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# The Policy Drivers of Self-Employment: New Evidence from Europe

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**Abstract**

Using cross-country time series panel regressions for the last two decades, this paper seeks to identify the main policy and institutional factors that explain the share of self-employment across European countries. It looks at the aggregate share of self-employed as well as its breakdown by age, skill and gender. The generosity of unemployment benefits, and to a lesser extent, spending on active labour market policies appear to be robust determinants of the long-term share of self-employed in European countries. No significant relation could be identified between the stringency of employment protection and aggregate self-employment. However, there are significant, and oppositely signed, impacts on high- and low-skilled self-employed separately. Both the tax wedge and the minimum wage appear to be related positively to the share of self-employed in the long term, but the relation holds for some categories of workers only.

JEL Classification: J01, J21, J41, J48.

Keywords: self-employment, labour market, labour market regulations, labour market institutions, Europe.

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# 1. Introduction

Self-employed individuals represent around 15% of total employment in OECD countries. The self-employed are a highly heterogeneous category. Many of them provide business services on contract and have high-skilled and high-income jobs while others have much poorer working conditions, lower wages and little job security. To the extent that self-employment reflects the entrepreneurial activity of individuals, by facilitating the adoption and creation of new technologies and innovations, a high share of self-employment would be positive for economic growth. Furthermore, self-employment can also be an avenue for individuals to enjoy a more flexible working environment, can act as a transition to more formal employment position for new entrants, migrants and younger workers or can allow for work on a more marginally attached basis. At the same time, the high share of self-employed in some countries has raised concerns of increased labour-market duality between employees and self-employed and the increase in precarious jobs. Against this backdrop, economists have long sought to understand the individual characteristics such as age, sex, family background, marital status or education influencing the choice of becoming self-employed (Taylor, 1996; Katz and Krueger, 2016; Henley, 2015; Dvoulety and Lukes, 2016; Dvolety, 2018).

The resurgence of self-employment in many industrialised countries in the 1990s sparked further interest about the underlying drivers, including the decline in the manufacturing sector, dominated by large firms (Evans and Leighton, 1989), and the rise of the ICT sector, digitalisation and the emergences of the gig economy (Shevchuk and Strebkov, 2015; OECD, 2016; Krueger, 2018). Cyclical conditions may also encourage workers to switch to self-employment. High unemployment and poor hiring prospects during downturn can generate necessity-driven self-employment (Bögenhold and Staber, 1991; Alba-Ramirez, 1994), whereas good economic conditions can create opportunity-driven self-employment (Henley, 2015). Taylor (1996) shows that higher expected earnings relative to paid employment and the freedom from managerial constraints that it offers push individuals into self-employment. Part of the trend of rising self-employment can also be the result of companies misclassifying workers (Weil, 2014).

Bogus self-employment avoids labour-market regulations and institutions, and paying social security and pension contribution. High levels of self-employment and a significant gap in social security payments between different worker types have implications for government revenues and could imply a lack of social security coverage for a larger share of the workforce, which could result in a large contingent liability to the public sector.

Labour-market institutions could also play an important role in individuals' decisions to opt for self-employment. Work based on household surveys has identified policies such as the unemployment benefit replacement ratio (Zouhar and Lukeš, 2015), active labour market policies (Rodríguez-Planas, 2010) or the stringency of employment protection legislation (Román et al., 2013) as important drivers of unemployed individual becoming self-employed. This paper contributes to this literature by looking at the main policy and institutional factors that could drive the share of self-employment at the aggregate level for a panel of European countries. The paper looks at the aggregate share of self-employed as well as its breakdown by age, gender and skill. A wide range of policy indicators is considered, such as employment protection legislation (for permanent contracts); the differential between tax and social security treatment of self-employed vis-à-vis employees; the tax wedge; the relative minimum wage rate; the unemployment benefit replacement rate; and the level of spending on activation policies on unemployed (ALMP).

The paper is organised as follows. Section 2 describes recent developments in self-employment. Section 3 reviews the policy drivers of self-employment. Section 4 deals with model selection and modelling issues. Section 5 describes the data. Section 6 presents the estimation results. Finally, Section 7 provides concluding remarks.

