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ABSTRACT

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We analyse the characteristics of workers who provide work on the basis of a civil or commercial contract, but who are dependent on or integrated into the firm for which they work. We argue that these dependent self-employed lose their rights under labour law, receive less favourable benefits from social security protection and are often beyond trade union representation and collective bargaining. Using data from the British Labour Force Survey we test two hypotheses: (1) Dependent self-employed workers are significantly different from both employees and (independent) self-employed individuals, thus forming a distinct group. (2) Dependent self-employed workers have lower labour market skills, less labour market attachment and, thus, less autonomy than self-employed workers. The data support our hypothesis that dependent self-employed workers are a distinct labour market group which differs from both employees and independent self-employed individuals. Men, older workers, those with low education and a low job tenure have greater odds of working in dependent self-employment than their counterparts. Our results suggest that dependent forms of self-employment are used by firms to increase labour flexibility.

JEL Classification: K31, J21, L22

Keywords: self-employment, dependency, outsourcing

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1.   Introduction

The employment relationship between an employer and an employee is typically hierarchical, while relationships between firms are in comparison of a more equal nature. Over the last decades, we have seen an increase in outsourcing and subcontracting activities by firms, which appear to be replacing the hierarchy in firms by market forms of governance. However, there is evidence that an increasing share of outsourcing activities leads to the outsourced worker being both economically dependent on the firm she contracts with and being in hierarchical subordination to it (ILO 2003; EIRO 2002; OECD 2000). Such relationships have been termed "dependent self-employment". There is no consensus on how to define dependent self-employment since there is little sociological or economic research on this topic; so far, the debate has been mostly discussed amongst legal scholars.[1]

In a recent report, the ILO (2003) defines dependent self-employed workers as "workers who provide work or perform services to other persons within the legal framework of a civil or commercial contract, but who in fact are dependent on or integrated into the firm for which they perform the work or provide the service in question" (p. 9). In a report on the future of work and labour law for the European Commission, Supiot (2001) looks at self-employed workers that are "economically dependent on a principal" (p. 3) and in "permanent legal subordination" (p. 6) from their principal. The OECD (2000) claims that there has been an increase of jobs that "lie on the borders of wage and salary employment and self-employment", including in particular contractors who work "in a dependent relationship with just one enterprise" and who

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[1] For example, Burchell et al. (1999) and Collins (1990) for the UK; Dietrich (1996) for Germany; Lyon-Caen (1990) for France. For international aspects see OECD (2000) and ILO (2003); Supiot (2001), EIRO (2002), Perulli (2003), and Sciarra (2004) provide an European perspective.

have only "little or no more autonomy than employees, even when classified as self-employed" (p. 162). In a comparative study at the EU level, EIRO (2002) describes these workers as "economically dependent workers […] who are formally self-employed but depend on a single employer for their income" (p. 1).

We argue that these workers, who are between independent self-employment and dependent employment, face two forms of dependence. The first dependence is an economic dependence, which means that workers carry some or all of the entrepreneurial risk. Because such workers have only one contractor they generate their whole income from this business relationship. If we assume that the two parties do not usually agree on a constant quantity of orders, but quite the contrary, namely that the amount of business depends on the economic situation of the firm the worker contracts with, the dependent self-employed worker obviously takes the entrepreneurial risk (i.e. the short-term risk of demand fluctuations). The second form of dependence relates to dependence in terms of time, place, and content of work. Whether a dependent self-employed worker is more similar to employees or to independent self-employed persons is determined by the degree of these two forms of dependency.

Many governments have increased their efforts to foster self-employment and concerns about dependent self-employment have been raised in several European countries. Germany, Greece, Belgium, Italy and Austria have introduced policies to regulate dependent self-employment (OECD 2000). Dependent self-employed workers lose their rights under labour law, receive less favourable benefits from social security protection and are beyond trade union representation and collective bargaining. Recognising the lack of labour protection of dependent self-employed workers, there is an active legal and political debate on possible reforms across Europe. In a seminal contribution, the "Supiot Report" (Supiot 2001) stresses that "those workers who cannot

be regarded as employed persons, but are in a situation of economic dependence vis-à-vis a principal, should be able to benefit from the social rights to which this dependence entitles them" (p. 220).

Despite the political debate on dependent self-employment, we know little about dependent self-employed workers. In this paper, we analyse the characteristics of dependent self-employed workers with data from the British Labour Force Survey. We investigate if, and how, dependent self-employed workers differ from employees and (independent) self-employed workers.

Our empirical results indicate that dependent self-employment is concentrated in the construction and financial service sectors. Men have a greater risk of dependent self-employment than women and our results suggest it is workers with little or no formal education who have a greater risk of dependent self-employment than those with more or higher formal education. We find that dependent self-employed workers show persistency in this labour market status, but also low job tenure with the same employer.

