Solo Self-Employment and Alternative Work Arrangements: A Cross-Country Perspective on the Changing Composition of Jobs

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In the last 20 years, most OECD countries experienced a major change in the composition of self-employment. The share of self-employed persons who operate on their own without having dependent workers on their payroll—or *solo self-employment*—increased almost everywhere relative to the other self-employment. This changing nature of self-employment raises a number of relevant issues: is solo self-employment an intermediate status between employment and unemployment? Does it contribute to explaining the strong wage moderation that OECD countries are experiencing even in the presence of low-measured unemployment? Are policies encouraging self-employment as a vehicle for entrepreneurship and job creation ill-suited for these new developments? How do the preferences of the solo self-employed locate along the trade-off between flexible work organization and income insecurity imposed by their working arrangements? Is there a need to extend social protection to these new forms of employment? If so, how is this possible?

Economic theory typically treats self-employment as a labor supply decision. Most of the economic literature on self-employment is focused on

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entrepreneurship (Evans and Jovanovic 1989; Jovanovic 1994; Parker 2004; Lazear 2004; Audretsch, Keilbach, and Lehmann 2006). A partial exception is Levine and Rubinstein (2017), who acknowledge the difference between self-employment in incorporated and in unincorporated enterprises but do not consider the demarcation between solo self-employed and self-employed with employees. The broader theoretical framework used in this literature is a model of occupational choice in which workers make a voluntary choice either to be self-employed or in paid employment, based on factors like their skills and degree of risk aversion. Some workers might prefer greater flexibility in organizing their time or other nonpecuniary benefits of being their own boss (as in Hurst and Pugsley 2011). By treating self-employment as a choice, this framework does not allow for demand-driven determinants of self-employment. For example, it does not allow for employers who are unwilling to offer employment protection to individuals who are de facto dependent workers in their enterprise.

But do self-employed workers agree that they have made an occupational choice that they prefer to conventional dependent employment? Self-employed people without employees do not have the same type of social insurance and job protection that are granted to employees. Some countries have a dual labor market with a substantial number of fixed-term contract holders, but even compared with this group, self-employed individuals do not have any protection even within the contract duration and frequently are not covered by the various forms of social insurance provided to workers with fixed-term contracts.

The purpose of this paper is to shed fresh light on the situation of self-employed workers, with a particular emphasis on solo self-employment, drawing on newly collected survey data investigating the Italian, UK, and US labor markets. In these three countries, we conducted comparable surveys of self-employment, alternative work arrangements, and the gig economy, including questions on demographics, job characteristics, contractual conditions, the need for flexibility, and willingness to pay for social protection. We complement these data with information on macro trends from OECD data and on individual labor market dynamics from the UK and Italian Labor Force Surveys (LFS) and the US Current Population Survey (CPS). This provides a unique international comparison of the changing nature of self-employment in three major economies.

We first consider the data on self-employment with and without workers available from the OECD. Self-employment with employees is falling in most countries, while solo self-employment is rising in nearly half of them. As a consequence, the solo component of self-employment is increasing relative to self-employment with employees almost everywhere. A recurrent theme of this paper is that the solo self-employed differ from the self-employed with employees. We also deal with measurement issues, which are extremely important when dealing with self-employment, and the relationship between self-employment and alternative work arrangements like gig work.

We then turn to our surveys of workers in the United Kingdom, the United States, and Italy to describe how the characteristics of the workers engaged in

solo self-employment compare to self-employed with workers and the reasons why workers engage in these types of jobs. In particular, we investigate the extent to which nonstandard work arrangements satisfy the need for flexibility, or by contrast, whether workers engaged in solo self-employment would prefer to work more hours but are somehow constrained in doing so. There are a number of reasons to suspect that a substantial number of self-employed may not be in search of flexibility. Self-employment contracts frequently hide de facto dependent employment conditions with little, if any, working time flexibility. Thus, even workers valuing higher flexibility may be worse off with lower protection against labor market risk and only slightly more flexibility. Indeed, we present evidence, especially among gig workers, of a bimodal distribution of the degree of job satisfaction, with more or less the same proportion of workers being hourly constrained and being happy about their current hours. This sits well with the recent study of US call center applicants that found that the majority of workers do not value workplace flexibility and have a strong distaste for irregular and short-noticed scheduling (Mas and Pallais 2017).

We then turn to the labor market dynamics of workers to consider the transition patterns in and out of unemployment, regular employment, solo self-employment, and self-employment with employees. Again, strong evidence emerges that solo self-employment and self-employment with workers are two distinguishable labor market statuses, characterized by different transitions from and into unemployment. Moreover, solo self-employment is largely associated with underemployment: that is, these workers would like to work more hours, and they earn less on an hourly basis than their counterparts with employees. The solo self-employed are also more liquidity constrained and more vulnerable to idiosyncratic shocks than the self-employed with workers.

These features of solo self-employment make it a candidate to be considered as part of an overall measure of labor slack. Indeed, we will argue that labor market slack may no longer be captured by unemployment and involuntary part-time figures alone, especially in European labor markets. Even in countries with very low unemployment levels there is now a large "reserve army" in place, including some of the solo self-employed, that potentially undercuts wages of those working in traditional forms of employment.

