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## **The effects of occupational labour market conditions on false self-employment in Europe**

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**The effects of occupational labour market conditions  
on false self-employment in Europe**

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# 1 Introduction

Nowadays, more flexible forms of employment have emerged. Besides standard employment contracts, one could have a more flexible form of work through, for example, online platforms where one could work with a non-standard flexible contract or be self-employed. The Organisation for Economic Co-operation and Development (OECD) is an intergovernmental organisation that aids in formulating policies that promote equality and economic prosperity by creating jobs, improving education and combating tax evasion. According to the OECD (2019), these developments are attributable to employers' need for a flexible workforce due to fluctuating demand. At the same time, the OECD describes that workers may seek greater freedom in choosing when to work due to other responsibilities or to attain a better work-life balance. Drahokoupil and Fabo (2016) describe how technology such as the internet and algorithms allow platforms to efficiently match individuals that provide labour with those that need labour exactly when it is needed, at a low transaction cost. One of these flexible forms many governments and the OECD condemn is false self-employment. With false self-employment, individuals offer their labour as subcontractors for a company while actually having an employee-employer relationship with that company.

According to Koumenta and Williams (2019), technological advancements may be exploited by employers to decrease workers' position on the labour market; due to task simplification and increased monitoring, the labour market gets further segmented which increases class division. Thörnquist (2015) describes how false self-employed individuals often work under precarious conditions and are vulnerable as they are not protected under labour law and collective labour agreements. The literature points out that false self-employment schemes are often used to circumvent payments of social insurance contributions (Thörnquist, 2015; Behling & Harvey, 2015). Behling and Harvey (2015) further argue that false self-employment causes erosion of skills due to a lack of training provided by employers, which ultimately leads to a less productive economy. The European Commission (2019, as cited in Kösters & Smits, 2021) is concerned with the increasing number of self-employed individuals at high risk of poverty that lack the essential social security for illness, disability and old age. Defossez (2022) describes how most Member States of the European Union lack a legal framework to assess whether someone is falsely self-employed or not, which results in employees' rights only being acknowledged after a court's ruling. However, according to Peček and Franca (2019), self-employed individuals are often afraid to bring such a case to court due to the lack of viable alternatives to work. Online platforms, for example, are almost completely free from government intervention as, according to Defossez, the lack of an adequate legal framework allows them to set their own rules. This issue has gained attention on the agenda of the European Commission (2021) and aims to regulate platform work by creating a legal framework to assess whether platform workers should be entitled to an employment contract. The reviewed literature points out that a weak bargaining position of those that offer labour increases the likelihood of becoming falsely self-employed. High *labour market slack* indicates a disadvantageous bargaining position for workers. Hurly and Patrini (2018, p. 361) defined *labour market slack* as "the situation on the labour market when more workers are willing to work in comparison with the available number of hours provided by existing jobs or, in other words, the insufficiency of available work." This thesis examines the

development of false self-employment over the years in Europe and aims to uncover the effects of labour market slack and other labour market conditions within occupations on the likelihood of becoming falsely self-employed.

This thesis has substantive relevance as the increasing number of vulnerable, falsely self-employed individuals requires the appropriate government intervention. False self-employed workers with low wages and low job security face the risk of poverty with little prospects as they do not have the proper protection for unemployment, disability and old age and do not acquire the adequate skills to improve their position. Therefore, understanding the causes of the problems associated with false self-employment is necessary to tackle them. Most studies conducted on this topic focus on a specific occupation or country. This thesis has scientific relevance it investigates how the labour market conditions of specific occupations, can influence the prevalence of false self-employment. This research uses a quantitative approach and includes data from various European countries and a variety of occupations over multiple years. This provides a unique perspective on how workers' bargaining power and false self-employment are related.

The following chapter will review the literature on false self-employment and labour market outsiders to form hypotheses. The methodology of the statistical analysis will be presented in Chapter 3. The results of the analysis will be discussed in Chapter 4, and the robustness of the models will be assessed in Chapter 5. Finally, the findings will be concluded and discussed in Chapter 6.

## **2 Literature Review**

This chapter will discuss the literature on the characteristics of false self-employment and the legal implications of this form of work. In addition to purely defining false self-employment, an interesting case will further illustrate this concept. Finally, this chapter further identifies factors that contribute to the prevalence of false self-employment in some occupations and forms tentative answers to various aspects related to workers' bargaining position on the likelihood of becoming false self-employed.

### **2.1 Characteristics of false self-employment**

In the literature, 'false self-employment', 'bogus self-employment' or 'dependent self-employment' generally refers to a form of employment in which workers are legally self-employed while having characteristics that belong more to employees than that of independent entrepreneurs. However, both in the literature and a legal context, there is no uniform definition of false self-employment and which factors are necessary to qualify under this term. Undoubtedly, one must be formally self-employed to engage in a fake self-employment scheme. With self-employment, a natural person runs a business and has an obligation to take care of all liabilities and receivables that come with running a business (Bąk-Grabowska, 2014). Behling and Harvey (2015) describe how employers could utilise this legal form of employment to accommodate fluctuations in demand by lowering economic risks of having excess labour available during lean times. However, employers may also use this form of work to evade taxes, contributions to social security and

responsibilities as false self-employed workers are not protected under labour law, and collective labour agreements (Thörnquist, 2015).

The OECD (2000) defined false self-employment as “people whose conditions of employment are similar to those of employees, who have no employees themselves, and who declare themselves (or are declared) as self-employed simply to reduce tax liabilities or employers’ responsibilities.”. This formulation may again raise the question of what conditions are typical for employees and which are more typical for true self-employed people. First, those that are falsely self-employed are subject to a hierarchical employer-employee relationship where the self-employed workers are under the supervision of a company (Kösters & Smits, 2021). A lack of autonomy indicates a subordinate relationship with the employer, which is one of the characteristics of false self-employment. Cruz et al. (2017, p. 283) define autonomy as “the freedom and discretion to decide when, where and how a job should be carried out”. This freedom would include the ability to hire others in substitution (Behling & Harvey, 2015). According to the Dutch Tax and Customs Administration (n.d.), not being able to substitute your labour by someone else without their client’s approval first would also be an indicator of false-self employment. Another sign of false self-employment is whenever workers become self-employed involuntarily (Nikulin, 2021). Individuals may only get offered work as subcontractors and therefore start or continue working as self-employed due to the threat of becoming unemployed (Kautonen et al., 2010).

Finally, a lack of entrepreneurial activity is also an indicator of false self-employment. In the light of self-employment, this means individuals should have their own means of production that are used to accumulate capital (Thörnquist, 2015). Another characteristic of entrepreneurship is being able to negotiate prices for products and services provided for clients (Behling & Harvey, 2015). Kösters and Smits (2021) describe how in literature, economic dependency on a single client is also seen as a sign of false self-employment. Kösters and Smits however, argue that self-employed individuals that recently set up their business may start with only one client and eventually grow their customer base and, therefore, can be seen as genuinely self-employed despite their economic dependency on a single client.

## **2.2 Real-life case of false self-employment: Food delivery riders**

This section will present an interesting case of false self-employment to grasp this concept better. This case also illustrates that categorising individuals as genuinely or falsely employed remains challenging, as the line between the two is fuzzy.

In Europe, Deliveroo, Uber Eats and Glovo are major platforms that allow self-employed workers to deliver food from restaurants to customers. Defossez (2022) describes how courts have difficulty assessing whether riders of such delivery platforms are falsely self-employed or not, resulting in disparities in riders’ legal status between European countries. While the terms and conditions of these platforms differ between countries in accordance with local laws, Defossez (2022) argues that these platforms all aimed to deny employee status to their workers. Food delivery platforms pay subcontractors a certain amount for a delivered order instead of an hourly rate. With most platforms, riders can decide to go on- and offline on their app whenever they want and can accept or decline orders given by an algorithm. However, Deliveroo maintains a booking system where subcontractors must book a timeslot to work in some countries and

regions.

Prior to 2018, Deliveroo's riders in The Netherlands were hired as standard employees with a temporary contract. From 2018, Deliveroo did not extend their employees' contracts and forced them to continue as self-employed subcontractors (Amsterdam Court of Appeal, 2021). In 2021, the Amsterdam Court of Appeal decided Deliveroo's subcontractors should have the status of an employee, rather than self-employed due to their economic dependency on the company and the subordinate relationship between the riders and the company. In addition, the Court points out that Deliveroo can influence the behaviour of riders by giving bonuses and can unilaterally determine the fares paid for deliveries. While Deliveroo's riders in The Netherlands are seen as falsely self-employed, they are not seen so in the United Kingdom. The UK Supreme Court did not see Deliveroo's riders as falsely self-employed as riders were able to abandon a task or substitute themselves with someone else to finish the task (Defossez, 2022).

The Spanish government introduced the Rider's law in 2021, which states all food delivery riders working for digital platforms should be treated as employees (Eurofound, 2021). However, the introduction of this law caused a lot of controversy among the public. The *sí soy autónomo* (yes I am self-employed) movement consisted of riders protesting against the Rider's law as becoming an employee would decrease their autonomy and flexibility (Vieira, 2021). Vieira (2021) argues that their freedom and autonomy as self-employed riders are questionable as the paid base fares are low and they have a high dependency on the bonuses of the platforms. Most of Vieira's interviewees worked at least 6 days a week, sometimes 9 to 10 hours a day. Vieira believes the rejection of the Rider's law by the 'sí soy autónomo' movement is more driven by their insecurity in the labour market as it is a savage place that offers temporary contracts, low wages and a lack of flexibility rather than the, maybe, illusionary belief of autonomy as a self-employed rider. He adds that these individuals will use every effort to avoid insecurity, even if this requires the bold step into deregulation of these *uberised* employment forms as a leap of faith.

## 2.3 Causes of false self-employment

The literature points out the existence of significant disparities between the proportion of false self-employment occupations in different occupations. For example, studies have pointed out that artistic occupations and jobs in agriculture, construction, transport and the service sector suffer from high levels of false self-employment (Thörnquist, 2015; Williams & Lapeyre, 2017; Kösters & Smits, 2021). This section explores which factors contribute to high false self-employment in an occupational field.

### 2.3.1 How educational attainment does not play a major role

Studies from Williams and Lapeyre (2017) and Kösters and Smits (2021) found that educational level does not significantly affect the likelihood of false self-employment. Jackson et al. (2005) found a declining association between education and class position, as employers will pick personnel based on the characteristics they feel are most important to the productive efficiency of their business. Beblavý et al. (2016) found that even in medium and low-skilled jobs, skill requirements from employers are highly specific and vary greatly across occupations. This implies

that the mobility of individuals across these occupations is limited. They further found that non-cognitive skills, such as social skills and cognitive-specific skills, such as technical knowledge, are generally more in demand than general cognitive skills. In terms of educational level, this may mean that some lower-educated individuals with good non-cognitive skills and higher-educated individuals with cognitive-specific skills have a better position in the labour market with their skills compared to middle-educated individuals with general cognitive skills.

### 2.3.2 Involuntariness

Kautonen et al. (2010, p. 4) describe involuntariness as “a motive for self-employment that implies an individual becomes self-employed even if they prefer paid employment, while at the same time they perceive the benefit from the self-employment to exceed the opportunity cost of the next best alternative in the labour market (or unemployment)”. Involuntary false self-employment may also occur when workers start voluntarily as falsely self-employed pursuing more freedom and autonomy but instead find themselves to be dependently self-employed. Cruz et al. (2017) found that self-employed strippers in the UK preferred not to work as employees to maintain autonomy but, in reality, still lacked this as they were in a subordinate relationship with the strip club owner. The *dual labour market theory*, also known as the *insider/outsider theory*, suggests the labour market is divided into two groups: insiders in the primary sector, which have high job security and high incomes, versus the outsiders, consisting of individuals in the secondary sector that have low job security and usually low incomes, or those that are unemployed (Emmenegger, 2009; Hölscher et al., 2011). Another characterisation of the dual labour market theory is the lack of mobility between the primary and secondary sectors, meaning outsiders are trapped in the secondary sector (Hölscher et al., 2011; Seo, 2021).

One of the reasons for this division is that labour unions are more likely to pursue the interests of labour market insiders, leading to legally binding collective labour agreements that favour mostly the insiders. Emmenegger (2009) describes how in collective bargaining, the employed insiders are mainly represented by labour unions while outsiders lack this representation. According to Lindbeck and Snower (1986), insiders, for example, may be incentivised to demand higher wages in collective negotiations because they are primarily concerned with their own employment and may not consider the impact on outsiders or the overall level of unemployment in the economy. This could lead to higher wages for insiders and potentially higher unemployment for outsiders, as firms may not be able to afford the higher labour costs and may need to lay off workers or not hire as many new workers (Lindbeck & Snower, 1986). Moreover, as collective labour agreements only apply to employees, occupational minimum wages could be avoided under a false self-employment arrangement.

Another reason for the division between in- and outsiders is the difference in skills between these groups. Wasmer (2006) found that high employment protection increases the probability of workers acquiring specific skills; this improves their current position while not affecting their position in the broader labour market. In contrast, developing general skills improves workers’ position in the broader labour market, however, this generally leads to a lower return than acquiring specific skills (Wasmer, 2006). The lack of acquisition of specific skills as outsiders likely traps them in the secondary sector. Seo (2021) points out that in the literature, non-



standard forms of employment are used as a crucial indicator for outsiders. However, Seo argues that, although low job security and low incomes often occur in non-standard employment forms, individuals with standard employment contracts may also face insecurity in the labour market as they may still face the risk of dismissal and could, therefore in some cases be considered outsiders as well. Seo further points out how future (in)security is also an aspect that should be included; some labour market entrants may have a temporary contract but have high possibilities for career advancement, meaning they are not trapped in the secondary sector and likely to become insiders.