2.   Dependent Self-employment and Industrial Relations

Observers have argued that the traditional scope of labour law and parts of social security law no longer reflect the organisation of work in today's society (Sciarra 2004; Freedland 2003; Perulli 2003; Supiot 2001; Burchell et al. 1999). British labour law distinguishes a self-employed worker from an employee using criteria such as subordination, allocation of risk and degree of independence. Burchell et al. (1999) claim that this distinction is becoming increasingly difficult to apply. Freedland (2003: 18) argues that the dichotomist view of employees versus self-employed independent contractors is based on a 'false unity' of the two concepts, leading to a 'false duality'.

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The assumption underlying the rationale for this binary distinction is that labour law is thought to protect employees, who are regarded as the weak party to the employment contract. Self-employed persons, on the other hand, are seen as equal to the parties they contract with and are, thus, subject to market forces (Perulli 2003: 6f). New forms of work organisation underline that both concepts are fuzzy.

The employment status under which a person carries out work matters because of the associated employment rights. Employment protection, social security and taxation vary with the employment status. For instance, self-employed persons are widely excluded from employment protection, e.g. paid holidays, and social security laws, e.g. unemployment insurance or benefits. The classification of employment statuses is therefore important not only from a legal, but also from a social point of view.

In the UK, there is a high degree of uncertainty attached to the legal and social criteria by which workers are classified. As a result, certain groups of workers have been excluded from the social security system and also from the protection of employment legislation (Freedland 2003; Davies and Freedland 2000; Burchell et al. 1999; Freedman and Chamberlain 1997).

In an empirical study on the operation of laws governing the classification of employment relationships in the UK, Burchell et al. (1999) estimate that around 30 per cent of those in employment hold an unclear employment status. They suggest that the use of the wider concept of 'worker' rather than that of 'employee' would increase the number of persons covered by employment rights by 5 per cent of all those in employment. More specifically, using a broader definition in labour law would include individuals who contract their own personal services to an employer without having a contract of employment and who are (to some degree) economically dependent on the employer, because they derive a substantial part of their income from this employer.

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While British case-law has provided enough legal material to draw the line between an employee and a self-employed person, there are few decisions on the distinction between a dependent 'worker' and an independent self-employed person (Burchell et al. 1999). Legal definitions of the employment status differ across legislation fields. The employment status of a dependent self-employed worker may be different for employment protection legislation, or for tax purposes, and different still for social security legislation. The consequence of such differences could result in a worker who would not profit from potential tax advantages of the self-employed status and would possibly not qualify for employment protection from unfair dismissal, or be eligible for redundancy compensation, statutory sick pay or statutory maternity pay (Freedman and Chamberlain 1997; Burchell et al. 1999).

British legislation distinguishes between three different categories of the scope of labour law. First, an 'employee', as defined in the Employment Rights Act 1996, is an individual that works under a 'contract of employment'. Second, in the 1970s, British legislation expanded some employment protection acts to the newly created category of 'employed persons', introduced in the Equal Pay Act (1970), in parts of the Sex Discrimination Act 1975, and in the Race Relations Act 1976. 'Employed persons' are individuals with "any other contract personally to execute any work or labour" (Freedland 2003: 23), going clearly beyond the definition of a 'contract of employment'. Third, recent British legislation has attempted to classify dependent self-employed workers to some extent, by establishing the category of the 'worker' (Freedland 2003: 22–26). For instance, legislation on working time, minimum wage levels, disability discrimination, part-time work and protection from unauthorised wage deductions apply not only to employees but to all contracts where an individual agrees to personally carry out work without running a genuine business of their own (Freedland 2003; Davies and

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Freedland 2000). The Employment Relations Act 1999 empowers the Secretary of State to confer some or all employment rights to categories of workers who do not or cannot presently benefit from them (EIRO 2002).

Although the idea of an employee-like category of workers has not historically been part of British labour law (as, for instance, in Germany or Italy), these recent attempts give employee-like workers more labour law protection (Davies and Freedland 2000). However, as Burchell et al. (1999) point out, many aspects of the growing adoption in legislation of the concept of the 'worker' remain unclear, which reflects the fact that it is not yet apparent which criteria the courts will apply in determining where the line between a dependent worker and a genuinely independent self-employed individual is to be drawn.