## 2. Recent developments in self-employment

The self-employed represent a sizeable share of total employment in a number of OECD countries, amounting to slightly less than 15% on average (Figure 1). Self-employment is particularly prevalent in Greece, Turkey and Italy where it exceeds 20%. By contrast, the share was lower or close to 10% in some Nordic countries.

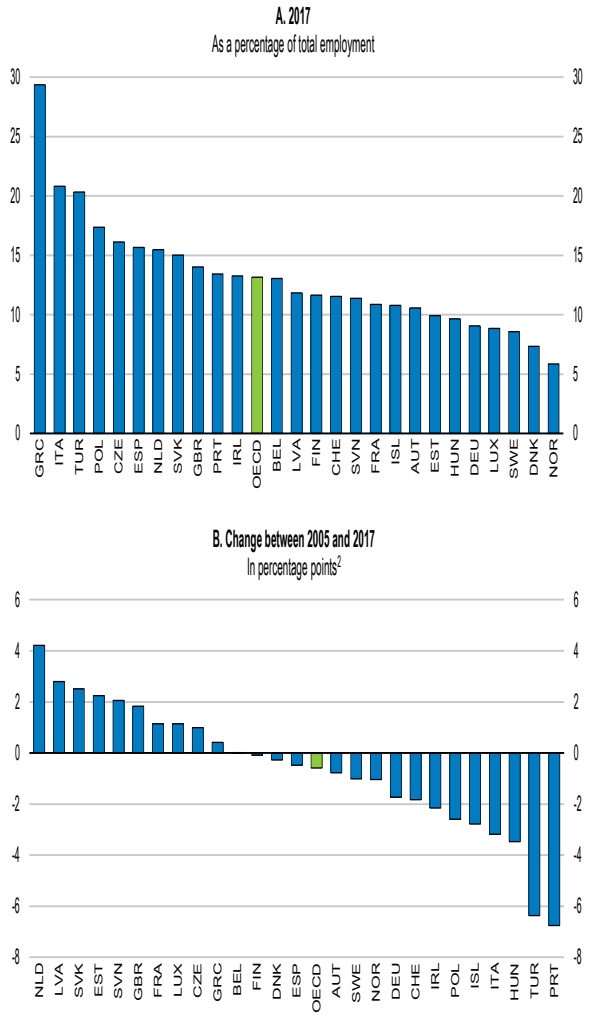
Although these shares tend to be quite stable recently in most countries, longer-term trends have varied widely across countries. Since 2005, most countries experienced a decline in the share of self-employed, with Portugal and Turkey witnessing the largest decline in the share over the past decade. Not all countries experienced a decline however, and countries like the Netherlands and United Kingdom witnessed a considerable increase in the share.

Own-account workers (without employees) have made up an increasing share of the self-employed in many countries, with the rise relatively larger in those countries that have experienced an increase in the share of total self-employment over the past decade (Figure 2). To the extent that this trend continues, and if own-account workers do not scale up their businesses by hiring employees, then the potential positive impact to aggregate productivity associated with increased entrepreneurial activity would diminish. Indeed, in the Netherlands where own-account workers have seen a very large rise in the share of self-employed, only around 2-3% of individuals annually scale up their operations by taking on new employees (ter Weel et al., 2017).