Hölscher et al. (2011) argues that liberalisation of the labour market, characterised by temporary jobs and self-employment in the '90s, reinforced labour market dualisation, pushing the weakest segment of the labour force into the less favourable secondary market or unemployment. The prevalence of non-standard employee contracts has caused a further shift in the power dynamics in the employment relationship according to Moore and Newsome (2018). An example of a non-standard employee contract is a zero-hour contract. With zero-hour contracts, workers are not assured of being able to work a minimum amount of hours; employers may request employees to work on short notice while employees are not required to accept the request to work (Koumenta & Williams, 2019). Moore and Newsome (2018) found that employees with non-standard contracts, such as zero-hour contracts, experienced threats of less work becoming available for them if they did not start working as self-employed at certain parcel delivery companies. High labour market slack may be a driver that enables employers to exert this power. Hurly and Patrini (2018) describe how when there are more workers than there are hours available for them, employers are in a powerful position and attempt to lower workers' pay. This may take the form of false self-employment, wherein the amount workers receive in pocket does not necessarily decrease directly, but indirectly through not paying workers' social insurance and pensions. Yet, false self-employment schemes may also be used to avoid paying workers for unavoidable 'unproductive time' by paying them per completed task, offsetting the risks associated with running a business to a firm's workers (Moore & Newsome, 2018). Other rights associated with non-standard employee contracts could also be avoided with false self-employment. In The Netherlands, for example, employees with a zero-hour contract obtain the right to get a contract with a fixed amount of hours after one year of working, of at least the amount of hours they worked in that year (Rijksoverheid, n.d.-b). Furthermore, employees with a temporary contract are entitled to compensation if their contract does not get extended and are entitled to an indefinite contract after working for the same employer for three years (Rijksoverheid, 2015, n.d.-a). In Slovenia, workers are similarly entitled to compensation in this case and already gain an indefinite contract after two years (Peček & Franca, 2019).

### 2.3.3 Higher remuneration as self-employed

Kösters and Smits (2021) hypothesised that individuals with a strong position in the labour market might actually use their bargaining power to obtain a false self-employment arrangement with a higher wage as they could evade the costs of (collective) contributions to social insurance. The reason that individuals with a strong position in the labour market due to their coveted skills and expertise would be difficult to replace and have numerous other job opportunities.

Some workers may also engage in false self-employment as it legally allows them to work more hours than as employees, as regulations about working times can be avoided (Majetic et al., 2022). According to EU legislation, employees' maximum weekly working time cannot exceed 48 hours and further legislates maximum rest time between shifts (European Parliament & European Council, 2003). However, there does not seem to be much evidence for the preference of false self-employment from a workers' perspective, Emmenegger (2009) found that most people value job security more than a high wage. Kösters and Smits (2021) found that false self-employment mainly occurs in the lower middle-paid occupations, along with a higher likelihood of non-standard employee contracts. They found that being in the lowest-paid and higher-paid occupations did not seem to significantly affect the probability of becoming falsely self-employed. A plausible explanation that requires further research Kösters and Smits (2021) give is the decrease in employment in the lower middle-paid occupations during the last decade, which negatively influenced their bargaining power.

## 2.4 Hypothesis

The literature points out that false self-employment is often an unfavourable outcome from a worker's perspective, but a favourable outcome from an employer's perspective (Thörnquist, 2015; Behling & Harvey, 2015). Labour market outsiders with an unfortunate position in the labour market are therefore expected to engage in false self-employment.

Emmenegger (2009) described how in the dual labour market theory, unemployment and low job security are characteristics of labour market outsiders. It is expected that *unemployment and false self-employment in an occupational field are positively correlated* as workers in these occupations are easily replaceable. Therefore, these labour market outsiders are more likely to engage in false self-employment as the only alternative to meet ends.

Another key indicator for labour market outsiders is non-standard employee contracts, which offer less job security than standard employee contracts. Moore and Newsome (2018) and the Deliveroo case as handled by the Amsterdam Court of Appeal (2021) have already illustrated how employers push workers with non-standard employee contracts into false self-employment. Therefore it is expected that *the prevalence of non-standard employee contracts, such as zero-hour contracts and contracts of limited duration, are positively correlated with false self-employment*.

The reviewed literature further points out how low income is a characteristic typical for labour market outsiders. Seo (2021) highlighted how income is often related to employment security. As income is inextricably linked to workers' bargaining position, it is expected that *occupational income is negatively correlated with false-self employment*

## 3 Methodology

This thesis utilises data from the European Social Survey (ESS), a cross-national survey collected using face-to-face interviews conducted every two years in several European countries. The data set consists of over 30 countries consisting of 10 rounds. A few countries are only included in some of the rounds. This chapter will specify the model used for the analysis. At the time of

writing, the data set of the most recent ESS Round is not fully complete yet and consists of 25 of the 32 countries that are planned for the final release. 6 of these 25 countries in this round (Austria, Germany, Spain, Poland, Serbia and Sweden) were not conducted using face-to-face interviews but using a web and paper approach due to the COVID-19 pandemic. The dependent variable (the proportion of false self-employment in an occupational field) and the explanatory variables will be operationalised in this chapter. The units of observation in the analysis are the occupational fields within countries within the different ESS Rounds, hereafter mentioned as occupational fields, occupations or just fields.

### **3.1 Dependent variable: False self-employment**

Other quantitative studies conducting research on false self-employment have also utilised data from available surveys that were not specifically entailed for that purpose. Williams and Lapeyre (2017) utilised data from the European Working Conditions Survey and used three criteria to determine whether an individual was truly self-employed: having more than one client, being able to hire employees if necessary, and being able to make important decisions about how to run their business. If a self-employed person met fewer than two of these criteria, they were considered falsely self-employed. Kösters and Smits (2021) utilised data from the Dutch Labour Force Survey, their criteria to mark someone as falsely self-employed were that the individual must be self-employed, must sell their own labour (and not products) and can usually not decide their own working times. Nikulin (2021) performed her own survey and asked respondents directly to estimate the proportion of employees who were forced to become self-employed in their industry, which was translated into the proportion false self-employment within a firm.

Similarly to studies from Williams and Lapeyre (2017) and Kösters and Smits (2021), this thesis utilised variables from already available data to mark an individual as falsely self-employed. This thesis differs from their studies as the unit of observation are the occupational fields, as this allows for the utilisation of variables related to occupational labour market conditions which cannot be observed at an individual level, such as the unemployment rate and the proportion non-standard employee contracts in an occupational field. A further advantage of this thesis is the vast amount of data utilised from the ESS. While Williams and Lapeyre (2017) used data from multiple European countries in 2010 and 2015 and Kösters and Smits (2021) only looked at The Netherlands in 2017, this thesis uses data from multiple European countries over a wide time range.

Although the ESS does not contain information on whether someone is falsely self-employed, the data set contains other variables that could be used to determine whether this is the case. This thesis will use two definitions of false self-employment; a narrow and broad definition. Under the narrow definition, being self-employed and not being able to decide how work is carried out indicates false self-employment. Under the broad definition, self-employed individuals who cannot decide how work is carried out, their own working times, or those having a manager are all marked as falsely self-employed. Only the most recent ESS round has the additional variables available in order to apply the broad definition; for the other rounds, only the narrow definition is utilised.

### 3.1.1 Narrow definition

The literature review has shown how not being able to decide how a task is carried out as a subcontractor is an important indicator of being in a subordinate relationship and would therefore indicate false self-employment. For both definitions, the respondent must currently be self-employed at first to be able to be falsely self-employed. Respondents were asked whether in their main job, are or were *Employed*, *Self Employed* or *Working for own family business*. The recorded non-response types for this question were: *Not applicable*, *Refusal*, *Don't know* or *No answer*. Respondents must have indicated being self-employed or must have indicated that they do not know, which could also be seen as an indicator of false self-employment. Furthermore, it is important to know whether this is currently the case. Respondents were asked if, in the last 7 days, they had been doing paid work, which could be answered with either yes or no. In the narrow definition of false self-employment, not being able to decide how daily work is organised, combined with the previously mentioned criteria, indicates false self-employment. For ESS Rounds 2 to 10, respondents were asked the following question; '*Please say how much the management at your work allows/allowed you to decide how your own daily work is/was organised?*'. Respondents could answer on a scale from 0: (*I have no influence*) to 10 (*I have complete control*) and the recorded non-response types were: *Not applicable*, *Refusal*, *Don't know* and *No answer*. Those who did not indicate having complete control or did not indicate that this question was not applicable to them were marked as falsely self-employed.

### 3.1.2 Broad definition

For the broad definition of false self-employment, in addition to not only being unable to decide how daily work is organised, not being able to decide the start and finish time of work and having a supervisor would also mark an individual as falsely self-employed. Kösters and Smits (2021) similarly used the lack of ability to decide one's own working time as a key indicator for false self-employment in their study, as this would indicate they operate within the hierarchy of a firm. Only data from ESS round 10 will be used in the analysis with the broad definition of false self-employment. For this round, the results of the narrow definition will first be compared to the results of all rounds to check whether the labour market conditions are comparable to that of the earlier rounds. Within this round, the narrow and broad definitions will be compared. Respondents during this round were asked to what extent they were allowed to decide their own starting and finishing times at work. The possible answers were: *Not at all*, *To some extent* and *Completely*, the recorded non-response types were *Not applicable*, *Refusal*, *Don't know* and *No answer*. When respondents responded that they were *Not at all* able to decide this, they were also marked as falsely self-employed. Because some genuinely self-employed individuals may still be somewhat bound to their clients' schedules or the opening times they set for their own businesses, respondents that answered *To some extent* or *Don't know* were not marked as falsely self-employed. Respondents were also asked whether they have a line manager, and how much they support the employees in balancing work on a scale from 0 (*Not at all*) to 10 (*Completely*). Respondents could further answers with *I don't have a line manager*, and the non-response types were: *Not applicable*, *Refusal*, *Don't know* or *No answer*. Any response other than *I don't have a line manager* or *Not applicable* would indicate that the respondent has a

supervisor and therefore mark the individual as falsely self-employed. For the countries, Austria, Germany, Spain, Poland, Serbia and Sweden that used a web and paper research design due to the COVID-19 pandemic, respondents were directly asked whether they have a line manager.

### 3.1.3 Occupational fields as units of observation

The outcome variable is the percentage of false self-employment among the labour force in each field. Respondents in the ESS were asked what the name of their main job is or was, which is codified in the ESS according to the International Standard Classification of Occupations (ISCO08) from ESS round 6 and higher. Earlier ESS rounds used the older ISCO88 classification. For this reason, parts of the analysis where the role of occupations is taken into account will only include ESS rounds 6 and higher. An additional variable was created to determine whether an individual is in the labour force, consisting of individuals that indicated to be either doing paid work or being unemployed and actively looking for a job. Non-response types *Refusal* and *No answer* for the applicable questions were not taken into account towards calculating the percentage of false self-employment. As more questions were used to mark an individual as falsely self-employed under the broad definition, more observations were removed compared to the narrow definition due to more non-responses in the additional questions. For this reason, an additional variable was added that contains the percentage of false self-employment under the narrow definition with the same observations as under the broad definition to compare these definitions properly.

### 3.1.4 Excluded ESS Rounds

In the first ESS round, respondents were asked *‘Please say how much the management at your work allows you to decide how your own daily work is organised?’* instead of *‘Please say how much the management at your work allows/allowed you to decide how your own daily work is/was organised?’*. Note that the prior formulation would only apply to those currently working, and the latter would also apply to those that used to work. While this difference should not form a problem, as respondents earlier indicated not to be currently working were already excluded from being marked as falsely self-employed. The first ESS round is still excluded from the analysis as the measurement of *Not applicable* did not seem consistent with the rest of the rounds. In the first round, for self-employed respondents, almost all responses to this question were marked as *Not applicable*, while in the other rounds, *Not applicable* rarely appeared among them. At first sight, it appeared that ESS Rounds 2 and 5 also contained variables that would allow for applying a broad definition. Respondents in these rounds were also asked whether they could decide their start/finish time of work and whether their supervisor was a male or female, *Not applicable* was always marked for self-employed respondents, resulting in the same amount of false-self employed respondents as under the narrow definition. For this reason, only ESS Round 10 is included in the analysis with the broad definition.

## 3.2 Explanatory variables

### 3.2.1 Unemployment

The main explanatory variable of interest is the unemployment rate in each occupational field, which is used as a proxy for the labour market slack in that field. The ESS contains a dummy variable that indicates whether the respondent is currently unemployed and actively looking for a job. In order to determine the unemployment rate of the occupational fields, only respondents that are part of the labour force are taken into account. The unemployment rate is obtained by calculating the percentage of the individuals that are *unemployed and actively looking work* from those that are either currently working in that occupational field or those that lastly worked in that occupational field, and are currently unemployed and looking work. Two other closely related variables that are included are the percentages of individuals in the labour force that have been unemployed for over 3 months, and over 12 months at one point for each occupational field, as this might also reflect the bargaining position of individuals in a certain field. The last two questions allowed for non-responses, all possible non-response types were not taken into account for calculating the percentages.