We also discuss the demand and supply of social protection and the problems to be addressed by reforms that could possibly extend work injury, sickness, old age, and unemployment insurance to these solo self-employment work arrangements. Our surveys indicate that the solo self-employed express a strong demand for social protection and are willing to pay even more than the rate charged to the traditional forms of employment in order to get some social insurance coverage. The key challenge is how to design social protection for self-employed who can readily alter their working status and incomes and how to address the problems of moral hazard and adverse selection that arise. In the conclusion, we offer some policy recommendations and directions for further research.

Self-Employment: Basic Trends and Measurement Issues

Trends

The OECD definition of self-employment refers to "individuals who are the sole owners, or joint owners, of the unincorporated enterprises in which they work, excluding those unincorporated enterprises that are classified as quasi-corporations." In our discussion, we will focus mainly on the separation between self-employed with and without employees. This difference is better understood by survey respondents, and as we will see, it demarcates quite a different employment dynamic.

Table 1 shows trends in self-employment rates (the ratio of the number of self-employed to total employment) in OECD countries. In most countries, self-employment has been declining as a share of total employment, and the strongest declines are observed in those countries that had in 2000 the highest self-employment rates—typically southern European countries. However, cross-country differences in self-employment rates were still sizeable in 2017, ranging from a low 6 percent in Norway to a high 30 percent in Greece. Such a large cross-country variation is a by-product of institutional asymmetries, such as the strictness of employment protection legislation and differences in the structure of employment (namely the relevance of the small business sector, notably in retail trade). As employment protection legislation is declining in most countries as a result of reforms introducing more flexible forms of dependent employment and globalization has brought about an increase in scale economies, the very same factors explaining why some countries had historically high self-employment rates contribute to explaining the fall of the overall share of self-employment.

However, the fall of self-employment is largely concentrated on self-employment with dependent employees, since self-employment without employees has actually been increasing relative to total self-employment in almost all of the OECD countries.

Self-employed workers with and without employees sort into different occupations. We looked at what main occupations of self-employed with and without employees are the three countries in which our main analysis focuses, using the Labor Force Surveys for the United Kingdom and Italy and the Current Population Survey for the United States. Whilst the main occupations for the self-employed with employees are production or retail manager in all three countries, with the addition of medical practitioner in the United Kingdom, the corresponding occupations among the solo self-employed are taxi driver, carpenter, and childminder in the United Kingdom; manager, farmer, and construction laborer in the United States; and shopkeeper, lawyer, and sales agent in Italy.

The occupations that grew the most among the solo self-employed are professional, technical, and personal care occupations in the United Kingdom, transportation and managerial occupations in the United States, and professional and technical occupations in Italy.[1] Multiple data sources have documented the phenomenal growth of gig

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[1] The change is computed over the period 2000–2017 for the United Kingdom and Italy and 2014–2017 for the United States.

Table 1

Self-Employed with and without Employees as a Percent of Total Employment

	Self-employment as a share of total employment			Solo self-employment as a share of self-employment	
	2000	*2017*		*2000*	*2017*
Australia	19.13	16.74		60.53	63.14
Austria	10.56	10.57		53.03	56.67
Belgium	13.65	13.07		67.11	69.17
Canada	14.96	13.33		64.71	70.22
Czech Republic	14.36	16.14		70.89	81.29
Denmark	8.03	7.36		47.57	59.10
Finland	12.59	11.66		66.40	67.50
France	9.92	10.89		57.16	62.72
Germany	9.69	9.08		49.95	54.85
Greece	31.44	29.37		74.78	75.79
Hungary	14.40	9.66		65.00	53.31
Iceland	16.88	10.79		57.88	65.89
Ireland	16.77	13.35		65.30	68.46
Italy	23.65	20.86		47.06	72.34
Korea	27.73	21.26		75.12	71.87
Latvia	10.20	11.83		59.71	60.86
Netherlands	10.04	15.51		68.23	74.53
New Zealand	19.72	20.03		64.25	66.40
Norway	6.94	5.87		75.50	70.70
Poland	21.83	17.38		82.27	77.45
Portugal	20.43	13.47		69.55	66.30
Slovenia	9.52	11.40		70.48	66.49
Spain	17.76	15.68		68.81	68.69
Sweden	9.87	8.60		60.39	59.77
United Kingdom	11.48	14.06		72.65	84.00
United States	10.63	10.03		73.85	77.07

Source: OECD.
Note: The table reports the number of (1) self-employed (with and without employees) as a percent of total employment and (2) the share of solo self-employed out of total self-employment for various OECD countries in 2000 and 2017.

economy jobs in the passenger transportation industry in the United States since 2013 (Hall and Krueger 2018; Farrell, Greig, and Hamoudi 2019; Abraham et al. 2018).

Some Caveats about Survey Data on Self-Employment

In survey data, workers are often confused about the nature of their employment relationship; for example, two gig workers out of three in the Italian survey report that they have no clue as to their contractual status. Furthermore, not all surveys have information on the limited liability nature of the business or its legal identity, which prevents classifying the enterprise either as incorporated or unincorporated. For these reasons, the statistical definition of self-employment is often implemented by considering the size of the enterprise. If the firm is relatively small, the worker is classified as a "self-employed person with dependent employees;" if the firm is large,

the worker is classified as an "entrepreneur." This proxy has obvious shortcomings, importantly including the neglect of the age of the firm. Many incorporated business start-ups begin relatively small and then grow.