**Figure 1. Self-employment (aged 15-64)**[1]

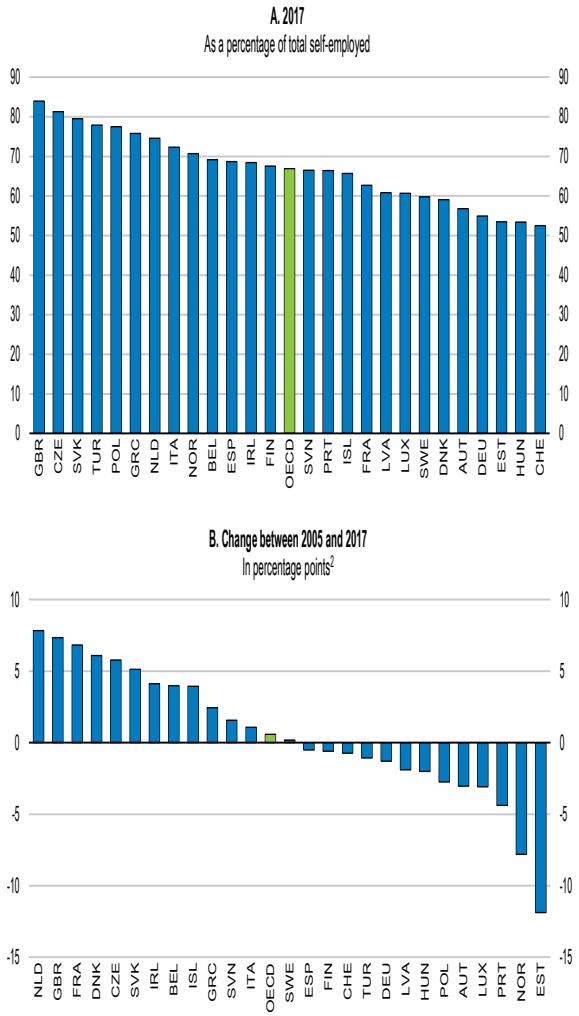
**Panel A**

**Share of self-employed: overall**




**Panel B**

**Share of self-employed persons without employees (own-account workers): overall**




1. The OECD aggregate is calculated as an unweighted average of the data shown.
2. Change between 2006 and 2017 for Turkey.

*Source*: Eurostat (2018), "Employment and unemployment (Labour force survey)", *Eurostat Database*, May.

# 3. The policy drivers of self-employment

A general insight of the literature is that more developed countries tend to have lower self-employment rates (Acs et al., 1994). Nevertheless, varying policies and institutions can explain the diversity of self-employment rates across countries at comparable levels of development. This section provides an overview of the literature on the two main types of policy drivers: i.) labour market regulations and institutions, and ii.) tax policies.

## 3.1. Labour market policies and institutions

The *generosity of unemployment benefits* has *a priori* an ambiguous effect on the share of self-employment. The extent to which employers fund benefits through social security contributions can act as a deterrent to hiring workers, potentially leading to higher levels of self-employment. Alternatively, generous unemployment benefits could act as suitable income support for workers who have separated from earlier employment and encourage them to stay unemployed rather than to start up their own business venture. Empirically, it seems that the second effect prevails given that generous unemployment benefits appear to be inversely related to the share of self-employment (Koellinger & Minniti, 2009; Zouhar and Lukeš, 2015).

Similarly, *spending on active labour market policy (ALMP) measures*, which reflect primarily spending on Public Employment Services (PES) and on training, could help workers build up their human capital and find a more suitable job at the end, reducing the necessity to opt for self-employment. Empirical evidence suggests that high-skill workers are more willing to become self-employed and start a business with employees if there is a greater supply of skilled workers graduating from ALMP programmes (Zouhar and Lukeš, 2015). There is also evidence for direct effects. Rodríguez-Planas (2010) shows that unemployed persons benefitting from ALMP programmes are more likely to exit unemployment and become self-employed, compared to those not participating.

Government programmes designed to encourage the growth of self-employed can also have significant impacts in some countries (Baumgartner and Caliendo, 2008; Wolff et al. 2016). Since the financial crisis, a growing number of countries have introduced schemes to help unemployed create their own firm combining financial aids with counselling. Those schemes have usually limited objectives such as encouraging entrepreneurship. They are rarely fully evaluated making it difficult to assess the extent to which they have contributed to self-employment growth. Those programmes represent only a very small part of spending on active labour market for unemployed.

The role that *employment protection legislation* (EPL) could play in incentivising the choice to work self-employed has also been explored in detail, although the findings have yielded mixed results. A number of studies have shown that EPL restrictiveness has little impact on aggregate self-employment (Robson, 2003; Torrini, 2005; Kannaiainen and Vesala, 2005). However, highlighting the heterogeneity of self-employed as a group, studies that focus on specific categories of self-employment – including a negative impact from the interaction between protections and educational attainment (Baumann and Brädle, 2012) - find a significant impact of EPL. Román et al. (2011, 2013) show the positive role that strict employment protections can have on levels of 'dependent' self-employment – a term used to characterise individuals who are classified as self-employed contractors yet remain, for work purposes, employees. High job protections can discourage hiring by

employers and encourages subcontracting of work instead if there is a discrepancy between the degree of protections on temporary and permanent contracts.