### 3.2.2 Non-standard employee contracts

Qualitative research from Moore and Newsome (2018) has pointed out how non-standard employee contracts, such as zero-hour contracts, caused a shift in the power dynamics between employee and employer. For this reason, the proportion of employees with a zero-hour contract is included for each occupation. The ESS does not explicitly indicate whether a respondent has a zero-hour employee contract. Still, respondents in the ESS were asked what the number of contracted hours is or was per week in their main job. When this question was answered with *Not applicable*, and the respondent from earlier questions indicated to be an employee and to be currently doing paid work, the individual was marked as having a zero-hour contract. Those not currently working as employees and non-response types other than *Not applicable* were not included towards calculating the percentage of zero-hour contracts. Another related variable added is the proportion of employees with a contract of a limited duration, which is also expected to negatively influence employees' bargaining power. This was similarly determined by calculating the percentage of workers that indicated having a contract with a limited duration in this question, excluding all non-response types and by only taking those into account that from earlier questions indicated being currently an employee.

### 3.2.3 Income related variables

Occupational income is a relevant variable, as this reflects the bargaining position of workers in that field. While the ESS did not contain information about employees' income, the median household income for each occupational field is used as a proxy. In the ESS, respondents were asked about their household's total income from all sources after tax and compulsory deductions and is reported in quantiles (1 to 10), meaning the income distribution is divided into ten equally sized groups for a given country, with those in quantile 1 being at the lowest end of the income distribution in their country up until 10 at the highest end of the income distribution. Only those

that earlier indicated being employees and to be currently doing paid work are included towards calculating the median of the occupational household income, as self-employed individuals may have a higher pay in pocket as contributions to insurance such as unemployment, disability, and pensions are not compulsory, while these insurances do hold a particular value for the individual. All possible non-response types were not taken into account towards calculating the median. Related to the household income, respondents in the ESS were also asked how they feel about their household income on a scale from 1: (*Living comfortably on present income*) to 4: (*Very difficult on present income*). The average of this variable of those currently working in an occupational field is also added to the model.

### 3.3 Model equation

The following equation specifies the model used for the regressions in the analysis.

$$FSE_{oce} = \alpha + \beta_1 U_{oce} + \beta_2 U3_{oce} + \beta_3 U12_{oce} + \beta_4 ZHC_{oce} + \beta_5 LDC_{oce} + \beta_6 HI_{oce} + \beta_7 DHI_{oce} + FE_{ce}$$

Outcome variable  $FSE_{oce}$  is the percentage of false self-employment among the labour force in occupational field  $o$  in country  $c$  during essround  $e$ . Variable  $U_{oce}$  represents the unemployment rate for each occupational field, meaning the percentage of individuals in the labour force that are currently unemployed and actively looking for a job who lastly worked in that field as their primary job. Variable  $U3_{oce}$  represents the percentage of individuals in the labour force who have ever been unemployed for over 3 months in that field.  $U12_{oce}$  represents the percentage of individuals in the labour force who have ever been unemployed for over 12 months in that field. Variable  $ZHC_{oce}$  represents the percentage of employees with a zero-hour contract for that occupational field, and  $LDR_{oce}$  represents the proportion of employees with a contract of limited duration. Variable  $HI_{oce}$  represents the household income as the median of the reported quantiles in that in that occupation, and  $DHI_{oce}$  stands for the perceived difficulty workers face in their household income. At last,  $FE_{ce}$  represents the fixed effects included in the model for all possible country-essround combinations, meaning the interaction between country  $c$  and essround  $e$ , amounting to 125 controls.

## 4 Results

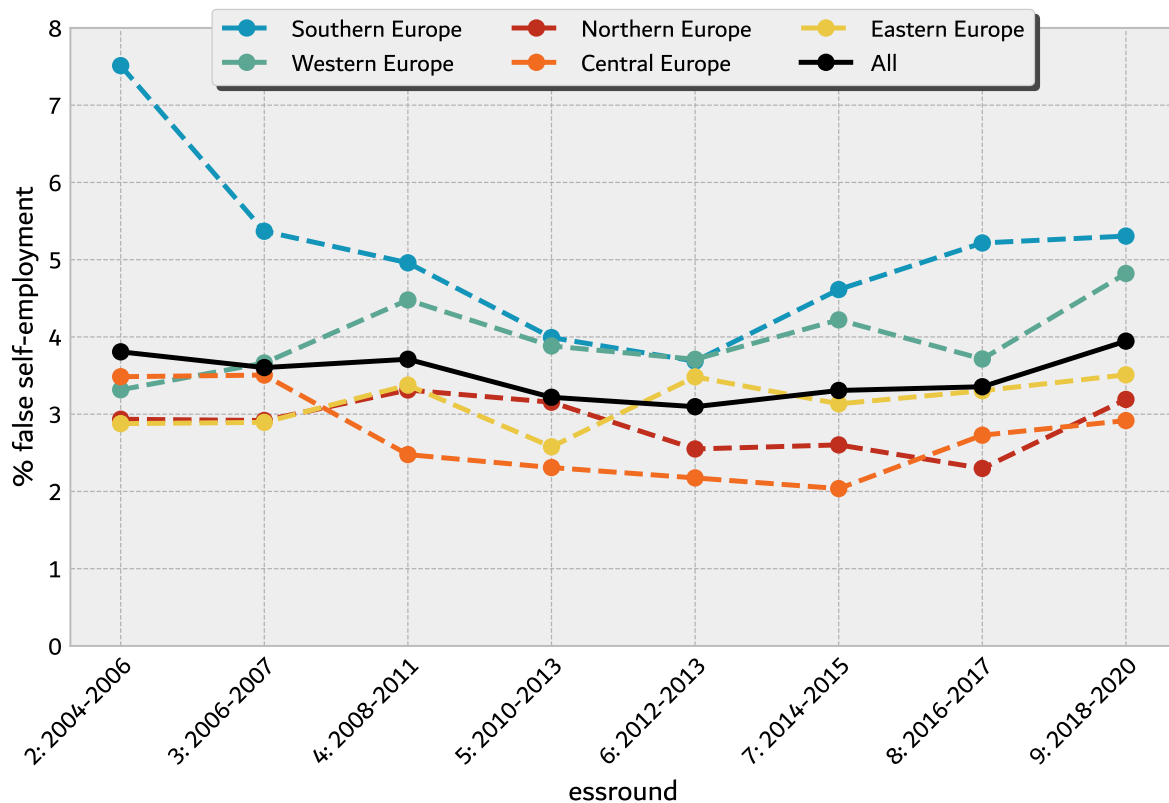
This chapter will present the empirical results of the analysis. The first part of this chapter describes the development of false self-employment and in which occupations this occurs most. The second part of this chapter consists of regressions to uncover various effects related to workers' bargaining position on false self-employment in different occupations.

### 4.1 Descriptive statistics

#### 4.1.1 Development of false self-employment in Europe

Figure 1 shows the development of false self-employment under the narrow definition in sub-regions of Europe from ESS Round 2 to 9. Only countries where data for all these ESS rounds are

available are included in this graph. The coloured lines represent the averages of the countries in the sub-region. The solid black line represents the average of all included countries. The countries included in Southern Europe are Spain and Portugal. Western Europe includes the United Kingdom, Ireland, The Netherlands and Belgium. Northern Europe consists of Norway, Sweden and Finland. Countries included in Central Europe are Germany, Switzerland and Slovenia. Finally, the group of Eastern European countries consists of Poland and Estonia. Table A1 in the Appendix shows the percentage of false self-employment for all countries, including the ones not shown in the graph. Overall, the percentage of false self-employment appears fairly consistent over the years in Europe.

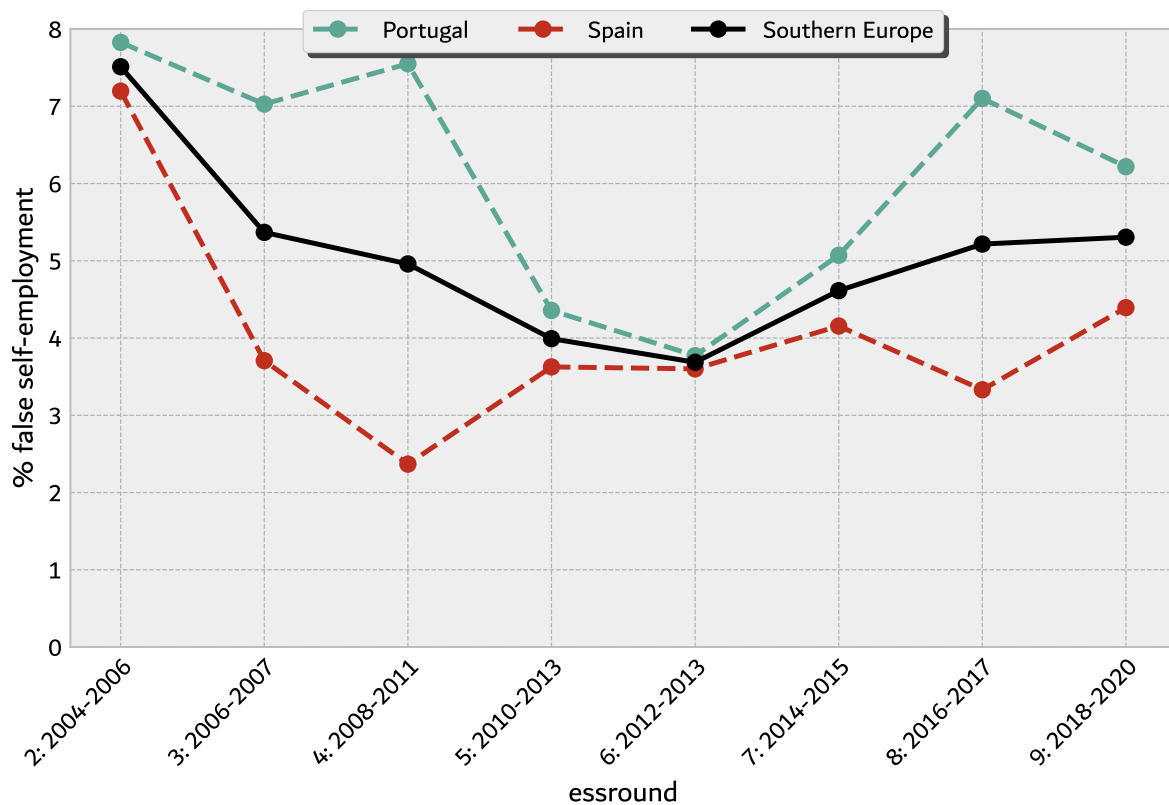


**Figure 1: Development of false self-employment in European sub-regions**

Mainly Southern Europe (Spain and Portugal) stands out with high levels of false self-employment. Figure 2 shows the development of false self-employment in Spain and Portugal. Figures A1, A2, A3 and A4 in the appendix show the development of the individual countries of the other sub-regions as well. Spain and Portugal started the millennium with high levels of false self-employment, following a decline during the first decade. However, during the second decade of the millennium, both countries experienced an upward trend of false self-employment. Unfortunately, the time periods of data collection for the ESS overlap, which does not correctly allow for analysing the effects of specific events on false self-employment. Despite this limitation, it seems likely that the 2008 financial crisis caused this rise in the second decade, as this event significantly impacted southern European countries in particular. The estimated unemployment rate in Spain was 50 % from 2008 to 2013, which caused younger higher-educated workers to migrate or accept side jobs with wages below the monthly minimum wage without benefits



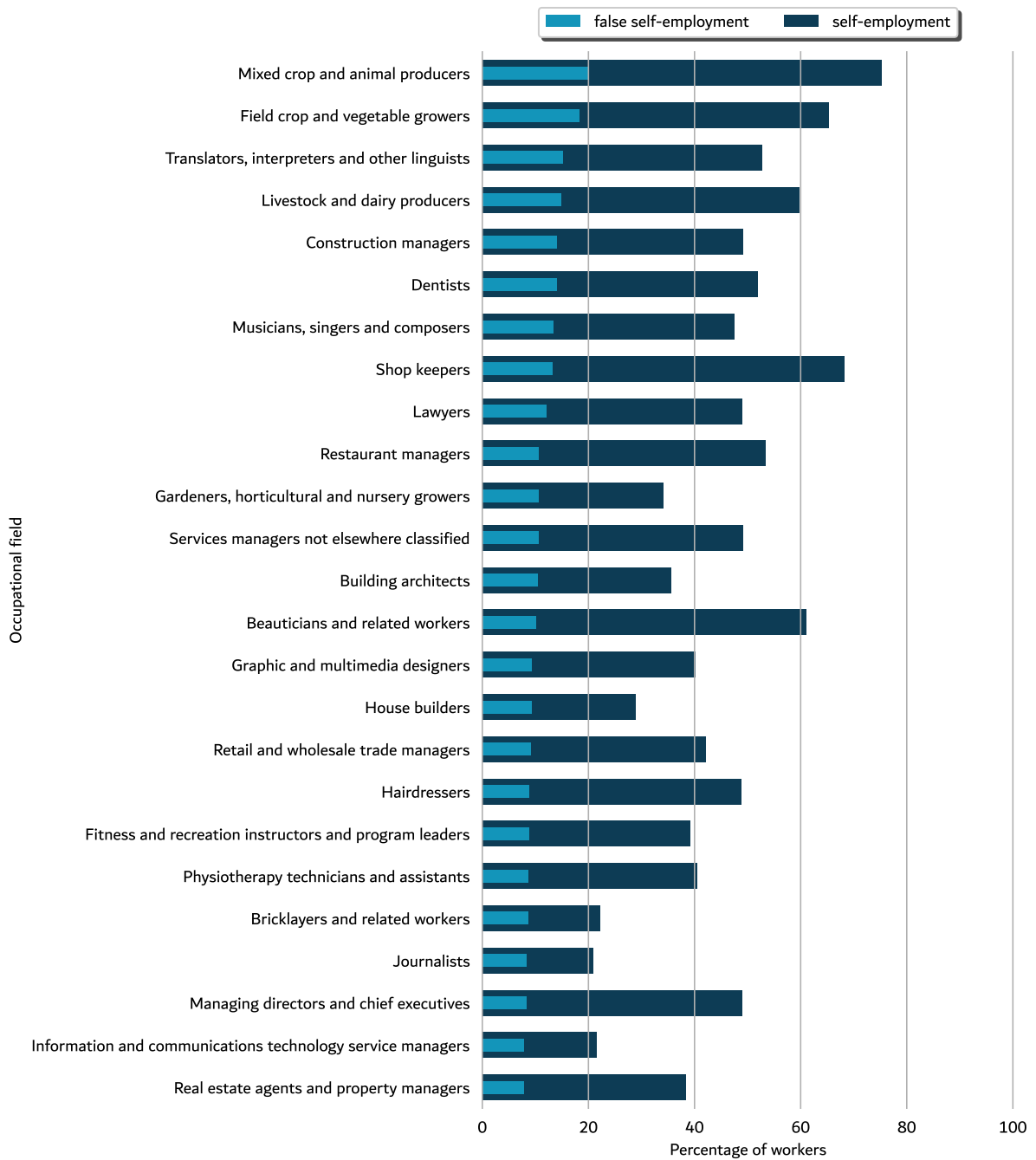
(Contreras, 2019).