If the focus is on self-employed people without dependent employees, another issue arises related to the border between self-employment and dependent employment status. Workers classified as self-employed with apparent autonomy over working hours may have a unique client. Indeed, many services offered formally as self-employment activities may not be different from activities carried out by the employees. For this reason, a number of self-employed freelancers, homeworkers, and commission salespersons can be viewed as belonging to an intermediate category between dependent employment and self-employment. So-called gig workers, like those involved in food delivery, sometimes have a status of employee with flexible hours and in other cases are self-employed workers, depending on the choices made by the firm.

Finally, survey data may underestimate the extent of self-employment as they often do not accurately track multiple job holdings. In the United States, for instance, there is evidence of a growing number of self-employed people who are registered in administrative data, but do not show up in survey data. In order to understand the sources of these discrepancies, Abraham et al. (forthcoming) link individual survey data and administrative records. They find that the amount of undocumented self-employment (in Current Population Survey data but not in administrative records) has been relatively stable, while there has been a notable increase in self-employment activity registered by the Internal Revenue Service (IRS) but not by CPS data, and conclude that the latter discrepancy is due—in equal proportions—to underreporting, multiple job holdings, and employment misclassification in the Current Population Survey. In Italy, multiple job holdings seem to be the key factor: registered (at social security) self-employment positions are almost 30 percent of the total registered positions, while the share of self-employed persons in total employment is about 23 percent according to both Labor Force Survey and administrative data. Similarly, in the United Kingdom, Labor Force Survey and administrative tax data converge in reporting a self-employment rate of the order of 12–13 percent, but one self-employed out of four has multiple jobs.

In light of these measurement issues, in this paper we focus mainly on the composition of self-employment, notably on separation between self-employed with and without employees. This difference is better understood by the respondents, and it actually demarcates quite a different employment dynamic, as we have already seen. Furthermore, the most relevant issues nowadays relate to self-employment without employees. Are these solo self-employed activities preferred to dependent employment because they allow for more flexibility in organizing working time? Are the nonpecuniary benefits of being "her own boss" (Hurst and Pugsley 2011) prevailing over the security offered by standard dependent employment contracts? Or is this a choice imposed by the employers willing to share with the worker the enterprise risk by not offering employment protection to persons who are de facto dependent workers of their enterprise?

This issue has been largely overlooked by the academic literature on self-employment. The latter focused almost entirely on self-employment as entrepreneurship—adopting a theoretical framework of voluntary sorting into self-employment by individuals—and devoted much less attention to demand-driven determinants of self-employment (Evans and Jovanovic 1989; Jovanovic 1994; Parker 2004; Lazear 2004; Audretsch, Keilbach, and Lehmann 2006).

Alternative Work Arrangements and Self-Employment

A body of previous work has looked at alternative work arrangements in specific countries, without devoting particular attention to solo self-employment. For example, Katz and Krueger (2018) document a large increase in the percentage of US workers engaged as independent contractors, on-call workers, temporary help agency workers, and contract company workers in the last decade. In a follow-up reconciliation across different data sources, Katz and Krueger (2019) conclude that there has been an upward trend in alternative forms of employment in the US labor market, but also emphasize the difficulty of tracking down workers engaged in these new forms of work in commonly used data sources. Other recent work emphasizes the difficulties of identifying alternative work arrangements in US data sources and the blurred boundaries of employment categories that the new forms of work are generating (for example, see Abraham and Amaya 2019; Abraham et al. forthcoming; Jackson, Looney, and Ramnath 2017; and Spreitzer, Cameron, and Garrett 2017).

Similar patterns were found by Datta, Giupponi, and Machin (forthcoming) in countries like the United Kingdom, where the percentage of the workforce that is self-employed without dependent workers and the share of workers on "zero hours contracts" (who agree to be available for work when required, with no guaranteed hours or times of work) have been increasing over time. There is also some US-based evidence that unemployment is predictive of the probability of transitioning to a nonstandard job (Katz and Krueger 2017), but little is known about the types of labor market transitions those workers on solo self-employment experience. Some studies on measures of nonstandard work (OECD 2015, 2018) and on wage moderation (Bell and Blanchflower, forthcoming) do acknowledge the difference between solo self-employment and the total stock of the self-employed, but making such a distinction remains more the exception than the rule.

Two Faces of Self-Employment

In order to better understand the nature of self-employed workers, we designed comparable online surveys of self-employment and alternative work arrangements for Italy, the United Kingdom, and the United States. For the UK labor market, the LSE-CEP Survey of Alternative Work Arrangements is a survey of 20,000 individuals carried out in February 2018. For the US labor market, the Princeton Self-Employment Survey is a survey of over 10,000 individuals conducted in April

2017. For the Italian labor market, the fRDB Survey of Independent Workers is a survey of 15,000 individuals conducted in May 2018. The survey questionnaires are reproduced in online Appendices C (UK survey), D (US survey), and E (Italian survey).