Self-employed are very often not subject to minimum wage legislation. A higher wage floor increases the cost of hiring employees, and makes self-employed workers relatively more attractive as a source of labour. All else equal, employers are thus likely to respond by substituting employees for self-employed workers. Empirically, however, there is only weak evidence of such a link at least in the United Kingdom (D'Arcy, 2017; Cominetti, 2019). One reason is that a higher minimum wage could also spillover over the wages of self-employed.

Policies that target different demographic groups could have an influence on the growth in self-employment. Self-employment as an alternative to unemployment plays an important role for immigrant populations, although the incidence of self-employment differs across different host and origin countries, ethnicities and skill levels (Volery, 2007; Baycan-Levent and Nijkamp, 2009; Kanas et al., 2009).

### 3.2. Tax policies

Self-employment offers greater opportunities for a reduction in the burden of taxation. The impact that tax policies can have on self-employment has been thoroughly analysed, although the focus has particularly been on the extent to which self-employed individuals mis-report their income to minimise their tax burden (Guyton et al., 2018; Astebro and Chen, 2014; Kleven et al. 2011; and Bárány, 2017). The role that complexities in the labour taxation system can have on self-employment has been explored in great detail in Aghion et al. (2017). [develop]

OECD countries where the incidence of self-employment is particularly high, are often those where the *tax wedge* between self-employed and employees are larger. In most countries it is possible to deduct some form of business expenses or investment from self-employed income subject to personal income tax. It is also often possible to allow losses in one year to be offset against income from another or to benefit from the timing of tax payment. In the Netherlands for instance, a large gap between the fiscal treatment of employees and self-employed have had a strong influence on the rising incidence of self-employment (IBO, 2015; ter Weel et al., 2017).

## 4. Modelling Issues

### 4.1. Model selection

The paper seeks to estimate the impact of a variety the policy drivers of self-employment. The policy drivers selected for the empirical analysis are based on the discussion in Section 3. Our long-run empirical model can be written as follows:

$$\frac{selfemployed}{total\_employment} = f(EPL, UBRR, ALMP, MINW, DIFF\_SSC, TAXW, TOPRATE) \quad (1)$$

Where EPL, UBRR and ALMP stand for employment protection legislation for permanent contracts, the unemployment benefit replacement ratio and active labour market policies, respectively. MINW and DIFF_SSC denote the relative minimum wage and the difference

between social security contributions for regular employment and the self-employed. TAXW and TOPRATE represent the tax wedge and the top personal income tax rate. Table 1 summarises the expected relationship between the self-employed and policies. Based on the discussion in Section 3, more stringent EPL, a larger difference in social security contribution and higher tax wedge and higher top marginal income tax rate are expected to be associated with a higher share of self-employed in total employment. Reducing unemployment benefits should go in tandem with a rise in the share of self-employed. The sign of the relationship between active labour market policies or the minimum wage and the share of self-employed is ambiguous.

**Table 1. Regulation and institutional design affecting the share of self-employed in total employment**

| Variable | Expected relationship with self-employed |
|---|---|
| Employment protection legislation (EPL) regular contracts | + |
| Unemployment benefit replacement rate | - |
| ALMP | ? |
| Minimum wage to median | ? |
| Difference in social security contribution rate (total-self-employed) | + |
| Tax wedge, single earner, couple with two children. | + |
| Top marginal tax rate | + |

## 4.2. Estimation issues

The share of self-employed in total employment is modelled as a function of labour market regulations and policies. The relation is estimated at the aggregate levels and looking at the gender, age and skill breakdown. The long-term coefficients are estimated on the basis of the Dynamic OLS (DOLS) estimator. It has the advantage that it corrects for the possible endogeneity of the regressors and autocorrelation in the residuals by incorporating leads and lags of the regressors in first differences (Stock and Watson, 1993).

$$Y_{j,t} = \beta_0 + \sum_{i=1}^{n} \beta_n X_{j,i,t} + \sum_{i=1}^{n} \sum_{l=-k_1}^{k_2} \gamma_{i,l} \Delta X_{j,i,t-l} + \varepsilon_t \qquad (2a)$$

where $Y_t$ represents a number of self-employed groups including: the aggregate share of self-employed in total employment , young or elderly self-employed, male or female, or the share of low, medium or high-skilled self-employed. $\overline{X}$ is the set of labour market regulation and policies described in section 4.1, and variables controlling for the business cycle, for long-term trends with regard to the share of ICT value-added in the total and the share of manufacturing or services.

j stands for individual countries, i for the regressors, and $k_1$ and $k_2$ represent respectively leads and lags. In the empirical analysis, one lead and one lag of the covariates will be used. Equation (1a) will be estimated using country and time fixed effects to avoid omitted variable bias.