**Figure 2:** Development of false self-employment in southern Europe (Spain & Portugal)

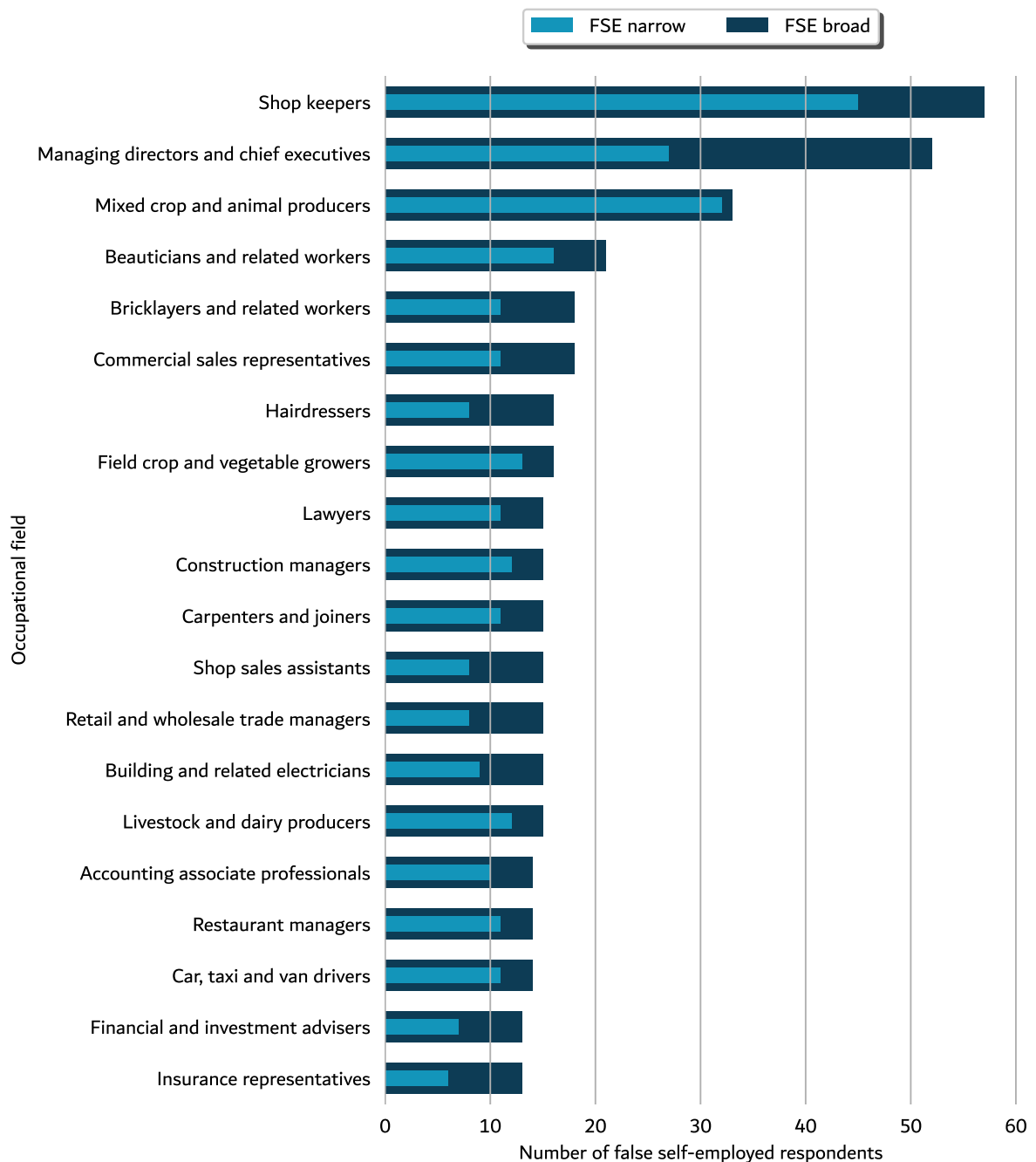
#### 4.1.2 False self-employment and the role of occupations

The ESS contains data from respondents with 590 different occupations. Figure A5 in the appendix shows the most frequently reported occupations among false self-employed respondents in the data set. Figure 3 displays the 25 occupational fields where false self-employment occurs relatively most, out of the 202 occupational fields where at least 150 respondents indicated to be working in. Both the percentages of false self-employment and self-employment are shown of the total individuals working in those fields. The graph clearly shows how self-employment and false self-employment is the highest in agricultural occupations. The group of translators, interpreters and other linguists is another field with both high self-employment and false self-employment. False self-employment is further common for jobs in construction, such as house builders, bricklayers as well as managers in this field. Surprisingly, false self-employment occurs a lot among managers in different fields as well. Finally, creative occupations such as musicians, architects and graphic designers also show a high degree of false self-employment.



**Figure 3: Self-employment and false self-employment in occupations as percentage of total workers**

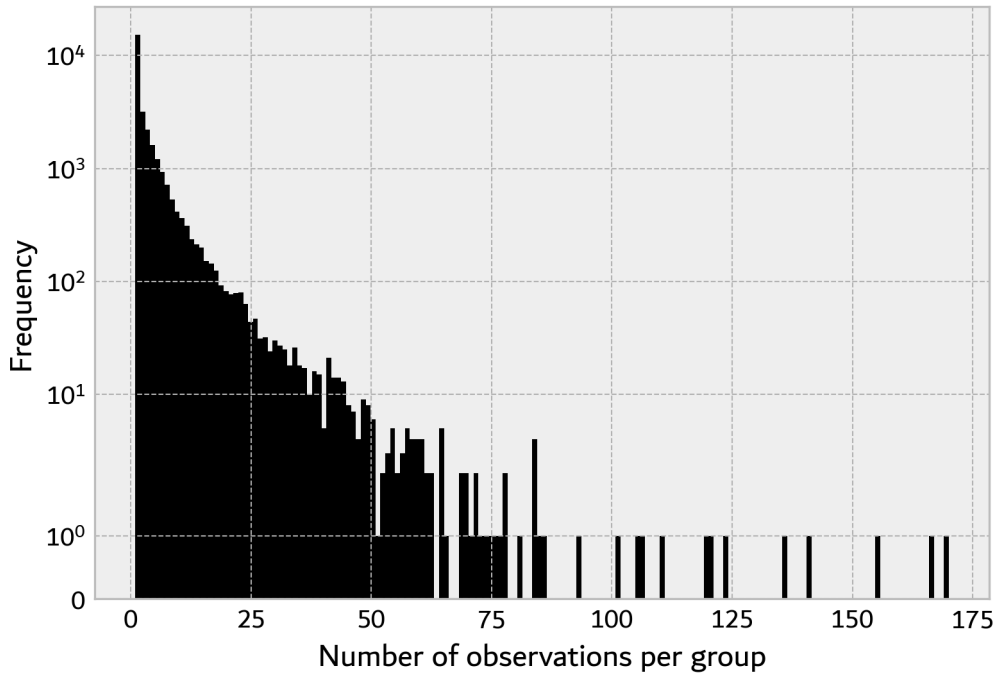
Figure 4 shows the 20 most frequently occurring occupations among false self-employed respondents under the broad definition. Both the number of respondents under the broad and narrow definitions are being reported. Especially the number of false self-employed respondents in management functions rises under the broad definition of false self-employment compared to the narrow definition. However, it is unclear whether those in management positions are hired under a false self-employment arrangement or if they are genuinely self-employed and are the owner or hold a major share in the company.



**Figure 4:** Number of false self-employed respondents under the broad and narrow definition (ESS10)

## 4.2 Regressions

The units of observation in the regression are the occupational fields within countries within the ESS rounds, figure 5 shows the frequency of the number of observations for each (essround-country-occupation) group for ESS rounds 6 to 10. Unfortunately, many groups consist of only one or a few respondents. This is expected to yield unreliable results in an *Ordinary Least Squares* (OLS) regression as there are many groups with few respondents that may not be representative of that group carrying the same weight in the regression as the few groups that would have sufficient respondents to be representative. For this reason, two additional OLS regressions will be performed, where only groups with a minimum of 10 and 20 respondents are included in the analysis. In addition, a *Weighted Least Squares* (WLS) regression will be performed, including all groups. The number of respondents per group will be used as the weight of the observation in the WLS model.



**Figure 5:** Histogram with the frequency of the number of observations per (essround-country-occupation) group (ESS6-ESS10)

Table 1 reports the results of the regressions, using the narrow definition as the dependent variable. Columns (1) and (2) show the results of the OLS regression, where all observations are included. As mentioned earlier, these results may not be as reliable, as many observations may not be representative of that occupational field due to the limited number of respondents in those observations, affecting the reliability. This may also form a problem for the external validity, as the many rare occupations carry the same weight as more common occupations, which would have a detrimental effect on the generalisability of the results. Columns (3), (4), (5) and (6) show the OLS regressions, where only observations that include a certain minimum of respondents are retained in the analysis, for columns (3) and (4), this minimum is 10 respondents, for column (5) and (6), this minimum is 20 respondents. This increases the reliability of the observations

themselves but significantly reduces the observations. Not only could this affect the reliability of the results, but the validity as well, as occupations that are rare are now excluded. The rarity of an occupation could be correlated with the outcome, as individuals with specific skills may have a stronger bargaining position in rare occupations. Columns (7) and (8) show the WLS regressions, here all observations are included, and the weight assigned to each observation is the number of respondents in that group. The WLS model likely yields the most reliable and valid results, as it eliminates the weaknesses of the OLS regressions with either all or a limited amount of observations.

For all models, the regressions where only unemployment is included show a negative correlation between unemployment and false self-employment. Once the other explanatory variables were added, all models except the OLS model with only occupations included that contain at least 20 respondents still showed a significant negative effect between unemployment and false self-employment. Both the OLS model containing occupations with at least 10 respondents and the WLS model show a significant negative correlation for occupations where more individuals stayed unemployed for longer than three months. For these two models, this effect was smaller than for unemployment itself. For all models, no correlation was found between false self-employment and occupation where the proportion of individuals have been unemployed for over twelve months. This may indicate that occupations where false self-employment prevails decrease the chance of unemployment, but this effect decreases as individuals in an occupation stay unemployed for a longer period. This is not in line with the hypothesis that unemployment and false self-employment in a sector were expected to be positively correlated. A plausible explanation is that a deregulated market makes it easier for workers to obtain work quickly, but may still seek to work more hours as unemployment alone does not fully capture the labour market slack. Contreras (2019) even argued that involuntary self-employment may be seen as a disguised form of unemployment.

The OLS models with occupations with at least 10 and 20 respondents and the WLS model show a positive correlation between false self-employment and zero-hour contracts in an occupation. The OLS model with all observations and the WLS model both show a positive correlation between the proportion of contracts with a limited duration in an occupational field. These findings align with the hypothesis that the prevalence of non-standard employee contracts, such as zero-hour contracts and contracts of limited duration, were expected to be positively correlated with false self-employment. Contrary to the hypothesis that income was expected to be negatively correlated with false self-employment, the findings suggest the opposite.

All models except the OLS model containing only occupations with at least 10 respondents show a positive correlation between the occupational household income of employees and false self-employment. In addition, all models except the OLS model containing only occupations with at least 20 respondents show a negative correlation between the difficulty workers face with their household income and false self-employment. As higher occupational incomes are related to individuals' bargaining positions and non-standard employee contracts usually indicate an inferior bargaining position, these findings seem to contradict each other on the effect of an individual's bargaining position on false self-employment. For this reason, another regression was performed where occupations with a below-median income were taken separately from occupations with above-median income.

