0.477
2008					0.03	0.848
2009					-0.07	0.661
2010					-0.05	0.770
2011					-0.07	0.691
2012					-0.28	0.158
2013					-0.25	0.215
Observations	389		389		389	
R^2 / R^2 adjusted	0.439 / 0.425		0.842 / 0.830		0.848 / 0.832	

Table 16: Regression models 4: Temporary Employment / Temporary Employment

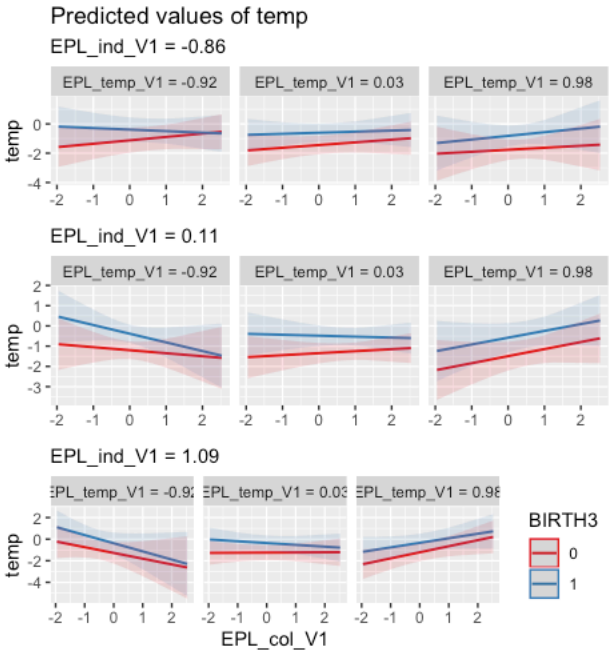
	Model 1		Model 2		Model 3	
Predictors	*Estimates*	*p*	*Estimates*	*p*	*Estimates*	*p*
(Intercept)	-0.23	<0.001	-1.23	<0.001	-1.47	<0.001
EPL Temporary Employment	0.26	<0.001	-0.02	0.756	-0.04	0.533
BIRTH	0.83	<0.001	0.93	<0.001	0.93	<0.001
Gender	-0.22	0.002	-0.23	<0.001	-0.23	<0.001
Social Security	-0.55	<0.001	-0.13	0.237	0.30	0.221
Human Development Index	-0.12	0.001	0.06	0.851	0.59	0.103
Real Productivity	0.16	0.001	0.02	0.454	0.03	0.386
Real GDP	0.12	<0.001	0.04	0.079	0.04	0.203
Mean Equivalized Income	-0.06	0.297	0.02	0.548	-0.01	0.907
Employment in KIA	0.10	0.110	-0.02	0.580	-0.01	0.910
EPL Temporary Employment : BIRTH	0.08	0.301	0.05	0.300	0.04	0.327
BE			0.64	0.001	0.84	<0.001
CH			0.41	0.013	0.47	0.005
CZ			0.47	0.040	1.33	0.005
DE			1.05	<0.001	1.22	<0.001
DK			0.50	0.003	0.48	0.006
EL			0.85	<0.001	1.63	<0.001
ES			2.64	<0.001	3.36	<0.001
FI			1.40	<0.001	1.72	<0.001
FR			1.06	<0.001	1.25	<0.001
IE			0.25	0.211	0.65	0.020
IT			0.78	<0.001	1.16	<0.001
LU			0.57	0.080	0.16	0.718
NL			0.82	0.561	-0.26	0.859
NO			0.59	0.006	0.53	0.021
PL			2.76	<0.001	3.82	<0.001
PT			1.95	<0.001	2.79	<0.001
SE			1.33	<0.001	1.43	<0.001
UK			0.07	0.728	0.43	0.095
2005					0.18	0.182
2006					0.11	0.421
2007					0.10	0.490
2008					0.02	0.892
2009					-0.08	0.640
2010					-0.05	0.800
2011					-0.09	0.639
2012					-0.28	0.156
2013					-0.25	0.216
Observations	389		389		389	
R2 / R2 adjusted	0.505 / 0.492		0.839 / 0.827		0.845 / 0.829	

Graphs

a. Interaction Graph 7: EPL individual / Temporary Employment



b. Interaction Graph 8: EPL Collective / Temporary Employment



c. Interaction Graph 9: EPL temporary / Temporary Employment