Whether or not the variables of interest are cointegrated can be tested in a second step error correction model. The residuals obtained from the long-term relationship ($\varepsilon_t$) can be used

to estimate the error correction model in the second stage. There is weak evidence for the presence of cointegration when the error correction term in this second stage is statistically significant and has a negative sign. In the short term, the model is expressed as a standard error-correction model:

$$\Delta Y_{j,t} = \delta * \epsilon_{it-1} + \sum_k \alpha^k \Delta X_{i,t}^k + \vartheta_{it} \quad (2b)$$

# 5. Data issues

The dataset used in this paper covers 21 European countries over the period 1995-2013[2]. The panel is unbalanced: regional coverage and the time sample vary depending on data availability. Data for self-employed are taken from the Eurostat databsae. Both aggregate self-employed and the breakdown by age, gender, and skills are used. The self-employed data from Eurostat allows us to look at own-account self-employed as well as aggregate self-employed. Data from the OECD, whose definitions differ slightly from those of Eurostat – reflecting the treatment of unpaid family members – and do not have a separateown-account workers category, are used to investigate the robustness of the analysis.

Data for labour market and tax policies are drawn from the OECD's SPIDER database (Égert, Gal and Wanner, 2017). The analysis is limited to institutional variables that have been found important determinants of the share of self-employed in the economic literature (See section 3; Table 2).

Simple correlations provide preliminary insights on the link between labour-market institutions or tax and developments in self-employed. Statistical evidence points to a weak positive relation between the difference in employee and employer social contributions and self-employed social security contribution rates across countries. There is also little evidence of a relationship between minimum wages and developments in self-employment. Generous unemployment benefits appear to be inversely related to the share of self-employment, suggesting that generous unemployment benefits could act as suitable income support for workers who have separated from earlier employment and encourage them to stay unemployed rather than to start-up their own business venture. Statistical evidence also suggests a positive but weak relationship between the share of self-employed in total employment and the stringency of employment protection legislation, as measured by the OECD indicator of employment protection legislation for permanent workers. By contrast, cross-country evidence does not point to a strong correlation between the top marginal income tax rate and the share of self-employed. Countries such as Denmark where the top income rate is high experience a low share of self-employed. There is also no strong evidence that cuts in the top marginal tax rate have been associated with the fall in the number of self-employed. Lastly, union density and excess coverage appear to be well correlated with the share of self-employed, but as the direction of causality between these two variables is ambiguous it was judged preferable not to include them in the analysis.

[2] Austria, Belgium, Switzerland, Czech Republic, Germany, Denmark, Spain, Finland, France, United Kingdom, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Sweden, Slovakia.

**Table 2. Descriptive statistics**

Sample of 21 European countries, 1985-2013

| | Average | Minimum | Maximum |
|---|---|---|---|
| Dependent variables | | | |
| Self-employed (Eurostat, share in total employment) | 14.6 | 6.1 | 35.1 |
| Self-employed (OECD share in total employment) | 18.2 | 6.5 | 68.2 |
| Elderly | 22.0 | 5.4 | 52.4 |
| Young | 4.3 | 0.6 | 13.5 |
| Male | 17.4 | 6.0 | 41.4 |
| Female | 9.4 | 2.8 | 25.4 |
| Low-skilled | 14.6 | 2.4 | 46.5 |
| Medium-skilled | 13.2 | 6.3 | 28.9 |
| High-skilled | 13.9 | 4.0 | 29.2 |
| Independent variables | | | |
| Unemployment benefit replacement ratio (share of last income) | 26.3 | 0.0 | 65.2 |
| Employment protection legislation (permanent contracts) | 2.4 | 1.0 | 5.0 |
| Minimum wage (ratio to median wage) | 19.0 | 0.0 | 85.1 |
| Active labour market policy (spending per unemployed as a share of per capita income) | 26.3 | 1.3 | 182.9 |
| Social security contribution rate (difference between regulator workers and self-employed) | 10.7 | -17.4 | 40.8 |
| Top marginal tax rate | 48.9 | 13.5 | 81.6 |
| Tax wage (single earner, couple with two children) | 49.2 | 22.5 | 81.6 |