The legal tests which are currently used by British courts to determine the employment status rely on four dimensions, 'control', 'integration', 'business reality' and 'mutuality of obligation' (Deakin and Morris 1998). The control test focuses on the discretion and autonomy a worker has. Due to the criticism that control is entirely consistent with both an employment contract and a business contract, British courts have begun to draw away from using the extent of control as a test (Freedland 2003). Integration refers to the way the relationship between the worker and the employer (or principle) is organised and how bureaucratic rules (for instance, the inclusion in occupational benefit schemes) and disciplinary procedures are used. Business reality gauges the allocation of risk and economic dependence between the contracting parties. This test, which looks at where the financial risk lies and how workers can profit from the performance of their task, has increasingly gained in importance. Examples of empirical facts of business reality are the method of payment, the freedom to hire others, or the provision of own equipment. The mutuality of obligation describes the formal evidence

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of subordination in the contract, although the existence of implicit contracts usually complicates the use of this test in court. It checks whether there is a mutual obligation to provide work or to accept any work which is offered. A lack of a mutual obligation is an indicator that the relationship is not one between an employer and an employee, but between independent parties (Burchell et al. 1999; Deakin and Morris 1998). Freedland (2003) argues that there is little agreement between lawyers and courts, "about how strongly a factor has to be present in order to characterize a work contract one way or the other" (p. 21).

Much of the political and legal discussion about dependent self-employment has been initiated by trade unions. For instance, in its final agenda of the Congress 2005, the TUC notes that "the lack of progress in resolving the uncertainty over employment status is a particular concern in industries such as construction, where mass false self-employment is still a major problem. As a result thousands of workers are denied their employment rights" (TUC 2006). At the European level, the ETUC guidelines for coordinating collective bargaining in 2006 calls on its members to pay special attention to dependent self-employment, stressing that "the figures indicate an upward trend in the number of bogus self-employed (almost 23 million), two-thirds of whom may be classed as dependent workers, but who have no contractual cover and no social protection worthy of the name" (ETUC 2006).

Trade unions throughout Europe have had substantial difficulties to cope with the shift on the labour market towards non-standard forms of work (Heery 2005; EIRO 2002; Supiot 2001). With some exceptions, trade unions have traditionally been reluctant to organise self-employed workers. However, European trade unions have increasingly started to organise the dependent self-employed (Pernicka 2006; EIRO 2002). Especially trade unions representing freelance workers in the media industry, actors and artists were

among the firsts to represent self-employed workers. In the UK, the National Union of Journalists (NUJ), the Broadcasting Entertainment Cinematograph and Theatre Union (BECTU) and Equity (the British actors union) also represent dependent self-employed workers and have negotiated single employer collective agreements that cover dependent self-employed workers also (e.g. concerning minimum payment). The Union of Construction, Allied Trades and Technicians (UCATT), Britain's only specialist construction workers union, has a large number of members who are dependent self-employed. UCATT is campaigning against the common phenomenon of dependent self-employment in the British construction industry, especially in relation to work safety: "The bogus self employed and cowboy contractors are also making building sites less safe because corners are cut and safety training is almost non existent" (UCATT 2003).

The heterogeneity of dependent self-employed workers makes it difficult for trade unions to recruit members and to organise their interests. Thus, trade unions try to attract members by offering special assistance to dependent self-employed workers such as insurance coverage, assistance in individual disputes and advice on contracts. The example of dependent self-employment shows that trade unions have started to include workers with non-standard working contracts by offering not only the traditional trade union services (i.e. collective bargaining, fairness at work, work safety, etc.), but also new services in accordance with the needs of atypical workers (Muehlberger 2004; EIRO 2002).

3.   Some Evidence and Hypotheses

There is little empirical research on dependent forms of self-employment in the UK. In a recent study on the British construction industry, Harvey (2003) argues that the

strong increase of dependent self-employment is based on two major shifts in British public policy. First, while public demand for construction has been reduced due to a decline of public consumption, the incentives for private home ownership, which shows a more volatile pattern than public demand, have strongly increased, leading to more labour flexibility in the construction industry. Second, the 1980s and early 1990s have seen both an increase in unemployment and supply-side policy measures to foster self-employment (Robson 1998, Taylor 1999). The increase in the British self-employment rate during the 1980s has been explained by two different hypotheses. While the first stresses that the rise in self-employment was connected to the absence of opportunities for paid employment, the other explains the strong increase in self-employment with supply-side measures such as the reduction in the rate of income tax (Robson 1998, Taylor 1999).

Harvey (2003) claims that this shift towards dependent self-employment in the construction industry means that, firstly, payments for these workers are outside any wage bargaining, secondly, they lose their entitlements such as holiday pay, sick pay, unemployment benefit, and thirdly, they lose most employment protection for dismissal or disciplinary measures. These changes, together with the removal of the employer's obligation to pay any national insurance contributions when outsourcing, led to an overall reduction in labour costs through self-employment of roughly 20 to 30 per cent.