The surveys, run on online platforms, were designed to be representative of the working-age population. The UK survey was based on a representative sample. For the Italian and US surveys, representativeness is achieved using survey weights from the survey provider and from the 2011–2015 American Community Survey, respectively. To assess the representativeness of the survey samples, we compared them to the UK Labor Force Survey, the US Current Population Survey, and the Italian Labor Force Survey. There is a healthy mixture of representativeness across gender, age, and employment status across the three online surveys. As for educational attainment, the distribution in the online surveys and national surveys do not match well, though this is partly due to difficulties in fully homogenizing educational attainment variables across countries and data sources.[2] In spite of the overall good representativeness, there remain concerns related to self-selection in online surveys and to the fact that such self-selection may differ across countries.

The survey questions investigate previously untapped areas of the labor market, collecting novel information on the characteristics and employment conditions of self-employed workers and offering a unique international comparison of working arrangements in the three major economies.

Self-Employment in the Survey Data

In this section, we focus on respondents who identify themselves as primarily self-employed, and we emphasize the distinction between self-employed with and without employees. Our surveys also investigate gig economy workers, which we will discuss in the next section. Table 2 presents descriptive statistics for self-employed workers in the three countries, distinguishing between self-employed with employees and without employees (own account or solo self-employed). Whilst self-employed workers as a group are predominantly male, the proportion of females is consistently higher among the solo self-employed. Similarly, the solo self-employed tend to be slightly older than the self-employed with employees in all countries. The distribution of educational qualifications is roughly similar across the two groups.

Solo self-employed individuals have mean and median hourly earnings that are consistently lower than those of self-employed with employees across the three countries, as shown in Table 2. A similar pattern is found when looking at weekly hours worked. The solo self-employed work on average eight fewer hours per week than the self-employed with employees. Solo self-employed work fewer hours also in comparison to traditional full-time employees, who work approximately 40 hours per week on average. Moreover, solo self-employed are characterized by a much larger incidence of part-time work, with 40 to 50 percent of solo self-employed

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[2]For descriptive statistics about the online survey samples and their representativeness, see Table A1 in online Appendix A.

Table 2
Summary Statistics of Self-Employed Workers

	United Kingdom		United States		Italy	
	Solo	*With employees*	*Solo*	*With employees*	*Solo*	*With employees*
Female	0.44	0.36	0.41	0.21	0.40	0.37
Age	44.81	42.75	47.01	44.88	42.28	41.11
Age 18–24	0.08	0.07	0.03	0.03	0.06	0.08
Age 25–34	0.15	0.21	0.12	0.17	0.21	0.20
Age 35–44	0.22	0.24	0.19	0.27	0.28	0.32
Age 45–54	0.28	0.26	0.41	0.26	0.29	0.25
Age 55–65	0.26	0.22	0.25	0.27	0.16	0.14
Less than high school	0.14	0.12	0.05	0.10	0.01	0.00
High school	0.32	0.34	0.54	0.47	0.27	0.23
Vocational training	0.15	0.09	0.06	0.04	0.29	0.34
Bachelor	0.27	0.25	0.21	0.24	0.13	0.15
Advanced degree	0.11	0.20	0.15	0.15	0.30	0.28
Hourly wage	36.82	52.49	46.71	65.55	60.48	87.64
Hourly wage (median)	11.00	18.00	22.00	25.00	40.00	53.33
Weekly hours	32.26	41.16	36.03	43.67	34.78	42.53
Weekly hours (median)	31.50	40.00	35.00	42.00	40.00	40.00
Proportion working part time (<35 hours per week)	0.52	0.26	0.46	0.18	0.41	0.19
Proportion working part time for economic reasons (<35 hours per week)	0.18	0.05	0.18	0.03	0.12	0.06
Proportion working as traditional employee	0.07	0.20	0.11	0.43		
Total weekly hours (including traditional employment)	33.69	47.46	38.38	57.38		
Number of observations	1,633	228	1,014	299	2,037	367

Source: LSE-CEP Survey, Princeton Self-Employment Survey, fRDB Survey.
Note: The table reports the mean of a set of variables for the samples of self-employed respondents to the online surveys, distinguishing between solo self-employed and self-employed with employees.

working less than 35 hours per week—the corresponding figure for self-employed with employees ranging from 18–19 percent in the United States and Italy to 26 percent in the United Kingdom.