**Table 1: OLS & WLS regressions for the narrow definition of false self-employment (ESS6-ESS10)**

	<i>Dependent variable: FSE Narrow</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
% unemployed	-0.044*** (0.004)	-0.009* (0.004)	-0.078*** (0.013)	-0.026* (0.015)	-0.074*** (0.023)	-0.011 (0.023)	-0.055*** (0.004)	-0.026*** (0.005)
% ever unemployed over 3 months		-0.002 (0.002)		-0.022** (0.009)		-0.013 (0.015)		-0.007*** (0.003)
% ever unemployed over 12 months		-0.002 (0.003)		0.001 (0.014)		0.015 (0.022)		-0.004 (0.004)
% zero hour contracts		0.006 (0.006)		0.048** (0.020)		0.075*** (0.025)		0.025*** (0.007)
% limited duration contract		0.005** (0.002)		0.007 (0.007)		0.001 (0.012)		0.007*** (0.002)
Household income decile		0.047* (0.026)		0.081 (0.084)		0.258* (0.133)		0.065** (0.030)
Difficulty with household income		-0.202* (0.108)		-0.871* (0.471)		-1.154 (0.756)		-0.580*** (0.144)
Intercept	5.678*** (1.419)	3.067*** (0.984)	6.114*** (1.691)	5.658*** (2.135)	7.340** (3.686)	6.809 (4.283)	6.525*** (0.965)	5.545*** (0.937)
Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Model	OLS	OLS	OLS	OLS	OLS	OLS	WLS	WLS
Minimum respondents	0	0	10	10	20	20	0	0
Observations	28,731	22,916	3,195	3,111	947	921	28,731	22,916
$R^2$	0.020	0.018	0.071	0.079	0.167	0.188	0.028	0.035
Adjusted $R^2$	0.016	0.013	0.032	0.038	0.041	0.057	0.024	0.030

Note:

\* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

Table 2 reports the results of the WLS regressions where the occupations with a median household income below the national median were analysed separately from those with a household income above the countries' median. The number of observations with below-median incomes is much lower than those above the median income. From this, it can be concluded that those in the lower part of the income distribution are more likely to work in the same occupations compared to those at the higher end of the income distribution. This could indicate that those at the higher end of the income distribution are indeed more likely to have more specific skills than those at the lower end.

A negative correlation was found between the occupational median household income and false self-employment for the lower-paid occupations. As occupational income is related to individuals' bargaining positions, those with lower incomes are likely more or less forced into false self-employment. Contrary, for occupations with a household income above the median, a positive correlation between occupational household income and false self-employment was found. It is possible that as Kösters and Smits (2021) hypothesised, workers at the higher end of the income distribution voluntarily engage in a false self-employment scheme to obtain a higher remuneration, as contributions to social insurance can be avoided. Another explanation is that workers in these occupations formerly had a strong bargaining position and received high salaries, but their current bargaining position decreased as the demand for their specific skills dropped. While surprisingly, in the lower-paid occupations, the perceived income difficulty was negatively associated with false self-employment, no significant effect was found for the higher-paid occupations. A possible explanation is that individuals with lower incomes and job security keep their expenses low and do not need a lot of money to make ends meet. On the other hand, individuals in higher-paid occupations may have a high cost of living, as they were previously able to bargain higher wages as an employee. Therefore, a decrease in bargaining position may require them to work for a lower wage as an employee or to engage in false self-employment in order to be able to continue paying for their higher expenses. A false self-employment arrangement aids in this by allowing individuals to circumvent employee regulations on maximum working times or by trading in job security for a slightly higher remuneration.

For non-standard employee contracts, a positive correlation was found between the proportion of zero-hour employee contracts and false self-employment, and this effect became slightly smaller for the higher-paid occupations. Furthermore, lower-paid occupations with limited-duration contracts were positively associated with false self-employment. For the higher-paid occupations, this effect became insignificant. These findings reconcile Moore and Newsome's (2018) statement that the prevalence of non-standard employee contracts shifts more power to employers. Like false self-employment, non-standard employee contracts offer less job security than regular employee contracts, yet they offer higher security than false self-employment. These findings suggest that especially labour market outsiders characterised by low incomes and non-standard employee contracts may indeed be pressured to start as falsely self-employed.

**Table 2:** WLS Regressions: Incomes below and above the median analysed separately (ESS6-ESS10)

	<i>Dependent variable: FSE narrow</i>			
	HI $\leq$ 5		HI > 5	
	(1)	(2)	(3)	(4)
% unemployed	-0.049*** (0.006)	-0.035*** (0.007)	-0.031*** (0.006)	-0.020*** (0.007)
% ever unemployed over 3 months		-0.008* (0.005)		-0.006** (0.003)
% ever unemployed over 12 months		-0.013** (0.006)		0.003 (0.005)
% zero hour contracts		0.026** (0.011)		0.022** (0.009)
% limited duration contract		0.010*** (0.004)		0.005 (0.003)
Household income decile		-0.390*** (0.086)		0.470*** (0.050)
Difficulty with household income		-1.404*** (0.228)		0.044 (0.188)
Intercept	5.673*** (0.914)	10.296*** (1.187)	4.627*** (1.541)	-1.694 (1.826)
Fixed Effects	YES	YES	YES	YES
Model	WLS	WLS	WLS	WLS
Observations	7,837	7,457	15,791	15,459
$R^2$	0.045	0.057	0.038	0.046
Adjusted $R^2$	0.029	0.040	0.031	0.038

Note:

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01



Table 3 reports the results for the WLS regressions using both the narrow and broad definitions for ESS Round 10. For both definitions, the results are shown for all occupations, occupations where the household income (HI) is lower than the national median (quantile five and lower) and occupations where the household income is higher than the countries' median (quantile six and higher).

First, it should be noted that the results under the narrow definition differ when only ESS round 10 is taken into account. The significant correlations of the proportion that has ever been unemployed over three months, the proportion of limited duration contracts, the median household income of employees and the average perceived income difficulty when all rounds were taken into account as earlier shown in table 1 disappeared for ESS round 10. The effect of zero-hour contracts on false self-employment in an occupational field remained positively correlated, but its effect became negligible. When the low and high-income occupations were analysed separately, the significant effects of household income on false self-employment remained in the analysis with only ESS Round 10. For occupations with a median household income below the national median, the negative correlation between the perceived income difficulty and false self-employment became larger in the analysis with ESS 10. Furthermore, the positive correlation between the proportion of limited-duration contracts and false self-employment remained in the latest ESS round. The significant negative correlation between unemployment and false self-employment disappeared for the higher-income occupations for the latest ESS round. A plausible explanation for the different results in ESS Round 10, which was conducted between 2020 and 2022, are the restrictions in various countries in response to the COVID-19 pandemic. These restrictions strongly affected the labour market, as various sectors had to close down entirely for long periods or were limited in capacity due to regulations.

Contrary to the analysis of false self-employment under the narrow definition for ESS round 10, a significant negative correlation was found between the proportion ever unemployed over three months and false self-employment under the broad definition. For occupations with incomes below the national median, this association was smaller than that of unemployment. This negative association also exists for occupations above the national median, while unemployment itself showed no correlation with false self-employment under the broad definition.

To conclude, under the narrow definition of false self-employment, it may form an alternative to unemployment in the really short term for lower-paid occupations. Under the broad definition of false self-employment, the same applies but for a slightly longer term. The magnitude of the correlations between household income and false self-employment is quite similar under the broad and narrow definition. However, under the broad definition, the perceived income difficulty is surprisingly even more negatively correlated with false self-employment.

**Table 3: WLS regressions for the narrow and broad definitions of false self-employment (ESS10)**

	<i>FSE Narrow</i>						<i>FSE Broad</i>					
	All		HI $\leq$ 5		HI > 5		All		HI $\leq$ 5		HI > 5	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
% unemployed	-0.052*** (0.012)	-0.026** (0.012)	-0.075*** (0.018)	-0.059*** (0.019)	-0.013 (0.016)	0.001 (0.017)	-0.050*** (0.014)	-0.025* (0.015)	-0.085*** (0.021)	-0.066*** (0.022)	-0.007 (0.019)	0.011 (0.021)
% ever unemployed over 3 months		-0.010 (0.006)		-0.017 (0.011)		-0.008 (0.007)		-0.017** (0.007)		-0.024* (0.013)		-0.015* (0.008)
% ever unemployed over 12 months		-0.002 (0.009)		-0.010 (0.015)		0.006 (0.011)		0.008 (0.010)		-0.002 (0.017)		0.016 (0.013)
% zero hour contracts		0.000*** (0.000)		0.000** (0.000)		0.000*** (0.000)		0.000*** (0.000)		0.000 (0.000)		0.000*** (0.000)
% limited duration contract		0.009 (0.005)		0.020** (0.009)		-0.001 (0.007)		0.008 (0.007)		0.021* (0.011)		-0.002 (0.008)
Household income decile		0.108 (0.071)		-0.614*** (0.229)		0.695*** (0.109)		0.042 (0.086)		-0.704*** (0.271)		0.640*** (0.132)
Difficulty with household income		-0.498 (0.337)		-2.038*** (0.586)		0.455 (0.415)		-1.199*** (0.405)		-3.142*** (0.693)		-0.119 (0.503)
Intercept	2.430*** (0.664)	2.327** (1.029)	3.076** (1.243)	9.729*** (1.989)	1.955*** (0.574)	-4.022*** (1.372)	3.053*** (0.789)	4.398*** (1.237)	4.221*** (1.491)	13.296*** (2.355)	2.222*** (0.695)	-2.411 (1.663)
Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Model	WLS	WLS	WLS	WLS	WLS	WLS	WLS	WLS	WLS	WLS	WLS	WLS
Observations	5,552	4,594	1,396	1,355	3,281	3,239	5,552	4,594	1,396	1,355	3,281	3,239
$R^2$	0.029	0.037	0.053	0.075	0.040	0.055	0.033	0.048	0.053	0.081	0.055	0.067
Adjusted $R^2$	0.024	0.031	0.036	0.054	0.033	0.046	0.029	0.041	0.036	0.060	0.048	0.058

Note:

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

## 5 Robustness checks

Homoscedasticity of errors is assumed with the used OLS regressions. For this reason, it is relevant to check whether this is indeed the case. Breusch and Pagan (1979) designed a test to check for heteroskedasticity of residuals of an OLS linear regression by checking whether the variance of the errors are correlated with the independent variables. Under the null hypothesis of this test, residuals are homoscedastic, and residuals are heteroscedastic under the alternative hypothesis. A Python implementation of the Breusch–Pagan test in the Statsmodels library is utilised in this thesis.

Table 4 reports the results of the Breusch–Pagan heteroskedasticity test for the OLS models, all covariates included. According to the results, the model with all occupations and the model with occupations with at least 10 respondents have heteroskedastic residuals as the p-values of both the LM-test and F-test for these models are smaller than 0.05. This decreases the robustness of the results of the OLS models, which causes the standard errors to be inaccurate as homoscedasticity was assumed in the models. In addition, as mentioned earlier, occupations with few respondents, with many occupations consisting of just one respondent, reduce the reliability of the results, resulting in greater random variance for these occupations. A possible explanation for the heteroskedasticity of the errors is a correlation between the rarity of an occupation and the explanatory variables.

**Table 4:** Results Breusch–Pagan tests for models using the narrow definition of false self-employment

Model	LM Statistic	LM-Test p-value	F-Statistic	F-Test p-value
OLS All	294.6768	0.0000	2.2656	0.0000
OLS $N \geq 10$	195.7534	0.0003	1.5270	0.0001
OLS $N \geq 20$	142.3144	0.2171	1.1308	0.1690

An additional regression was performed to test whether the number of respondents in an occupation is indeed correlated with the covariates. The following equations shows the regression model with  $N_{oce}$  being the number of respondents in occupational field  $o$  in country  $c$  during essround  $e$ . The independent variables remain the same as in the primary model, as discussed in the methodology chapter.

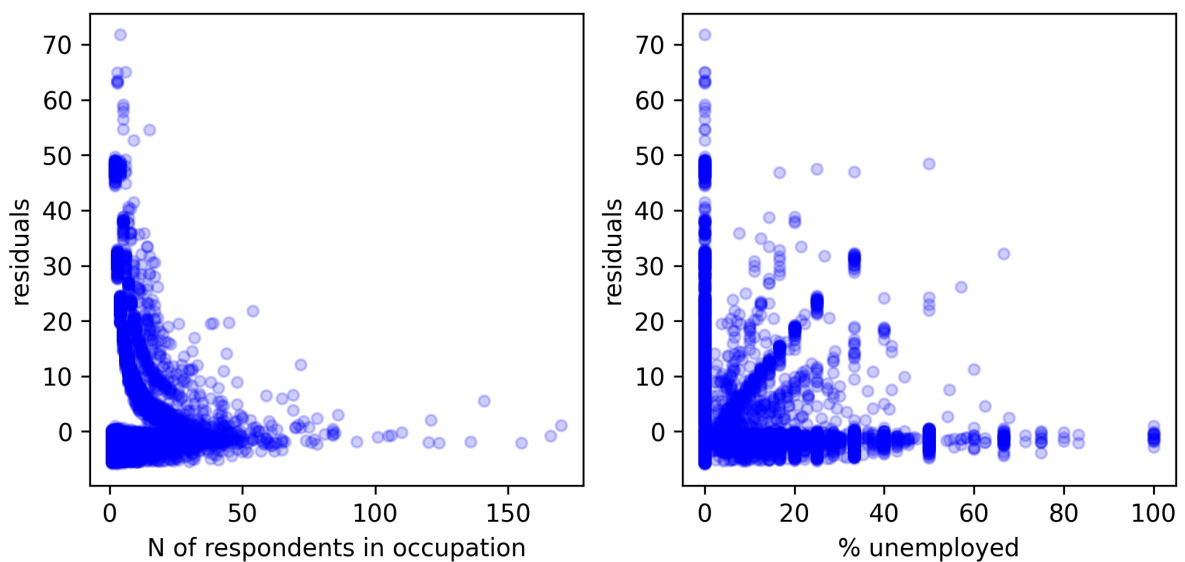
$$N_{oce} = \alpha + \beta_1 U_{oce} + \beta_2 U3_{oce} + \beta_3 U12_{oce} + \beta_4 ZHC_{oce} + \beta_5 LDC_{oce} + \beta_6 HI_{oce} + \beta_7 DHI_{oce} + FE_{ce}$$

Table 5 shows the results of this regression. There is a major positive significant correlation between unemployment and the number of respondents in an occupation; the same applies to the perceived difficulty with household income and the number of respondents. Furthermore, there is a weaker significant correlation between the proportion of zero-hour contracts and the number of respondents. As some of the covariates are correlated with the number of respondents in an occupational field, the OLS models with reduced observations suffer from a validity problem, as rare occupations are excluded.