Muehlberger (2004) analyses dependent self-employment in the British insurance industry and argues that the work relationships are close to that of employment for two reasons. First, she shows that the outsourcing firm controls the work of the dependent self-employed worker. The outsourcing firm not only sets the goals of the worker's performance (e.g. through development of the business plan), but also closely monitors the worker by both information technology and regular meetings with supervisors. Second, although self-employed, the worker is substantially integrated into the business

of the outsourcing firm. Even though the worker operates from its own premises, he or she nevertheless works under the logo and the name of the outsourcing firm. Muehlberger (2004) shows that the outsourcing firm successfully introduces hierarchical elements into the business relationship and it places the worker into subordination.

However, unlike employees, the dependent self-employed worker bears (part of) the entrepreneurial risk. For instance, employed insurance agents have a fixed basic income plus performance related bonuses, self-employed agents only earn their commissions. Demand fluctuations, the competitiveness of the outsourcing firm and events that prevent the dependent self-employed worker from working (e.g. illness) are risks the worker has to take. In sum, Muehlberger (2004) argues that firms use hierarchical forms of outsourcing to reduce the principal-agent problem. Outsourcing workers shifts part of the entrepreneurial risk to the worker and detaches the outsourcing firm from employment and social security law, which allows the firm to gain financial and organisational flexibility. Simultaneously, it keeps a substantial part of control over labour.

Muehlberger's case study suggests that dependent self-employed workers are as a group different from both employees and (independent) self-employed individuals. We hypothesise that dependent self-employed workers differ from both groups in terms of their observable characteristics. The second hypothesis we put forward concerns the effects of labour market experience and skills. The discussion above suggests that dependent self-employed workers are dependent on the outsourcing firm and have less autonomy than their independent counterparts. For the empirical analysis we use human capital variables as proxies to for these characteristics. Consequently, we put forward the hypotheses that dependent self-employed workers have on average lower or fewer labour

market skills, less labour market attachment and, thus, less autonomy than self-employed workers.

4.   Identifying Dependent Self-employed Workers

As discussed above, both labour courts and legislation find it difficult to specify dependent self-employed workers due to the heterogeneous nature of conditions involved. In addition, survey data did not allow the identification of dependent self-employed workers until recently. The British Labour Force Survey (BLFS) of spring 1999 was the first European survey that included variables permitting the identification of dependent self-employed workers. We use data from the more recent BLFS 2002 (spring) for an analysis of the characteristics of dependent self-employed workers and define a dependent self-employed as a self-employed worker who has no employees and only one customer.[2] Applying this definition, we identify 527 dependent self-employed workers. The comparison groups are 32,925 employees and 5,273 self-employed, who either have at least one employee or more than one customer, or both.

The sample characteristics, tabulated in Table 1, show that men are over-represented amongst the (independent) self-employed and, even more so, amongst the dependent self-employed workers. Roughly 78 per cent of the dependent self-employed workers in the sample are men. Dependent self-employed workers are, on average, older than employees, but younger than the self-employed. The three groups do not differ much

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[2] We want to stress that the BLFS relies on the self-reporting of the employment status, which does not necessarily correspond to the legal classification. Burchell et al.'s (1999) survey of a representative sample of 4,000 workers found that 30 per cent have an ambiguous employment status, and that 8 per cent of them were legally classified as 'self-employed'. Another classification problem could arise from the fact that some individuals may be classified as employees in tax issues, but as self-employed in employment issues (or vice versa) and it is not clear which labour market status these individuals report for the BLFS. In addition, we might classify some "genuine" self-employed as dependent self-employed because of temporary fluctuations in the number employed or the number of customers, or both.

in their ethnic compositions, except that there are relatively more Asians among the self-employed that among the other two groups. The sample characteristics on gender and age are comparable to the study of Cowling and Taylor (2001) on the self-employed using the 5th wave (1995) of the BHPS. They divide the self-employed between the those with and those without employees and find that men are more likely to be both self-employed with employees and self-employed without employees and that the self-employed without employees are younger than those with employees. In contrast to our results, however, they observe a low probability of non-whites being self-employed with employees and an overrepresentation of foreigners amongst the self-employed without employees.

The sample characteristics show that the self-employed are more likely to have a university degree than the other two groups and, in general, tend to be workers with more formal education. The dependent self-employed, in contrast, are about as likely to have higher education as employees, but are more likely to have A-levels and are also more likely to have no qualification.