The solo self-employed often state that they are underemployed for economic reasons: 12 percent in Italy and 18 percent in the United Kingdom and the United States declare that they work part-time due to slack business conditions, the inability to find full-time work, or due to seasonal work. Strikingly, the corresponding figure for self-employed with employees is only 3–6 percent. This evidence is consistent with the notion that the solo self-employed face constraints on how many hours they can work due to an unavailability of additional work; indeed, approximately one-third of the solo self-employed would like to work more hours per week (as shown in Table 3). While many of the self-employed with employees would also like

Table 3

Desired Hours, Job Satisfaction, Liquidity Constraints, and Economic Dependency

	United Kingdom		United States		Italy	
	Solo	*With employees*	*Solo*	*With employees*	*Solo*	*With employees*
A: Desired hours						
More hours	0.27	0.22	0.34	0.30	0.30	0.16
Fewer hours	0.19	0.23	0.19	0.25	0.26	0.44
Satisfied	0.54	0.55	0.47	0.45	0.44	0.40
B: Job satisfaction						
Very satisfied	0.39	0.64			0.15	0.31
Satisfied	0.41	0.29			0.42	0.47
Neutral	0.14	0.05			0.30	0.20
Dissatisfied	0.05	0.00			0.11	0.02
Very dissatisfied	0.01	0.02			0.02	0.00
C: Liquidity constraints						
Able to pay	0.59	0.75	0.65	0.78	0.64	0.84
Pay by borrowing or selling	0.20	0.16	0.22	0.16	0.21	0.12
Unable to pay	0.21	0.10	0.13	0.05	0.14	0.04
D: Number of different clients in 2017						
1					0.16	0.03
2–5					0.24	0.14
6–15					0.20	0.15
16–50					0.20	0.23
More than 50					0.20	0.45
Number of observations	1,633	228	1,014	299	2,037	367

Source: LSE-CEP Survey, Princeton Self-Employment Survey, fRDB Survey.
Note: Panel A reports the distribution of responses to the question: "Would you have preferred to work more or fewer hours last week in self-employment at that wage rate? Or were you satisfied with the number of hours you worked?" Panel B reports answers to the question: "How satisfied are you with working as a self-employed?" Panel C reports answers to the question: "Suppose that you have an emergency expense that costs 500,00 pounds/400,00 dollars/500,00 euros. Based on your current financial situation, how would you pay for this expense? If you would use more than one method to cover this expense, please select all that apply." Responses are grouped into the three categories reported in the table. Panel D shows the distribution of responses to the question: "How many different customers/clients did you work for in 2017?" Answers are reported separately for solo self-employed and self-employed with employees.

to work more hours, the fraction that wants more hours is always 5 to 15 percentage points lower in this category.

Some self-employed individuals may increase their hours and income via multiple job holdings, thus creating overlap between self-employment and traditional employment. Table 2 presents some information on the extent of this overlap with the UK and US surveys. The fraction working as traditional employees is lower among the solo self-employed in both countries (7 versus 20 percent in the United

Kingdom and 11 versus 43 percent in the United States). This interesting difference could indicate that there are fewer, or worse, outside options for the solo self-employed. However, even when taking into account the total number of hours worked in both employment types, a substantial hour differential remains between the self-employed with and without employees.

Across industries, construction and retail stand out as the main industries of self-employment. There do not seem to be substantial differences in the distributions between solo self-employed and self-employed with employees across industries, with the exception of accommodation and food service activities (predominantly with employees); human health and social work activities (predominantly solo); and arts, entertainment, and recreation (predominantly solo). Detailed survey results about the characteristics of the self-employed across the three countries are reported in online Appendix A.[3]

When asked about their degree of satisfaction with self-employed work (in the Italian and UK surveys), respondents turn out to be overall satisfied with their working arrangements, although the solo self-employed display consistently lower degrees of job satisfaction, as shown in Table 3. The degree of flexibility that self-employed work offers seems likely to be the main driver of relatively high levels of satisfaction. The UK survey asked respondents what their main reason is for being engaged in self-employment. Flexibility is by far the most important reason for both groups, followed by the possibility to work from home for the solo self-employed and better pay for those with employees (as shown in Figure A4 in online Appendix A). Importantly, around 12 percent of self-employed report that they took this job because it was the only available option, reflecting that the lack of outside options is also a non-negligible factor.

Underemployment and a lack of outside options may have important consequences for the liquidity constraints of the individual workers. In all three surveys, we ask respondents how they would pay for an unexpected expense of 500 euros (Italy), 500 pounds (United Kingdom), or 400 dollars (United States). Results reported in Table 3 highlight a striking difference between the two groups of self-employed, with the solo self-employed being substantially more liquidity constrained. Across the three countries, approximately two-thirds of the solo self-employed would be able to pay, while the remainder would be evenly split between those who would borrow or sell something and those who would be unable to pay. The same figures for self-employed with employees show that approximately 80 percent would be able to pay for the expense and only very few would be unable to do so.

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[3]In online Appendix A, Table A2 reports the industry distribution of self-employed workers in the three countries. Figure A1 reports the empirical distribution of hourly wages for self-employed with and without employees in the three countries. Figure A2 reports the empirical distribution of weekly hours for self-employed with and without employees in the three countries. Figure A3 reports evidence on the reasons why UK respondents are unable to work more hours and why they would like to work fewer hours. Table A3 shows summary statistics on weekly hours for full-time employees based on UK Labor Force Survey, US Current Population Survey, and Italian Labor Force Survey data.