Source: Authors' calculations

Finally a set of controls, including the share of ICT, manufacturing or services value added and indicator of the business cycles (output gap, unemployment gap, unemployment rate), have been used to correct for structural changes in the economy and the cyclical position which may also affect the share of self-employed. These data are taken from the latest Economic Outlook, Eurostat and the STAN databases.

# 6. Empirical results

## 6.1. Unemployment benefits and active labour market policies are important drivers of the developments in self-employed

A summary of estimates from equations (2a) and (2b) is reported in Table 3[3]. The unemployment benefit replacement rate and spending on active labour market policies are estimated to have a significant negative impact on the share of self-employed in the long term, and to a lesser extent in the short term. More generous unemployment benefits significantly reduce the share of own-account workers over the long-term. The effect of active labour market spending is also negative but not significant. By contrast, the

[3] A complete set of estimation results is reported in Annex 2 of the working paper version of this paper (Baker et al., 2018)

stringency of employment protection legislation on permanent contract does not seem to play a major role in explaining the decision to move to self-employment in the short or the long term. The result is consistent with Torrini (2005) and Robson (2003). The lack of significance of results is likely to reflect to a large extent the limitation of the measure of employment protections, which is a de jure indicator and captures only imperfectly the stringency of labour-market regulations faced by firms.

These results appear to be robust to a change in the definition of self-employed, using the OECD measure, rather than the Eurostat measure of self-employed. They also hold when the sample period is expanded or when alternative business cycle indicators (unemployment rate, unemployment gap) are used to control for the position in the economic cycle.

Other labour market institutions are estimated to influence the share of self-employed, but their impact is less robust. The tax wedge appears to have a positive and significant impact on the share of self-employed, suggesting that workers are encouraged to become self-employed when there is relative tax advantages compared to regular employment. The ratio of the minimum wage to the median is found to be positively related to the share of the self-employed. However, both indicators loose significance when the OECD definition of self-employed is used. The minimum wage  does not also appear to be associated with the share of self-employed over a longer time sample

Other labour-market institutions did not appear to play a significant role in determining the share of self-employed. This includes the top marginal tax rate and the difference in social contributions for employees and the self-employed, the number of maternity leave weeks, or the amount of in-kind transfers.

**Table 3. Share of self-employed, different measures**

| | Share of self-employed, Eurostat | Share of self-employed, Eurostat | Share of self-employed, Eurostat | Share of self-employed, Eurostat | Share of self-employed, Eurostat longer sample | Share of self-employed, own account | Share of self-employed, OECD data |
|---|---|---|---|---|---|---|---|
| Long term | | | | | | | |
| Constant | 10.555** | 9.388** | 9.616** | 14.88** | 11.019** | 72.948** | 15.476** |
| Employment protection | 0.145 | 0.032 | -0.394 | -0.143 | - | -6.391 | 0.984 |
| Tax wedge | 0.098** | 0.104** | 0.131** | 0.109** | 0.087* | 0.245 | -0.023 |
| Unemployment benefit | -0.078** | -0.064** | -0.052** | -0.093** | -0.08** | -0.198** | -0.076** |
| Minimum wage | 0.025* | 0.029** | 0.038** | 0.025* | 0.019 | 0.146* | 0.009 |
| ALMP | -0.03* | -0.031** | -0.039** | -0.037** | -0.028* | -0.067 | -0.06** |
| Output gap | -0.038 | | | -0.056 | -0.029 | -0.365* | -0.333** |
| Unemployment gap | | 0.006 | | | | | |
| Unemployment rate | | | -0.078 | | | | |
| Share of ICT | 0.543* | 0.685** | 0.713** | | 0.594** | 0.94 | 0.717 |
| Share of manufacturing | | | | -0.046 | | | |
| Error correction term | -0.132** | -0.138** | -0.151** | -0.13** | -0.126** | -0.35** | -0.071** |
| Adjusted R-squared | 0.979 | 0.979 | 0.98 | 0.979 | 0.98 | 0.898 | 0.983 |
| Country fixed effects | yes | yes | yes | yes | yes | yes | yes |
| Time fixed effects | yes | yes | yes | yes | yes | yes | yes |
| No. of observations | 244 | 244 | 244 | 246 | 251 | 244 | 212 |
| No. of countries | 21 | 21 | 21 | 21 | 21 | 21 | 19 |