The self-employed are more likely to be cohabiting with a spouse than the other two groups. The self-employed are also more likely to co-reside with a child under the age of 19. With respect to pre-school children, we do not find a difference between the three groups of workers. Residential tenure is highest among self-employed persons and lowest among employees, with dependent self-employed workers in the middle. However, there are, in sum, no big differences in residential tenure between the three groups.

Looking at regular working hours, though, we see a rather strong difference between the groups. The self-employed work on average 41 hours per week, employees work 34 hours, and dependent self-employed workers work 37 hours per week. Current

job tenure is longest for the self-employed and it is shortest for the dependent self-employed.

Most dependent self-employed workers are in a skilled trade, with comparatively few working in clerical occupations and in sales and other customer services. They are mainly working in the construction and the financial services industries, as also documented in Harvey (2003) and Muehlberger (2004).

Multivariate Analysis

We estimate multi-nomial logit models to compare the three groups of workers. These multi-nomial logit models estimate the odds of being a dependent self-employed worker versus the odds of being an employee, the odds of being an employee versus being self-employed, and indirectly, the odds of being dependent self-employed versus being self-employed. In order to identify the model, one group has to serve as the comparison group, we chose the largest group, employees.[3] All results are presented in relative risk ratios, RRR (the exponentiated coefficients). The RRRs give the odds of being in one group versus the odds of being an employee. A RRR greater (less) than one indicates that the risk of being in a group is greater (smaller) for higher values of a variable. The results are tabulated in Table 2.

The first of our models, which serves as a benchmark for the other specification below, uses only contemporaneous variables to the employment status. The estimation reveals that men have a greater risk of being self-employed, both dependently and independently, than women. The odds for man to be a dependent self-employed rather

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[3] The estimates are not changed by the choice of comparison group. We present, in Table 3 in the Appendix, estimation results from a probit estimation of the chances of dependent self-employed versus the chances of being independent self-employed. We also present the RRRs of dependent self-employment from the multi-nomial estimation when the independent self-employed are chosen as the reference group.

than an employee are more than twice than for a woman. We also estimate that the odds for being self-employed are greater the older the worker is, but at a declining rate (RRRs of more (less) than one for age (age squared)). The same is true, although to a lesser degree, when comparing the dependent self-employed with employees. The odds for being dependent self-employed are greater the older the worker is with a slightly declining rate.

Workers with a pre-school aged child are more likely to work either as self-employed or dependent self-employed than employed. Workers who are married or cohabiting are more likely to be self-employed or dependent self-employed, although the RRRs are statistically significant at conventional levels, the difference between employees and the dependent self-employed is rather small. The results from residential tenures do not show an easily interpretable pattern, longer residential tenure is estimated to be associated with greater odds of working self-employed.

An novel result emerges from the analysis of ethnic background. We admit that the used dichotomy of white and non-white is a crude instrument, but the small number of observations forced our hands. Nevertheless, we estimate that workers from non-white ethnic backgrounds have lower odds of working as dependent self-employed than as employed. They are, however, more likely to work as self-employed, all other things being equal.

When we consider formal education and the odds of being an employed worker or dependent self-employed, we find that workers with more formal education are less likely to be dependent self-employed than employed. In contrast, for the (independent) self-employed, we find those with an A level (or equivalent) and with a higher degree have a higher risk of being self-employed (than employed).

The estimates show that dependent self-employment is associated with more labour market fluctuation, those with short job tenures are more likely to be working as dependent self-employed than as employees, in comparison to those with considerable longer job tenures. The reverse is true for the self-employed, workers with short job tenures are less likely to work self-employed than as employees.

How significant are these findings? We have performed a Wald test to test the differences between the dependent self-employed, the self-employed, and the employed and are reassured that the differences are, indeed, statistically significant (p-value of less than 0.00).

The BLFS also provides variables that gauge the respondent's labour market status one year ago. While such retrospective data may be afflicted with non-random error, we use them here as it comes closest to longitudinal data, which would allow the analysis of workers over time. We use these additional variables in Model 2, also tabulated in Table 2. These additional variables describe the job situation a year before the current interview in terms of whether the worker was working part- or full-time, whether s/he supervised other employees or not, and the standard occupational category (SOC) of the job.

We first note that most estimated odds do change little when we include the additional variables in our model. Changes occur for the association between formal education and working dependent self-employed and between job tenure and working dependent self-employed. The results now show clearly that all levels of formal education, in comparison to no formal education, are associated with odds of working dependent self-employed of less than one. This implies that dependent self-employed workers are those with poor qualifications, possibly the first ones to be laid off in times of restructuring. In addition, the results for job tenures now show more clearly that

dependent self-employment is associated with high labour market fluctuation, those with short job-tenures are more likely to be working dependent self-employed rather than employed.[4]

We see that those who were working part-time a year ago are more likely to work dependent self-employed, and also self-employed. Those who had a job that included supervision of other workers in its duties are found to have rather low odds of working dependent (or independent) self-employed. These results suggest that workers who are on the lower rungs of the occupational hierarchy, be it because of poor education, because of their age, their low job tenure, or because they worked part-time before, are the ones who are most likely to work dependent self-employed.