Another dimension that may affect the economic insecurity of the individual worker is the degree of de facto economic dependency from a single client or contractor, a situation in which a self-employed worker is bound to face a higher risk of insecurity in response to idiosyncratic shocks affecting that main client or contractor. In the Italian survey, we asked the number of different clients for which the individual worked in the previous year. For the solo self-employed, the distribution of the number of clients is rather uniform across the different bins, with 16 percent of the sample having only one client. For the self-employed with employees, the latter figure drops to 3 percent and increasingly larger fractions of respondents engage with larger numbers of clients (as shown in Table 3). However, when we asked what share of their total revenue originates from their main client, approximately 20 percent of both solo self-employed and self-employed with employees answered that they are economically dependent on their main client for more than 50 percent of their revenue. This pattern suggests that the degree of economic dependency from a single entity is overall limited, yet with pockets of solo self-employed that face a very high risk of economic insecurity.

It is worth noting that the survey results illustrated so far display substantial uniformity across the three countries. In light of the fact that the countries are characterized by very different labor market institutions, such uniformity lends support to the hypothesis that the duality of self-employment is unlikely to stem from institutional factors, but is rather due to common and pervasive technology, labor demand, or labor supply factors affecting the demand for labor. We document that labor supply factors—such as the preferences for flexibility or, as we will show below, for social protection—do not seem to differ substantially between self-employed with and without employees.

A Focus on "Gig Workers"

Gig economy workers epitomize a shift away from traditional employment toward independent contract work and the trade-off between greater job flexibility and economic insecurity. In our three surveys, we investigate the nature of gig economy workers, though with the caveat that the survey modules on gig economy work are not fully comparable in their definitions and scope across countries. In the UK and US surveys, gig economy workers are considered as a subgroup of primarily self-employed workers and are only surveyed in a limited way. In the Italian survey, the number of questions asked is larger, and a more appropriate and encompassing definition is used, which includes individuals who are (1) primarily gig workers or (2) primarily self-employed or traditional employees and secondarily gig workers.[4]

[4]In the UK Survey, gig workers are defined as a subsample of primarily self-employed workers who answer positively to question Q28 in online Appendix C. In the US Survey, gig workers are defined as a subsample of primarily self-employed workers who answer positively to question Q4 in online Appendix D. In the Italian Survey, gig workers are defined as respondents who answer positively to question SC1 in online Appendix E. Gig work can be their primary or secondary job (in which case, they may be either traditional employees or self-employed in their primary job).

For this reason, we will mainly focus on the Italian survey results and provide comparisons with other countries when suitable.

Consistent with other estimates of the size of the gig economy (Harris and Krueger 2015; Farrell, Greig, and Hamoudi 2019), gig workers make up a small fraction of total respondents in Italy (4 percent) and a limited portion of those who work primarily as self-employed: 5 percent in Italy, 7 percent in the United Kingdom, and 14 percent in the United States. Gig work is characterized by strikingly low hourly wages and weekly hours: 7 euros per hour and 5 hours per week at the median in Italy.

It turns out that gig work is indeed characterized by a high degree of flexibility, since two-thirds of workers can choose freely when to work and almost 80 percent where to work. Such flexibility can be especially valuable in that it offers a self-insurance mechanism in response to income shocks. Consistently with work by Koustas (2018) on ridesharing in the US economy, our survey results indicate that gig work is used to buffer temporary shocks or top-up income by 80 percent of gig workers, but is the only source of income for only 16 percent of them. Compared to the solo self-employed, Italian gig workers appear slightly, though not substantially, more liquidity constrained. However, when compared with the same result for the self-employed, the fraction of gig workers that is hourly constrained is—remarkably—almost 15 percentage points (or 50 percent) higher. Detailed results on gig workers are reported in online Appendix B.[5]

One takeaway from these survey responses of gig workers is that policies which seek to regulate alternative work arrangements by limiting their flexibility may not be desirable, in that they may well harm individuals for whom their gig jobs are usefully used as smoothing devices. From a policy standpoint, concern should be less about the flexibility that gig economy jobs offer and more about poor career development prospects, lack of wage progression, excess uninsured income volatility—especially for those who perform gig work as their main job—and exposure to longevity risk in the presence of low savings rates and limited social protection.

Labor Market Transitions and Wage Moderation

In discussions about the new forms of self-employment and gig work, one prominent recurring question is whether they are forms of employment held by

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[5]In online Appendix B, Table B1 reports summary statistics for a set of characteristics of gig economy workers. Figures B1 and B2 show the distributions of hourly wages and weekly hours for gig economy workers. The distributions are spectacularly right-skewed, indicating that gig work is a predominantly short-hour, low-pay activity. Table B2 reports survey responses to questions related to desired hours, job satisfaction, the reasons for working in the gig economy, job flexibility, and liquidity constraints. The results highlight a stark dichotomy between those for whom such short hours are a constraint (that is, who would like to work more hours) and those who are instead happy with their current hours. They also show that gig workers are much less satisfied with their working arrangements than self-employed workers.

individuals because they are the only option they have available, while the individuals would prefer something else, or whether such employment relationships are chosen because the worker places a high value on factors like greater flexibility and independence at work. This section offers empirical evidence on this from two standpoints. The first looks at labor market transitions to ascertain the extent to which individuals are more likely to move in or out of these work arrangements from different prior states of labor market participation (principally from "regular" employment, self-employment, or unemployment). The second looks at whether these new forms of employment are placing downward pressure on wages, which would follow if the individuals employed in them are more likely to be taking these forms of work in the absence of other employment opportunities.