**Table 5:** Regression to check for correlation between covariates and number of respondents

<i>Dependent variable: N</i>	
	(1)
% unemployed	0.070*** (0.005)
% ever unemployed over 3 months	-0.003 (0.002)
% ever unemployed over 12 months	0.001 (0.003)
% zero hour contracts	0.009* (0.006)
% limited duration contract	-0.001 (0.002)
Household income decile	-0.025 (0.026)
Difficulty with household income	0.464*** (0.110)
Intercept	3.588*** (0.999)
Observations	22,921
$R^2$	0.058
Adjusted $R^2$	0.053

Note: \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$



**Figure 6:** OLS residuals of all covariates plotted against number of respondents and the unemployment rate for each occupation

Figure 6 shows the residuals of the OLS model with all observations plotted against the number of respondents in an occupation in the first graph and the unemployment rate in the second graph. Both graphs show a declining variance of errors as the number of respondents and the unemployment rate increase.

This robustness check showed that the OLS models suffer from reliability and validity problems. The WLS model in the analysis aims to reduce the reliability issue, as the observations with systematically higher variance now have a lower weight assigned to them in the regression. This is achieved by assigning the number of respondents in an occupation as the weight each data point should carry in the regression, eliminating the problem of incorrect standard errors due to heteroskedasticity. The WLS model further eliminates the validity problem of systematically removing rare observations while their rarity is correlated with the covariates, as no observations are being removed.

## 6 Conclusion

This thesis has shown that false self-employment is a complex phenomenon closely linked to the power dynamics between workers and employers within an occupational field. The deregulation of the labour market and the lack of access to traditional employment opportunities in lower-income occupations are among the factors associated with false self-employment. This is likely due to workers in these positions being more vulnerable to exploitation and having fewer options for finding alternative employment. Overall, unemployment is negatively associated with false self-employment. This is not in line with the hypothesised situation where higher unemployment would lead to higher false self-employment. A plausible explanation is that occupations more suited for false self-employment reduce unemployment due to the deregulation of the labour market, making it more attractive for employers to hire more workers as they do not face the risks related to employment protection. Lower unemployment may therefore be a cause of false self-employment rather than a predictor. A major limitation of this research is that the survey data did not allow for assessing the labour market slack properly; this thesis only examined the effect of the unemployment rate in an occupational field on false self-employment but did not take individuals into account that are currently underemployed and searching for a full-time job. A recommendation for further research is to assess the labour market slack per occupational field in a broader sense, as this would better reflect the bargaining position of individuals in a sector. This thesis further confirmed that the prevalence of non-standard employee contracts in an occupation is positively associated with false self-employment, which indicates false self-employment indeed occurs in occupations where workers already have less job security, suggesting they have a weak bargaining position.

When looking at the occupational household incomes, its effect on false self-employment differed for occupations with lower incomes (below the median) versus those with higher incomes (above the median). In lower-income occupations, the occupational household income was negatively associated with false self-employment. In contrast, in higher-income occupations, the occupational household income was positively related to false self-employment. Those in lower-income occupations may be forced into false self-employment due to the lack of access to traditional employment opportunities. In many cases, the only way to make ends meet is

to accept jobs under false self-employment. A possible explanation for the higher engagement in this practice at the highest end of the income distribution that requires further research is the high cost of living associated with those positions; a decrease in bargaining position may require them to trade in job security for the same remuneration, or circumvent working time regulations in order to maintain their standard of living at the moment. This thesis only used employees' median household income per occupation, as false self-employed individuals may have a higher in-pocket income but less utility due to lower job security. Therefore, the income of false self-employed workers would not give an accurate representation of their bargaining power. A recommendation for further research is assessing the utility of employees and falsely self-employed workers.

While the results of this thesis provide plausible explanations for the proportion of false self-employment in an occupational field, they are still based on various assumptions from different literature. For example, the literature review pointed out that characteristics typical for labour market outsiders, such as non-standard employee contracts and low wages reflect their labour market insecurity and lousy bargaining position. Another assumption this thesis rests on is the barrier of mobility of workers between occupational fields; therefore, the labour market conditions in a particular field reflect workers' bargaining power. Under these assumptions, the results of this thesis have indeed pointed out that false self-employment is unfavourable for workers in the lower part of the income distribution. For policymakers, it is essential to note that simply requiring employers to convert false self-employment arrangements into employee contracts could lead to more unemployment and might not even be desirable for dependent self-employed workers seeking more flexibility or freedom. Instead, policies should regulate false self-employment in the grey area, especially in the lower part of the income distribution, to reduce precarity for vulnerable falsely self-employed workers.

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## A Appendices

### A.1 False self-employment across countries

**Table A1: Percentage false self-employment per country and ESS round**

ESS round	2	3	4	5	6	7	8	9	10	All
Country										
Albania					4.28					4.28
Austria	4.83	3.97				2.16	2.48	1.76	2.43	2.94
Belgium	1.6	2.89	3.56	3.02	4.91	4.24	3.35	4.62		3.52
Bulgaria		2.08	2.91	1.4	3.22			3.11	1.59	2.38
Croatia			1.27	2.49				1.81	2.29	1.96
Cyprus		2.39	0.98	1.82	1.57			8.35		3.02
Czechia	4.93		3.18	3.84	2.98	4.94	3.63	5.44	4.8	4.22
Denmark	2.48	2.36	1.29	1.29	1.82	1.2		0.96		1.63
Estonia	2.94	2.34	2.52	2.56	2.46	2.47	2.96	2.2	2.28	2.53
Finland	3.69	3.29	4.6	4.63	3.28	2.48	2.74	3.37	3.22	3.48
France		0.96	1.72	0.62	1.41	2.69	1.72	2.86	3.12	1.89
Germany	2.29	3.56	2.83	1.29	2.58	1.99	2.1	2.0	1.8	2.27
Greece	8.44		7.21	8.19					4.92	7.19
Hungary		2.73	1.07	2.06	1.86	1.91	1.94	2.67	1.65	1.99
Iceland	4.28				2.99		2.93	3.28	3.19	3.34
Ireland	4.26	6.15	6.01	4.96	3.23	4.65	3.45	3.81		4.56
Israel			6.21	3.2	3.69	4.95	1.85			3.98
Italy					7.54		7.02	7.08	7.38	7.26
Kosovo					4.62					4.62
Latvia			1.2					2.4		1.80
Lithuania				0.0	1.23	1.66	2.5	1.5	3.05	1.66
Luxembourg	2.31									2.31
Montenegro								3.59	2.38	2.99
Netherlands	3.04	3.0	4.29	2.7	2.49	3.43	3.73	5.23	3.75	3.52
North Macedonia									2.43	2.43
Norway	2.72	2.68	2.95	2.04	2.19	2.34	2.49	3.12	0.72	2.36
Poland	2.81	3.44	4.23	2.6	4.51	3.8	3.65	4.82	5.36	3.91
Portugal	7.83	7.03	7.55	4.36	3.77	5.07	7.1	6.22	2.93	5.76
Romania			1.63							1.63
Russia		2.35	2.11	1.17	2.61		2.31			2.11
Serbia								2.37	2.97	2.67
Slovakia	2.69	6.32	4.3	5.89	5.1			5.11	4.03	4.78
Slovenia	4.35	1.78	2.37	2.38	0.81	2.04	2.68	3.21	2.33	2.44
Spain	7.2	3.71	2.37	3.63	3.6	4.16	3.33	4.39	3.86	4.03
Sweden	2.39	2.79	2.39	2.8	2.17	2.99	1.66	3.08	3.54	2.64
Switzerland	3.81	5.18	2.23	3.25	3.14	2.09	3.4	3.54	3.26	3.32
Turkey	6.71		6.04							6.38
Ukraine	1.41	2.81	2.16	2.9	2.5					2.36
United Kingdom	4.37	2.61	4.05	4.85	4.21	4.57	4.33	5.63		4.33
All	3.97	3.32	3.28	2.96	3.13	3.13	3.19	3.71	3.17	3.32