5.   Conclusions

We argue that workers who have employment contracts that are between employment and self-employment are economically and hierarchically dependent on the firm they contract with. While earlier research (Muehlberger 2004) has highlighted how dependency is created, we looked at the characteristics of the dependent self-employed and how these workers differ from employees and the self-employed.

We have shown that the dependent self-employed are statistically significantly different from employees and also from the (independent) self-employed. This finding supports legal arguments that these different groups of workers require different legal treatment (Supiot 2001).

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[4] We have also experimented with models that include a variable that details whether or not the worker was working dependent self-employed one year ago (see Model 3 in Table 2). These results indicate that those who were previously working dependent self-employed have a great risk of working dependent self-employed at the time of the interview. This is consistent with the findings of Cowling and Taylor (2001) and other international data (Berton et al. 2003).

In comparison to employees, men have greater odds of working dependent self-employed, also those who are older, married, white, and those with low education and low job tenure. Our results suggest that dependent self-employment is used by firms to increase labour flexibility, because dependent self-employed workers have low formal skills and low job tenure. The dependent self-employed have a lower labour market attachment with a higher labour market fluctuation than employees. Furthermore, we found few transitions out of dependent self-employment: workers who were dependent self-employed a year ago, have a high chance to be also presently dependent self-employed.

Consequently, in agreement with Sciarra (2004), Freedland (2003) and Supiot (2001), we argue that those workers are in need of labour protection. Labour law reflects the societal compromise to divide rents between employers and employees. The emergence of dependent self-employment demonstrates that labour law has not been able to keep up with the changes in the labour market.

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Tables

Table 1: Summary statistics by employment status.

	Employee		Self-employed		Dependent self-employed	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Male	0.574		0.738		0.778	
Age	38.908	(11.826)	44.814	(10.391)	42.725	(11.785)
Ethnicity						
White	0.951		0.942		0.953	
Mixed	0.004		0.003		0.004	
Asian	0.026		0.034		0.017	
Black	0.012		0.008		0.017	
Chinese	0.003		0.005		0.006	
Other	0.005		0.008		0.004	
Lives with spouse	0.557		0.705		0.632	
Kids under 19 years (#)	0.762	(1.023)	0.862	(1.113)	0.753	(0.992)
Kids under 5 years (#)	0.171	(0.451)	0.179	(0.474)	0.180	(0.485)
Kids 5-9 years (#)	0.201	(0.490)	0.238	(0.537)	0.203	(0.480)
Highest qualification						
Degree or equivalent	0.144		0.190		0.140	
Higher education	0.076		0.079		0.078	
GCE A level or equiv.	0.274		0.331		0.362	
GCSE A-C level or equiv.	0.245		0.152		0.120	
Other qualification	0.143		0.118		0.148	
No qualification	0.119		0.129		0.152	
Residential tenure						
< 1 year	0.104		0.072		0.097	
1 - 2 years	0.102		0.082		0.093	
2 - 3 years	0.082		0.072		0.072	
3 - 5 years	0.127		0.122		0.123	
5 - 10 years	0.187		0.200		0.175	
>= 10 years	0.398		0.452		0.440	
Job characteristics:						
Regular working hours[1]	33.747	(11.955)	41.151	(18.085)	36.573	(18.668)
Job tenure						
< 3 months	0.042		0.018		0.070	
3 - 6 months	0.037		0.021		0.061	
6 - 12 months	0.075		0.039		0.065	
1 - 2 years	0.149		0.084		0.118	
2 - 5 years	0.252		0.164		0.211	
5 - 10 years	0.159		0.165		0.157	
10 - 20 years	0.188		0.289		0.176	
>= 20 years	0.099		0.220		0.142	
Occupation						
Managers and sen. officials	0.175		0.193		0.042	
Professionals	0.075		0.124		0.135	
Associate prof. and techn.	0.107		0.142		0.131	