Labor Market Transitions

This section offers evidence on the labor market transitions of individuals in the United Kingdom, the United States, and Italy for transitions taking place between 2016 and 2017. Since the analysis of labor market transitions requires the use of longitudinal survey data at the individual level, we turn to nationally representative longitudinal surveys: the UK and Italy evidence comes from their respective quarterly Labor Force Surveys, the structure of which permits annual transitions between (in this case) 2016 and 2017 to be studied; the US evidence comes from the Current Population Survey, which has a longitudinal setup such that individuals are in the survey for four months, they then drop out for eight months, but return in the same four months in the subsequent year. This too permits the study of transitions between 2016 and 2017.

Table 4 reports the unconditional probabilities of transitioning from a given labor market state in 2016 into different labor market states in 2017 for each of the three countries. The sample is a balanced panel of individuals aged 18–65 in 2016 and in the labor force in both 2016 and 2017. As the tables show, workers in a certain state of the labor market in 2016 are likely to remain in that state in 2017, as one can see by reading the diagonal entries.[6]

But our focus here is on the minority who do switch work states, and a highly consistent pattern of results emerges across the three countries. First, individuals are significantly more likely to enter solo self-employment from unemployment than from traditional employment. The increasingly important group taking solo self-employed positions are indeed mostly coming from unemployment, and this squares up well with the earlier survey results showing that low wages and poor labor market protection are a feature of these jobs.

Second, the patterns of self-employment with employees are different. This group is the least likely to keep the same job status from year to year. In the UK and US data, those changing away from self-employment with employees are roughly equally likely to end up as regular employees or solo self-employed; in

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[6]On state dependence in labor market states more generally, see, inter alia, Heckman (1981), Hyslop (1999), or in the case of self-employment Henley (2004).

Table 4
Transition Matrices

Status in *t* − 1	Status in *t*				
	Unemployed	*Employee*	*Solo SE*	*SE with empl.*	*Total*
A: UK LFS					
Unemployed	44.20	50.02	5.79	0.00	100
Employee	1.28	96.54	1.87	0.31	100
Solo SE	1.05	10.41	85.68	2.87	100
SE with employees	0.00	16.42	20.28	63.31	100
Total	2.81	84.13	11.44	1.63	100
B: US Current Population Survey					
Unemployed	26.41	69.08	4.18	0.33	100
Employee	2.03	95.17	2.26	0.54	100
Solo SE	0.83	30.62	60.53	8.02	100
SE with employees	0.27	25.39	22.78	51.56	100
Total	2.63	87.97	7.11	2.30	100
C: IT LFS					
Unemployed	64.01	32.27	3.31	0.42	100
Employee	2.46	96.96	0.44	0.13	100
Solo SE	1.78	2.91	86.77	8.55	100
SE with employees	0.69	1.79	19.23	78.29	100
Total	7.02	73.81	13.36	5.81	100

Source: UK Labor Force Survey, Current Population Survey, Italy Labor Force Survey.
Note: The table reports transition matrices of the unconditional probability of transitioning from labor market status *j* in year *t* − 1 into labor market status *k* in year *t*. The samples are balanced panels of individuals aged 18–65 in year *t* − 1 and in the labor force in both year *t* and *t* − 1. Panel A uses the longitudinal version of the UK Labor Force Survey for years 2016/2017 (all quarters). Panel B uses the longitudinal version of the Current Population Survey for years 2016/2017 (all months). Panel C uses the longitudinal version of the Italy Labor Force Survey for years 2016/2017 (all quarters).

Italy, by contrast, very few of the self-employed with employees switch to regular employee status. In Italy, the incidence of self-employment with a small number of employees is higher, possibly indicating that some of their jobs may be somewhat less entrepreneurial in nature and could partly reflect opportunities for those unable to secure "regular" employment. More generally, it is possible that some of the solo self-employed are previously self-employed with employees whose business activity has declined.

Third, the self-employed are less likely to transition into unemployment, compared to traditional employees. In addition, the solo self-employed are always more likely than self-employed with employees to transition into unemployment. Thus, solo self-employment emerges as an intermediate state between traditional employment and self-employment with employees.

Fourth, there is some indication that self-employment without employees may be the initial stage of a future entrepreneurial activity with employees: in this respect, the self-employed without employees are more likely than the unemployed

or the employees to become self-employed with employees. The transition probabilities, though, are rather small, suggesting that this is a limited phenomenon. [7]

Overall, these findings accord well with discussions of how there has been an expansion of a less clearly defined hinterland in the labor market between employment and self-employment, where these independent contractors undertake their work.

Wage Moderation

If the new forms of work are in part reflecting that people moving into these jobs do not have many alternatives, have poor outside opportunities, and are underemployed in that they would like to work more hours, then this may have ramifications for overall wage growth. This argument has been made by Bell and Blanchflower (forthcoming), who argue that the official unemployment rate does not these days measure labor market slack very well. The unemployment rate thus underestimates the number of individuals who would like conventional employment but cannot get it and instead end up in self-employment, perhaps of the gig work variety. In this paper, we place more structure to the argument by considering underemployment, but also thinking that there is more slack because of the new forms of employment—both solo self-employment and gig work—that are present in today's labor market and were not there 10 or 15 years ago.