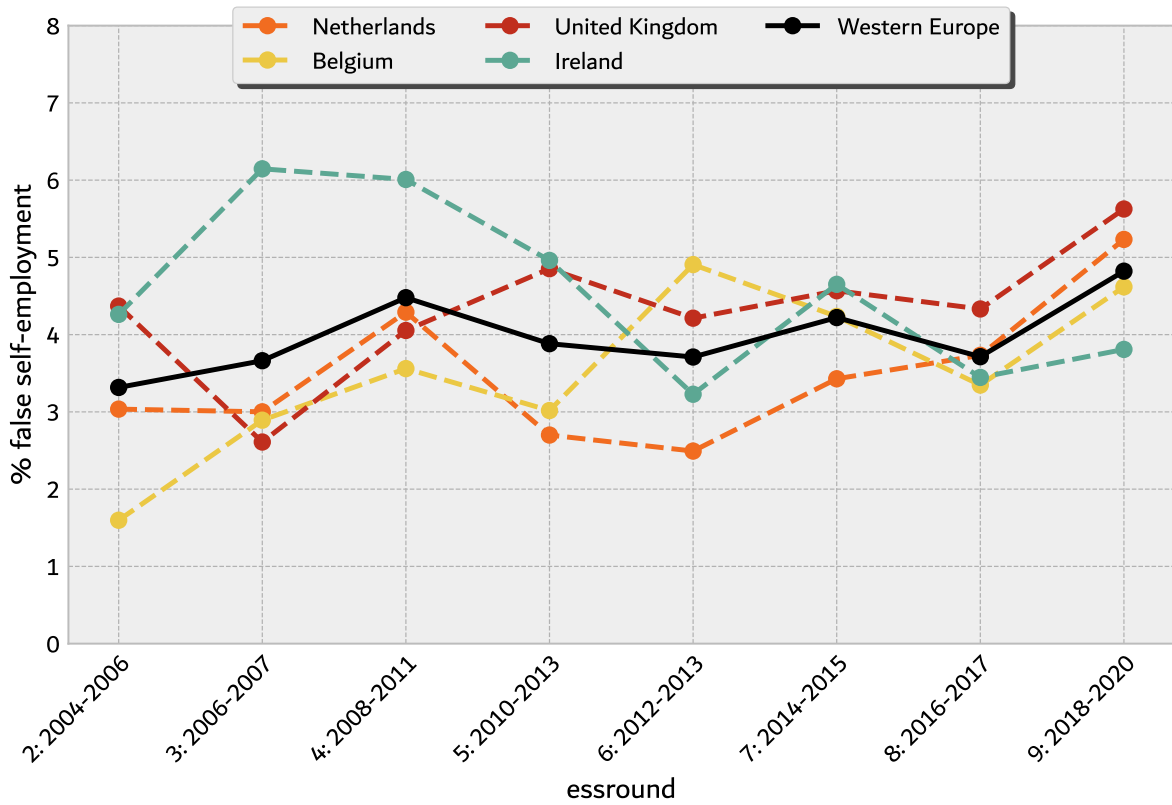


Figure A1: Development of false self-employment in western Europe

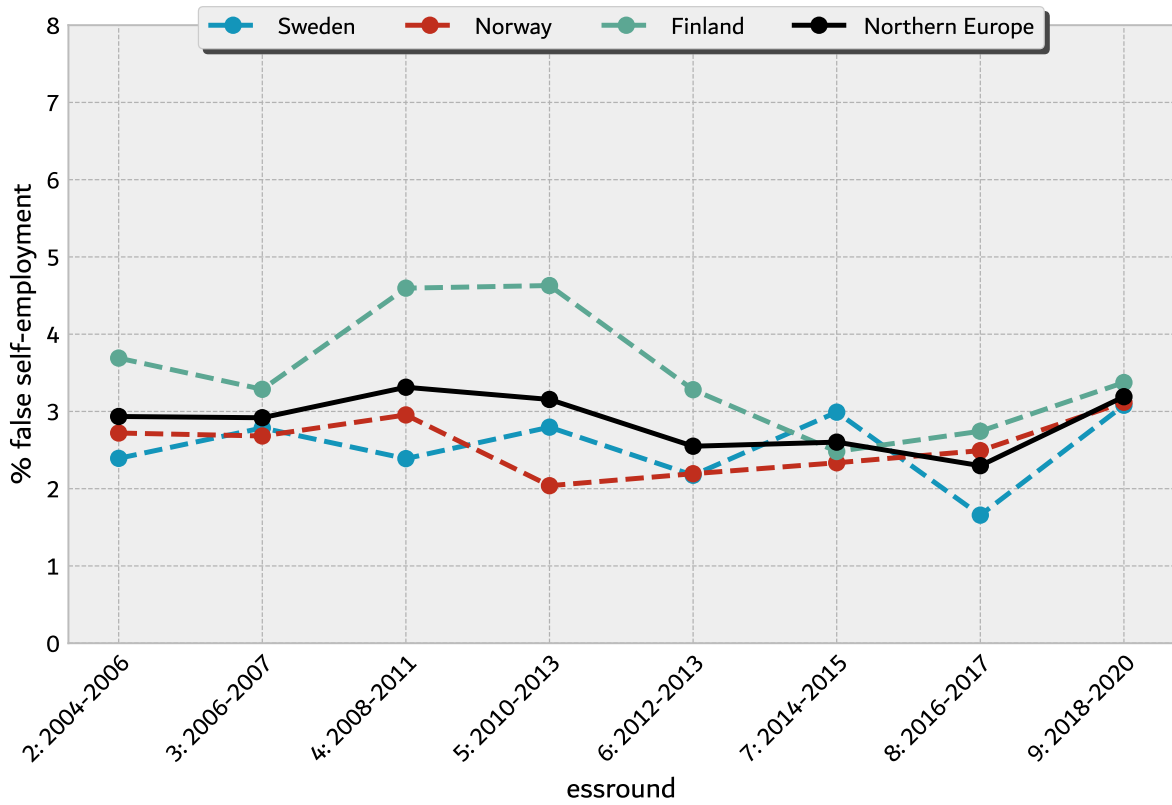


Figure A2: Development of false self-employment in northern Europe

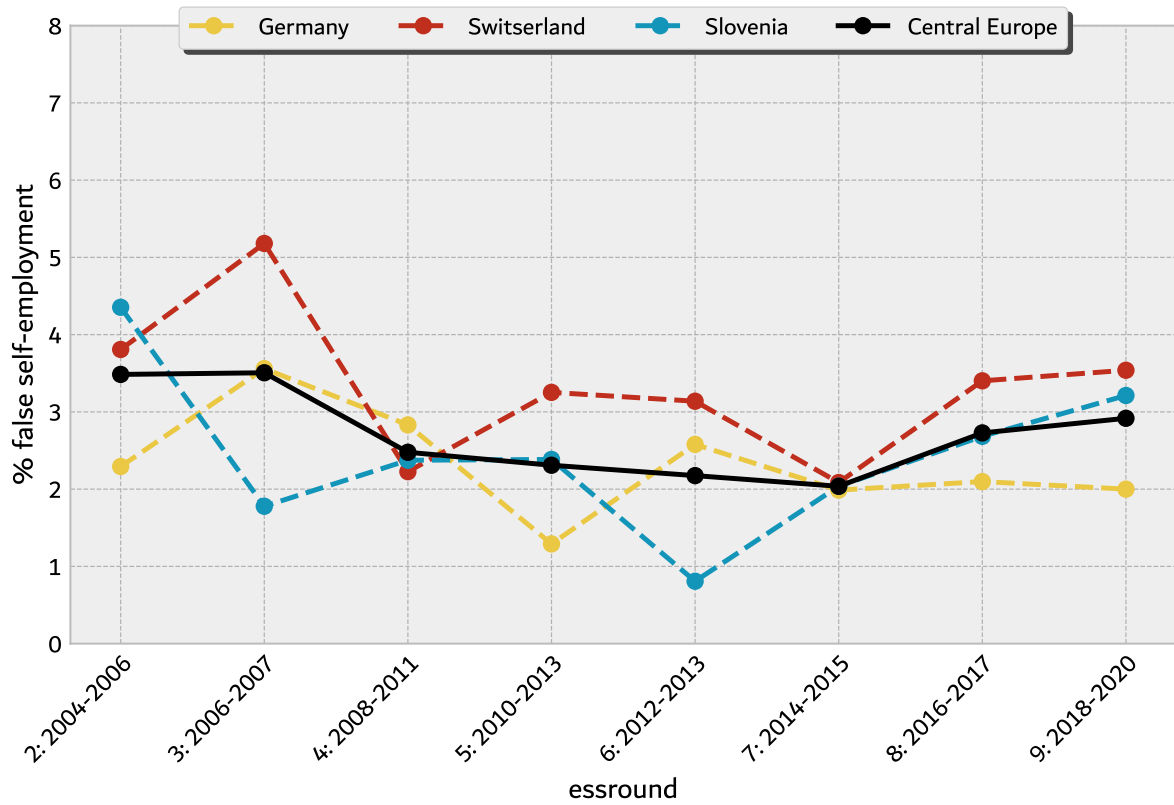


Figure A3: Development of false self-employment in central Europe

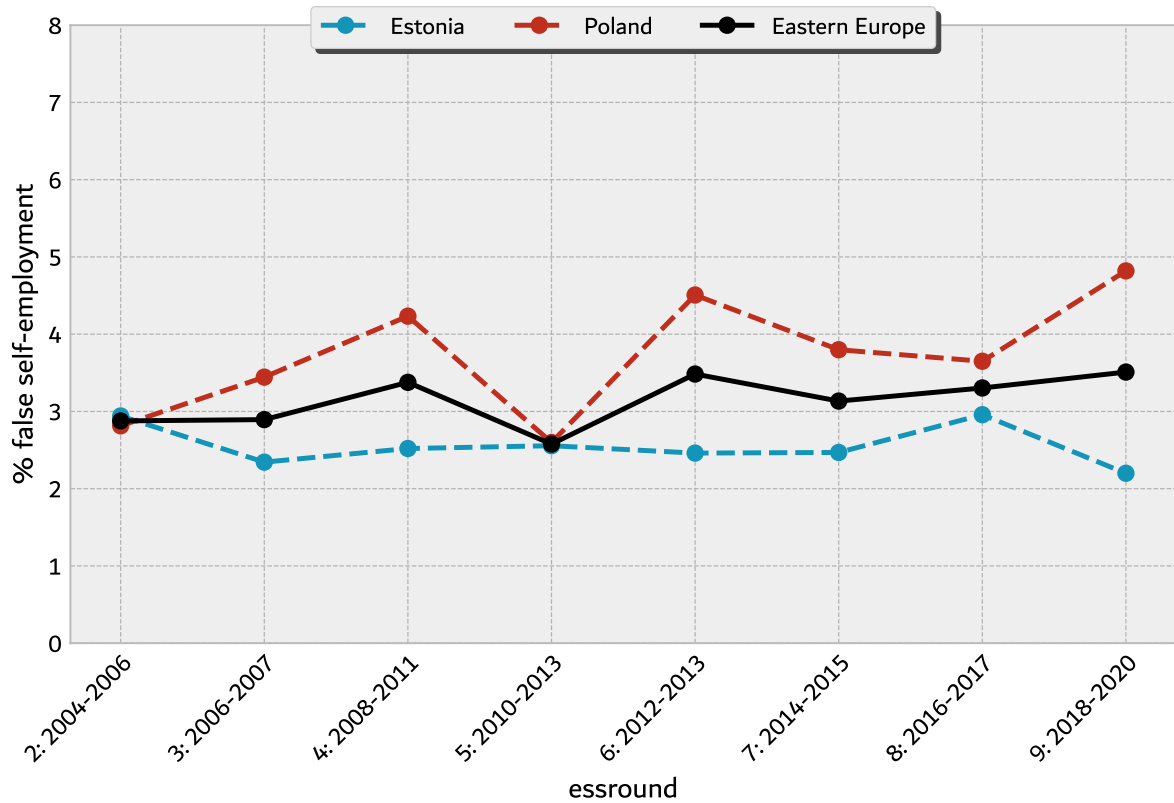


Figure A4: Development of false self-employment in eastern Europe

## A.2 False self-employment per occupation

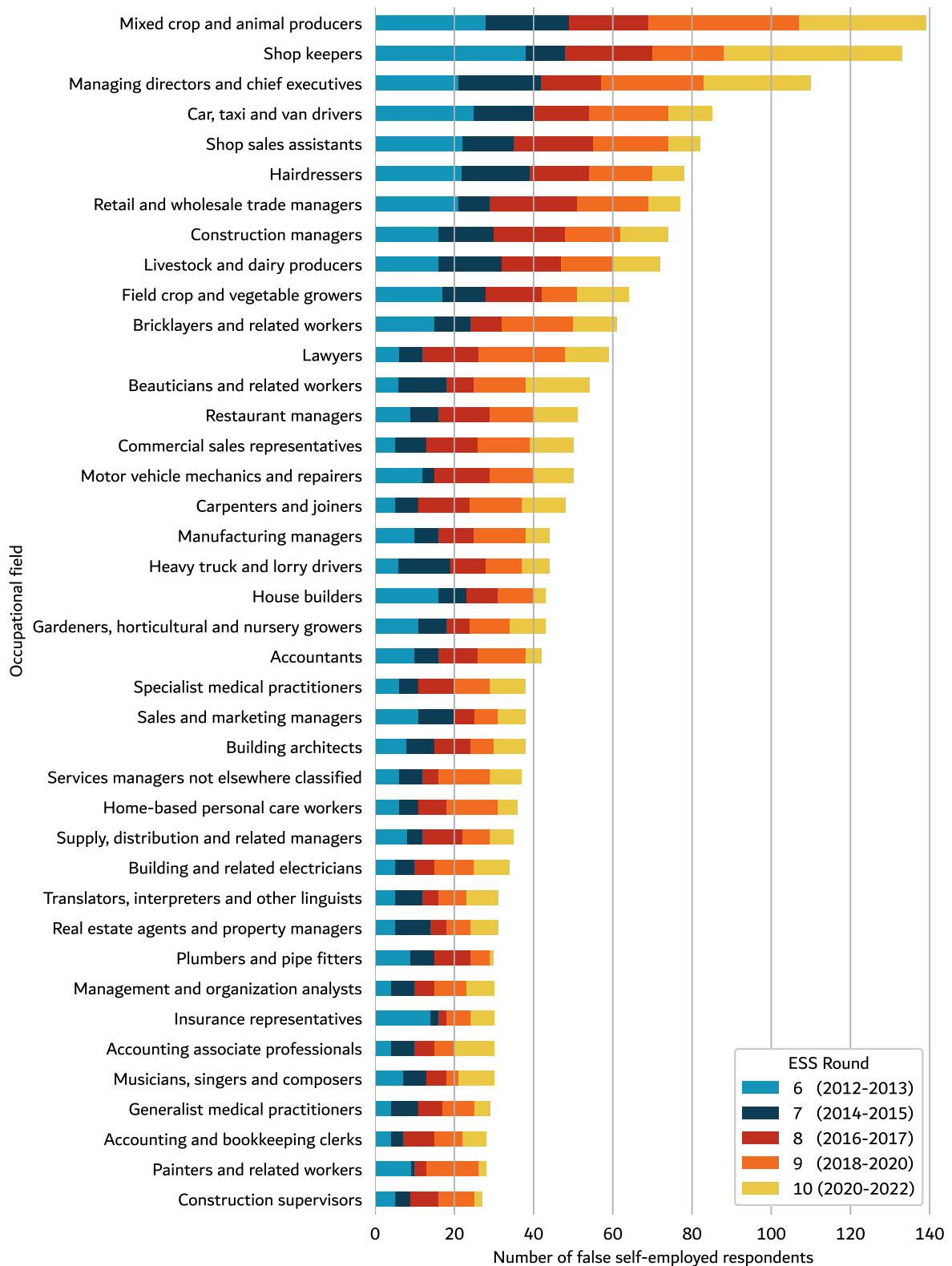


Figure A5: Most frequent occupations among false self-employed respondents

### A.3 Scatter plots explanatory variables and false self-employment

The following figures display the scatter plots of false self-employment under the narrow definition and the explanatory variables. The data points represent the occupations, and the size of each data point represents the number of respondents it contains. The data points in the graph are partly transparent, resulting in overlapping data points becoming more opaque.