Clerical occupation	0.133	0.028	0.040
Skilled trade	0.120	0.310	0.380
Personal service	0.051	0.054	0.044
Sales and customer services	0.102	0.029	0.011
Operatives	0.113	0.081	0.129
Elementary	0.123	0.038	0.089
Same occupation as t-1	0.922	0.963	0.920
Industry			
Agriculture	0.010	0.056	0.053
Energy	0.018	0.003	0.009
Manufacturing	0.241	0.061	0.089
Construction	0.070	0.211	0.355
Distribution	0.245	0.196	0.046
Transport	0.087	0.070	0.093
Banking and finance	0.201	0.193	0.184
Public administration	0.084	0.098	0.076
Other services	0.044	0.113	0.095
Employment at t-1			
Self-employed. w/o employees	0.011	0.657	0.784
Part-time	0.208	0.182	0.209
Supervisory	0.381	0.039	0.072
Occupation			
Managers and sen. officials	0.172	0.191	0.059
Professionals	0.076	0.123	0.121
Associate prof. and techn.	0.106	0.143	0.131
Clerical occupations	0.132	0.030	0.046
Skilled trade	0.123	0.306	0.364
Personal services	0.052	0.054	0.044
Sales and customer services	0.103	0.031	0.017
Operatives	0.113	0.082	0.131
Elementary	0.124	0.039	0.087
N	32,931	5,273	527

[1] # of observations: employee (32925), self-employed (5273), dependent self-employed (527).

Table 2: Estimated risk of self-employment and dependent self-employment.

	Model 1				Model 2				Model 3			
	Dependent self-employed		Self-employed		Dependent self-employed		Self-employed		Dependent self-employed		Self-employed	
	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)	RRR	(SE)
Personal characteristics												
Male	2.177	(0.041)	1.748	(0.005)	2.050	(0.026)	1.550	(0.010)	1.505	(0.027)	1.286	(0.013)
Age	1.080	(0.003)	1.149	(0.001)	1.073	(0.004)	1.165	(0.001)	1.007	(0.005)	1.110	(0.001)
Age squared/100	0.948	(0.003)	0.887	(0.001)	0.950	(0.004)	0.872	(0.001)	1.010*	(0.005)	0.910	(0.001)
Kids under 5 years (#)	1.282	(0.011)	1.229	(0.003)	1.194	(0.009)	1.247	(0.003)	1.157	(0.010)	1.220	(0.003)
Married or cohabiting	1.024	(0.014)	1.082	(0.004)	1.068	(0.022)	1.127	(0.008)	1.265	(0.028)	1.309	(0.012)
Non-white	0.865	(0.074)	1.298	(0.014)	0.840	(0.074)	1.392	(0.013)	1.103*	(0.082)	1.617	(0.005)
Residential tenure												
< 1 year	1.022*	(0.043)	1.085	(0.025)	1.100*	(0.065)	1.057	(0.016)	1.026*	(0.076)	0.979	(0.012)
1 - 2 years	1.039*	(0.025)	1.162	(0.013)	1.142	(0.035)	1.192	(0.005)	1.136	(0.044)	1.189	(0.010)
2 – 5 years	1.065	(0.028)	1.097	(0.008)	1.118	(0.031)	1.180	(0.007)	0.979*	(0.036)	1.075	(0.012)
Education												
Degree or higher education	0.851	(0.007)	1.329	(0.013)	0.941	(0.007)	1.371	(0.008)	0.755	(0.009)	1.191	(0.006)
GCE A level or equiv.	1.073	(0.012)	1.263	(0.005)	0.961	(0.009)	1.055	(0.003)	0.829	(0.008)	0.935	(0.004)
GCSE A-C level or equiv.	0.550	(0.034)	0.870	(0.001)	0.588	(0.023)	0.977	(0.002)	0.526	(0.019)	0.922	(0.009)
Other qualification	0.836	(0.016)	0.828	(0.003)	0.853	(0.019)	0.898	(0.003)	0.891	(0.028)	0.956	(0.008)
Jobtenure												
< 3 months	2.306	(0.059)	0.387	(0.008)	2.208	(0.082)	0.394	(0.009)	5.461	(0.224)	0.746	(0.012)
3 - 6 months	1.923	(0.088)	0.510	(0.008)	2.115	(0.122)	0.535	(0.005)	5.162	(0.300)	1.014*	(0.017)
6 - 12 months	1.290	(0.048)	0.471	(0.002)	0.991*	(0.044)	0.402	(0.003)	1.696	(0.045)	0.592	(0.011)
1 - 2 years	1.143	(0.018)	0.513	(0.003)	0.894	(0.037)	0.414	(0.003)	0.779	(0.032)	0.358	(0.004)
2 - 5 years	1.010*	(0.013)	0.528	(0.004)	0.883	(0.015)	0.450	(0.003)	0.784	(0.013)	0.397	(0.002)
5 - 10 years	1.081	(0.035)	0.722	(0.005)	1.044*	(0.033)	0.695	(0.004)	0.961*	(0.032)	0.634	(0.002)
Last year:												
Part-time					2.029	(0.064)	1.435	(0.006)	1.181	(0.047)	0.944	(0.015)