*Note:* Employment protection is for regular workers. Tax wedge is for the single earner, couple with two children. Minimum wage is the ratio to median. ALMP stands for active labour market policies. * means significant at 10%, ** at 5% and *** at 1%.

*Source*: Authors' calculations.

## 6.2. Less generous unemployment benefits increase self-employment for all categories

Looking separately at different demographic groups, the results do not differ markedly from those observed at the aggregate level. The unemployment benefit replacement rate and active labour market spending are found to be negatively related to the share of self-employed of all the categories of workers (except for youth in the case of active labour market policies). Employment protection legislation on permanent contract is in no case found to play a role (Table 4).

By contrast, the impact of tax wedge appears to be stronger for male than female self-employed and nil for youth. In the same vein, the minimum wage is not found to play a role for any worker categories. Nevertheless, the results on demographic groups should be interpreted with care as the number of workers in some categories is quite small.

**Table 4. Share of self-employed by age and gender**

| | Share of self-employed, Eurostat | Young | Elderly | Female | Male |
|---|---|---|---|---|---|
| Long term | | | | | |
| Constant | 10.555** | 1.05 | 14.442** | 5.741* | 12.733** |
| Employment protection | 0.145 | 0.54 | -0.549 | 0.923 | 0.844 |
| Tax wedge | 0.098** | 0.044 | 0.136* | 0.077* | 0.153** |
| Unemployment benefit | -0.078** | -0.035** | -0.102** | -0.07** | -0.11** |
| Minimum wage | 0.025* | 0.01 | 0.039 | 0.019 | 0.025 |
| ALMP | -0.03* | 0.008 | -0.051** | -0.028** | -0.048** |
| Output gap | -0.038 | 0.019 | 0.007 | 0.055 | -0.09 |
| Share of ICT | 0.543* | 0.121 | 1.524** | 0.22 | 0.312 |
| Error correction term | -0.132** | -0.245** | -0.106** | -0.207** | -0.168** |
| Adjusted R-squared | 0.979 | 0.908 | 0.983 | 0.963 | 0.962 |
| Country fixed effects | yes | yes | yes | yes | yes |
| Time fixed effects | yes | yes | yes | yes | yes |
| No. of observations | 244 | 228 | 244 | 244 | 244 |
| No. of countries | 21 | 20 | 21 | 21 | 21 |

*Note:* Employment protection is for regular workers. Tax wedge is for the single earner, couple with two children. Minimum wage is the ratio to median, ALMP stands for active labour market policies. * means significant at 10%, ** at 5% and *** at 1%.

*Source*: Authors' calculations.

## 6.3. High-skilled self-employed are different from the mid- and low-skilled self-employed

The generosity of unemployment benefit and active labour market spending, as well as the tax wedge and the relative minimum wage, continue to explain the share of self-employed for most skills. There are two exceptions: active labour market spending does not explain self-employment of high-skilled workers and the minimum wage does not appear to play a role in the share of self-employed of medium-skilled workers (Table 5). Contrary to what is observed at the aggregate level, strict employment protection is associated with lower levels of high-skilled self-employment and higher levels of low-skilled self-employment. It is probable that high-skilled workers are more likely to be on permanent contracts than low and mid-skilled workers. Therefore, when protection is high high-skilled workers opt for regular employment to benefit from such a protection. By contrast, the stringency of employment protection may encourage low-skilled workers or employees to circumvent the resulting high labour costs by moving to self-employment.