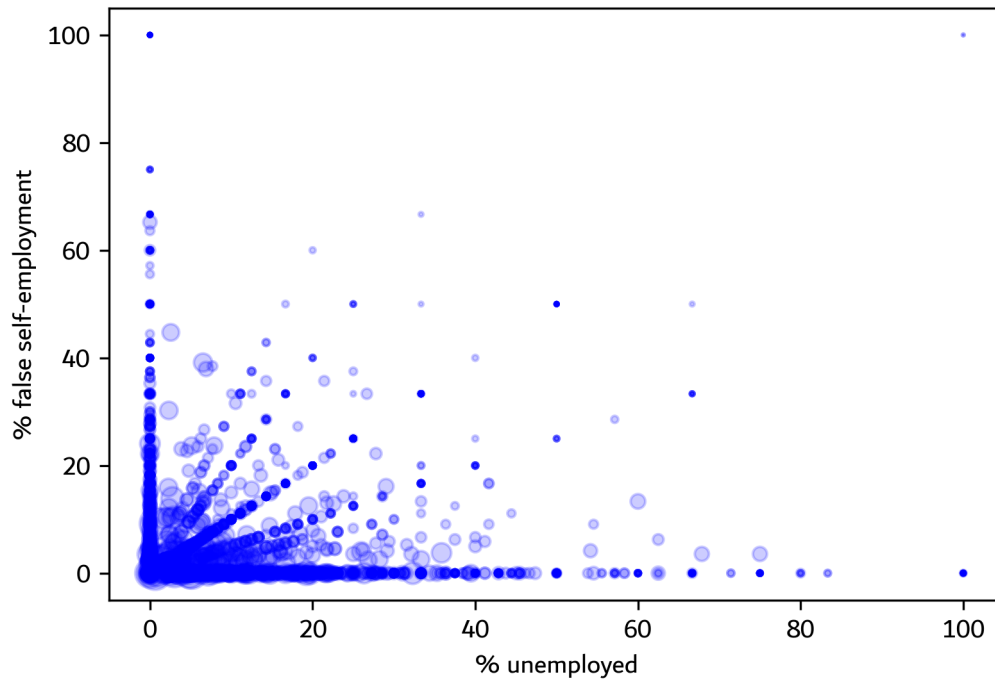
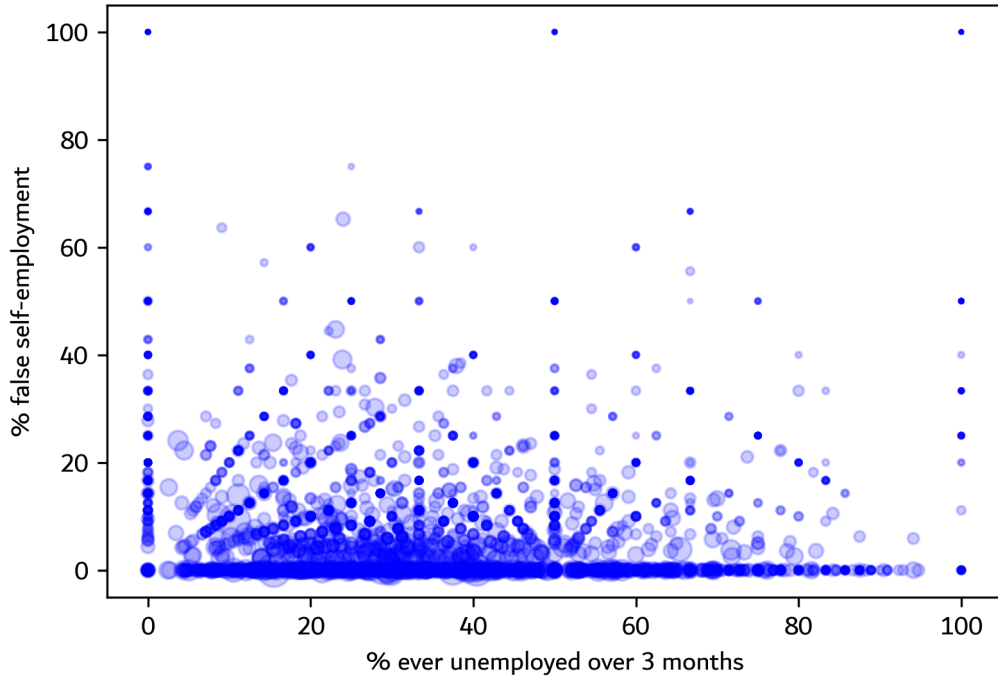
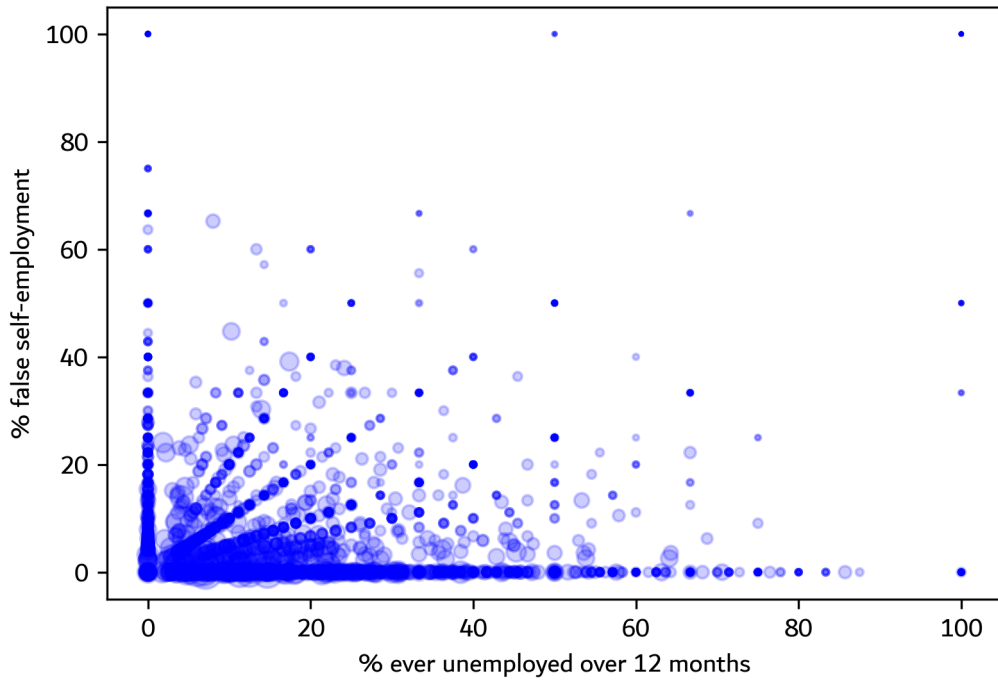


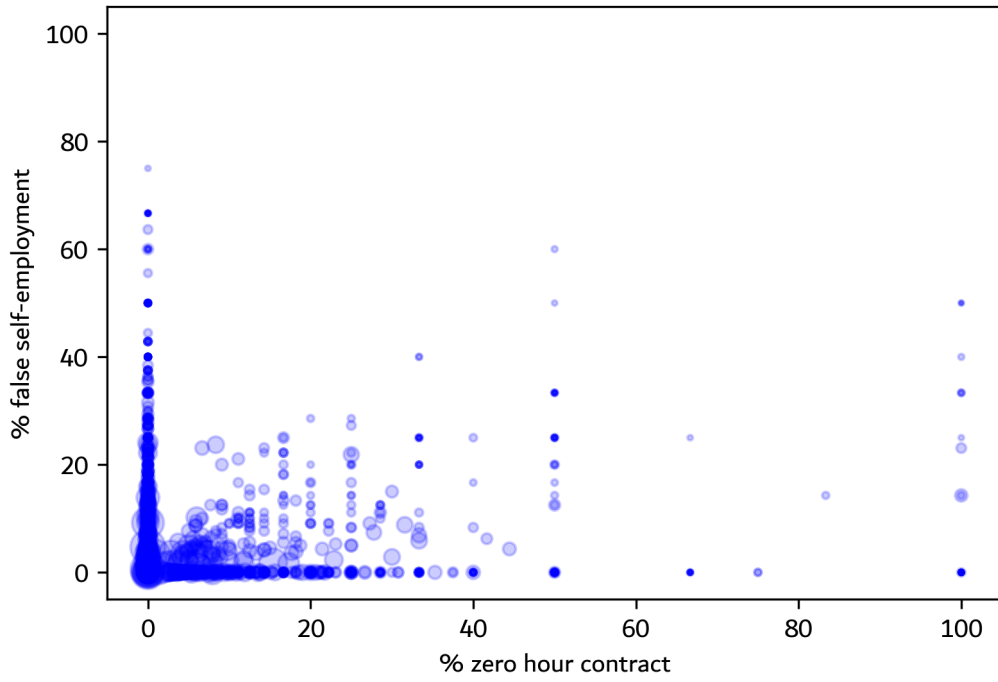
Figure A6: Scatter plot false self-employment and unemployment



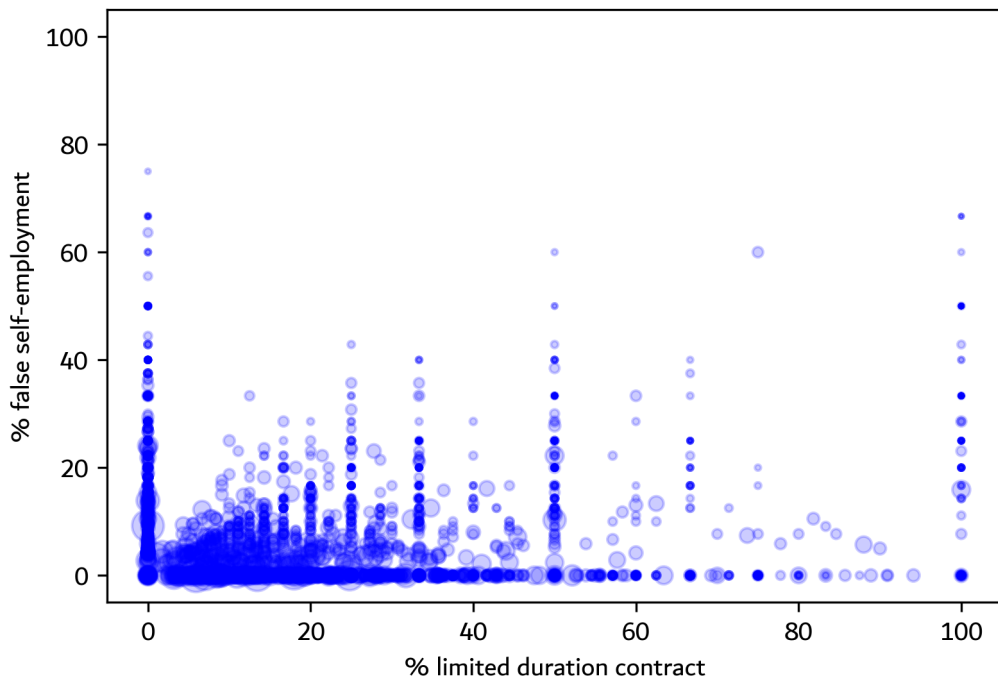
**Figure A7:** Scatter plot false self-employment and proportion ever unemployed over three months



**Figure A8:** Scatter plot false self-employment and proportion ever unemployed over twelve months

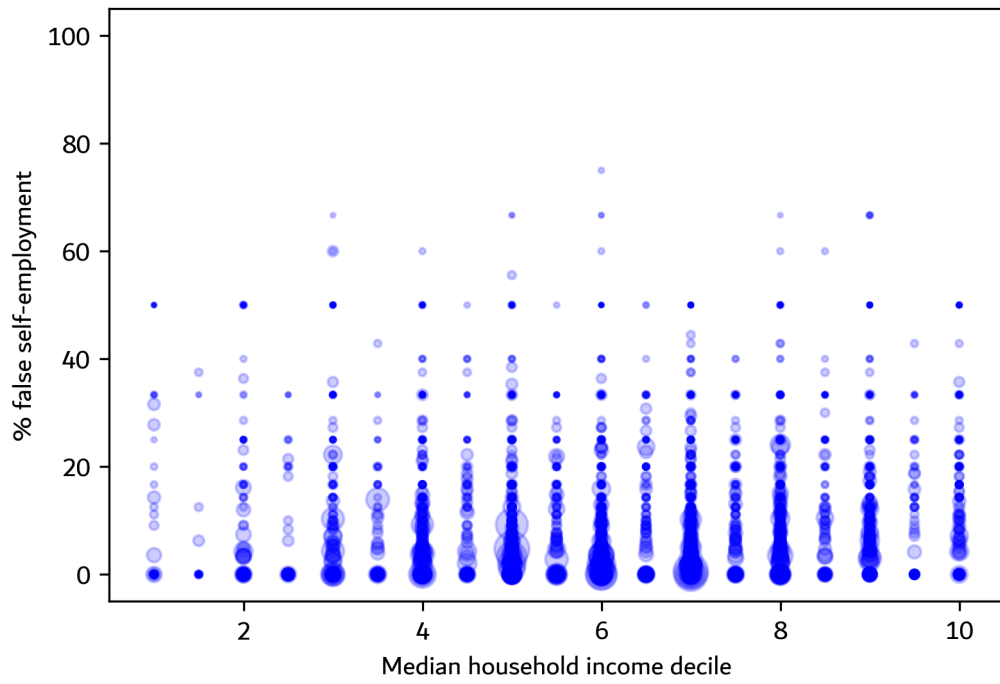


**Figure A9:** Scatter plot false self-employment and proportion zero hour contracts

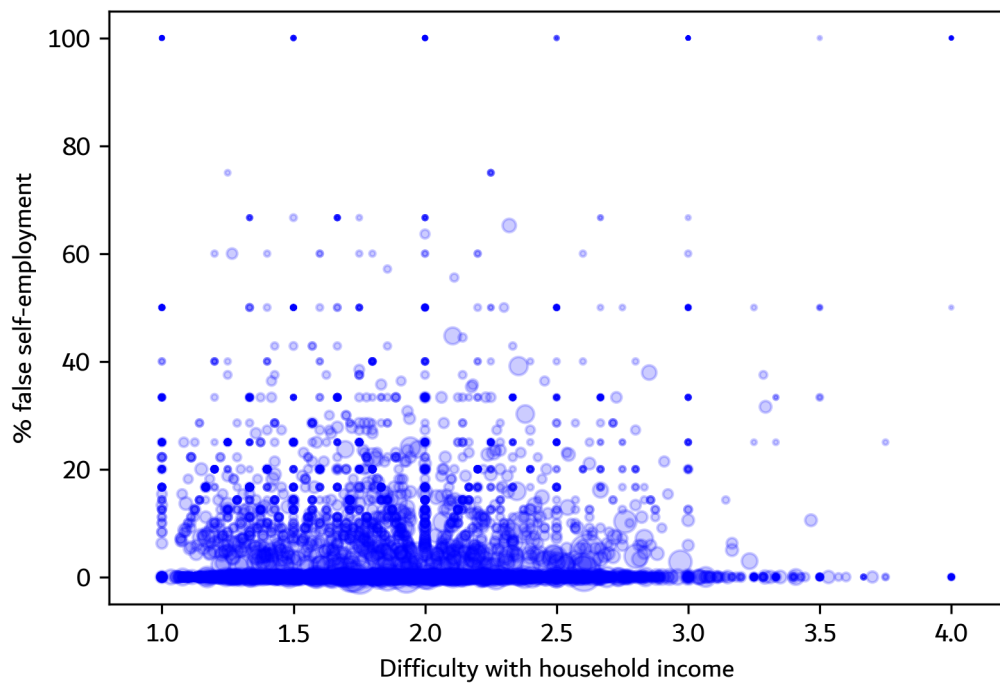


**Figure A10:** Scatter plot false self-employment and proportion limited duration contracts





**Figure A11:** Scatter plot false self-employment and median household income quantile of employees



**Figure A12:** Scatter plot false self-employment and perceived difficulty with household income