Superviser	0.107	(0.006)	0.028	(0.000)	0.604	(0.030)	0.070	(0.001)

SOC (t-1)

Professionals	2.203	(0.012)	0.592	(0.002)	2.571	(0.022)	0.636	(0.006)
Associate prof. and techn.	1.637	(0.167)	0.502	(0.012)	0.869*	(0.109)	0.266	(0.011)
Clerical occupation	0.458	(0.054)	0.076	(0.001)	0.582	(0.089)	0.085	(0.002)
Skilled trade	3.126	(0.080)	0.722	(0.005)	1.615	(0.055)	0.381	(0.005)
Personal service	1.225	(0.081)	0.466	(0.005)	0.534	(0.048)	0.192	(0.002)
Sales and customer services	0.196	(0.004)	0.113	(0.001)	0.188	(0.006)	0.099	(0.001)
Operatives	1.092	(0.053)	0.190	(0.001)	0.661	(0.040)	0.117	(0.001)
Elementary	0.661	(0.010)	0.102	(0.000)	0.511	(0.016)	0.079	(0.001)
SE, no employees (t-1)					332.957	(8.844)	116.742	(1.176)

Note: Estimation results from a multi-nomial logit regression, comparison group are employees. Sample sizes are 32,925 employees, 5,273 self-employed, and 527 dependent self-employed. Omitted categories are: female, no child or children over the age of 5, other marital status, white, residential tenure of more than 5 years, no formal education, job tenure longer than 10 years, last year full-time or not working, not a supervisor (at t-1), manager (t-1). All models include 13 indicator variables for area of residence. All estimates are statistically significant on a 10% error-level, or less, unless indicated by * (the test is against the alternative that the RRR equals 1).

Appendix

Table 3: Alternative estimation results for the probability of being in dependent self-employment.

| | (1) Probit | | (2) Multinomial Logit | |
	Marginal Effect	(SE)	RRR	(SE)
Personal characteristics				
Male	0.014	(0.002)	1.322	(0.019)
Age	-0.006	(0.000)	0.921	(0.003)
Age squared/100	0.006	(0.000)	1.089	(0.004)
Kids under 5 years (#)	-0.002	(0.001)	0.957	(0.008)
Married or cohabiting	-0.004	(0.002)	0.948	(0.024)
Non-white	-0.018	(0.004)	0.603	(0.048)
Residential tenure				
< 1 year	0.001*	(0.004)	1.041*	(0.075)
1 - 2 years	-0.009	(0.003)	0.958*	(0.032)
2 – 5 years	-0.004	(0.002)	0.948	(0.021)
Education				
Degree or higher education	-0.028	(0.001)	0.687	(0.008)
GCE A level or equiv.	-0.010	(0.001)	0.911	(0.010)
GCSE A-C level or equiv.	-0.033	(0.002)	0.602	(0.023)
Other qualification	-0.002*	(0.002)	0.950	(0.023)
Jobtenure				
< 3 months	0.239	(0.007)	5.597	(0.216)
3 - 6 months	0.177	(0.012)	3.956	(0.261)
6 - 12 months	0.093	(0.008)	2.466	(0.127)
1 - 2 years	0.071	(0.004)	2.160	(0.075)
2 - 5 years	0.059	(0.002)	1.964	(0.025)
5 - 10 years	0.032	(0.003)	1.501	(0.054)
Last year:				
Part-time	0.024	(0.003)	1.414	(0.044)
Superviser	0.008*	(0.006)	3.881	(0.208)
SOC (t-1)				
Professionals	0.105	(0.001)	3.722	(0.018)
Associate prof. and techn.	0.083	(0.005)	3.259	(0.260)
Clerical occupation	0.148	(0.018)	6.040	(0.716)
Skilled trade	0.108	(0.000)	4.331	(0.089)
Personal service	0.075	(0.007)	2.629	(0.187)
Sales and customer services	0.018	(0.001)	1.730	(0.027)
Operatives	0.138	(0.004)	5.755	(0.266)
Elementary	0.185	(0.004)	6.501	(0.092)

Note: Estimation results in (1) from a probit regression between dependent and independent self-employed. Sample sizes are 32,925 employees, 5,273 self-employed, and 527 dependent self-employed. Estimation results in (2) from a multi-nomial logit regression between employees, dependent and independent self-employed, with the self-employed as base category (results for employees omitted). See Table 2 for omitted categories. All models include 13 indicator variables for area of residence. All estimates are statistically significant on a 10% error-level, or less, unless indicated by * (For the multi-nomial estimation, the test is against the alternative that the RRR equals 1).