**Table 5. Self-employed by skills**

| | Share of self-employed, Eurostat | High skill | Medium skill | Low skill |
|---|---|---|---|---|
| Long term | | | | |
| Constant | 10.555** | 20.621** | 14.255** | 1.769 |
| Employment protection | 0.145 | -3.764** | -0.682 | 2.075** |
| Tax wedge | 0.098** | 0.118** | 0.079* | 0.171** |
| Unemployment benefit | -0.078** | -0.07** | -0.049** | -0.074** |
| Minimum wage | 0.025* | 0.038** | 0.021 | 0.044** |
| ALMP | -0.03* | -0.03 | -0.043** | -0.055** |
| Output gap | -0.038 | -0.145** | 0.213** | -0.136* |
| Share of ICT | 0.543* | 0.021 | -0.051 | 1.023** |
| Error correction term | -0.132** | -0.352** | -0.177** | -0.257** |
| Adjusted R-squared | 0.979 | 0.963 | 0.966 | 0.99 |
| Country fixed effects | yes | yes | yes | yes |
| Time fixed effects | yes | yes | yes | yes |
| No. of observations | 244 | 238 | 238 | 238 |
| No. of countries | 21 | 21 | 21 | 21 |

*Note:* Employment protection is for regular workers. Tax wedge is for the single earner, couple with two children. Minimum wage is the ratio to median, ALMP stands for active labour market policies. * means significant at 10%, ** at 5% and *** at 1%.

*Source*: Authors' calculations.

# 7. Concluding remarks

This paper examines the main policy drivers of self-employment. The main insights from the empirical analysis are as follows. First, the generosity of the unemployment benefits – measured by the replacement ratio – appears to be a robust determinant of the long-term share of self-employed in European countries (Table 1). It also affects short-term developments of the share of self-employed, but not in all the specifications tested. One interpretation of this result would be that unemployed workers might be more willing to take on the risks of starting their own business if income support supplied to unemployed is low. The negative impact of the unemployment benefits replacement ratio on the share of self-employed is found to be robust to the use of different measures of self-employment, and holds for own-account workers – those individuals who work for themselves without taking on staff – as well as for different categories of workers broken down by age, gender and skills.

Second, spending on active labour market policies is also found to negatively impact the long-term share of self-employed for most categories of worker, own-account workers and youth being an exception. Enhanced job matching through training and job-seeking measures, which represent the bulk of active labour market measures, increases the chances of finding a new job and reduces the necessity to opt for self-employment.

Third, the stringency of employment protection legislation is found to have a negative impact on self-employment amongst high-skilled workers and is positively associated with self-employment amongst low-skilled workers. The contrasting impact on self-employment across skill types results in no impact of employment-protection stringency

on aggregate self-employment. High-skilled workers are likely to benefit more from strict employment protections and therefore opt for regular employment. Self-employment can act as an avenue for low-skilled workers, and for businesses hiring these workers, to circumvent the higher costs associated with strict regulation, perhaps explaining the positive impact.

Fourth, both the tax wedge and the minimum wage appear to be positively related to the share of self-employed in the long term, but the relation holds for some categories of workers only.

**Table 5. Effect of institutions on the share of self-employment**

| | Long term | Short term |
|---|---|---|
| Employment protection legislation | 0 | 0 |
| Unemployment benefits | - | -/0 |
| ALMP | - | -/0 |
| Tax wedge | +/0 | 0 |
| Minimum wage | +/0 | 0 |

Note: Employment protection legislation is for regular workers. Unemployment benefit stands for the unemployment benefit replacement ratio. ALMP stands for active labour market policies. Tax wedge is for the single earner, couple with two children. Minimum wage is the ratio to median.

Overall, these results need to be interpreted with care, in particular when the age, gender or skilled categories are examined as the number of workers in those categories is sometimes limited. Moreover, only linear relations have been tested in the paper, while some institutions could have an effect on the share of self-employed only after they reach a certain threshold. In the same vein, interactions between institutions have also not been investigated.

One important area for further research would be a more nuanced investigation of the role that labour taxation across different types of working types plays in influencing self-employment. Our work uses the difference in social security contributions but does not account for potential differences in pension contributions, or potentially tax breaks put in place to stimulate self-employment that are used across countries. For instance, in the Netherlands there is no obligation for the self-employed to make second pillar pension contributions, which account for a large share of gross income of salaried employees, and there exist a number of tax deductions available to stimulate entrepreneurship, which contribute to a very large difference in the net incomes of employees and self-employed individuals. It would be useful to test whether those features of the tax system influence developments in the share of self-employment.

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