Bell and Blanchflower (forthcoming) provide empirical support for a wider definition of labor market slack by showing that inclusion of underemployment variables in traditional wage curves (for example, à la Blanchflower and Oswald 1995a,b) adds explanatory power over and above the conventionally considered unemployment rate. They show an extra negative effect on real wages resulting from underemployment in their wage curves estimated for Europe and the United States.

In our own work, we consider some cross-country panel regressions of OECD countries, using hourly wage growth as the dependent variable. A model in the style of Hong et al. (2018) uses lagged inflation, productivity growth, the unemployment rate, and the change in the unemployment rate as explanatory variables. However, we find that when a variable for solo self-employment is added to the explanatory variables, it has an additional statistically significant effect in line with the notion that it too reflects some degree of slack in the labor market. In particular, there is evidence that a higher share of solo self-employed is associated with lower wage growth.[8] This can be seen from Figure 1, which provides a graphical representation of the estimated effect of measures of labor market slack on hourly wage growth.

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[7]A regression analysis of this data shows that the patterns mentioned in the text are statistically significant at conventional levels. Table A4 in online Appendix A presents a series of regressions for each country, using different market outcomes in 2017 as the dependent variable and then using labor market status in 2016 as the key explanatory variable. Shifts from one labor market status to another are estimated conditional on the lagged value of the dependent variable on the right-hand side (to capture state dependence) as well as a set of control variables for factors like gender, age, and education.

[8]See Table A5 and Figure A5 in online Appendix A for further details.

Figure 1
Estimated Effect of Measures of Labor Market Slack on Hourly Wage Growth
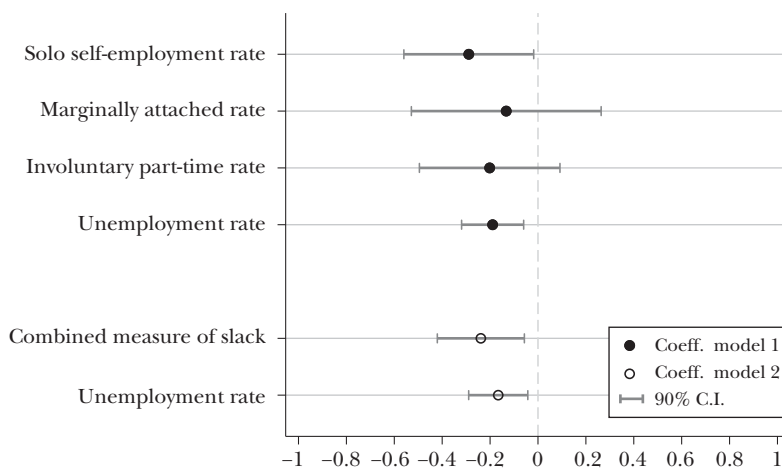
Source: OECD.
Note: The graph reports the point estimates and confidence intervals of a set of coefficients for an "augmented" wage curve estimated on a panel of OECD countries. The circles show the estimated effect of the variables reported on the *y*-axis on hourly wage growth at the country level. The solo self-employment rate is computed as the share of solo self-employed over total employment, the marginally attached rate as the share of marginally attached over total employment, and the involuntary part-time rate as the share of involuntary part-timers over total employment. The "combined measure of slack" is the sum of involuntary part-timers, marginally attached, and solo self-employed (all as a share of total employment). Details on the regression are reported in Table A5 in online Appendix A. The black circles correspond to estimates reported in column 5 of Table A5, the hollow circles to those in column 6. Each model's coefficients are jointly estimated and conditional on lagged inflation, the change in the unemployment rate, a moving average of labor productivity growth, country fixed effects, and year fixed effects.

Thus, there is some evidence that wage growth does seem to have been damp-ened by the diffusion of new forms of self-employment. This is supportive of the idea that some of these jobs are marginal, in the sense that they are being taken in some cases by workers with not much alternative, and so are inducing more labor market slack than the regular unemployment rate measures. Of course, many of these solo self-employment jobs are also characterized by poor provision of nonwage benefits through social protection, and we turn to the issue that frames the desirability or otherwise of the whole job package in the next section.

Social Insurance

The existence of solo self-employment jobs, gig work, and other forms of alter-native work arrangements raises some difficult questions for social insurance. In most countries with a formalized welfare state, those in dependent employment—at

least those with larger formal employers—are covered by a range of employment rights including minimum wages, statutory holiday and sick pay, old age and survivor pensions, as well as parental leave. The self-employed are not always eligible for these nonwage benefits; indeed, this fact is sometimes put forward as a justification for the differential tax treatment of self-employed workers (OECD 2019). For instance, about one-third of OECD countries do not have an unemployment benefit system for self-employed workers. Maternity benefits are everywhere less generous for the self-employed. Sickness, invalidity, and injury benefits in most of the cases involve an insurance franchise, which is not envisaged for employees. Pensions also offer a lower coverage and are often less generous than for dependent employment. The rationale for this lower generosity and coverage of social insurance is that moral hazard problems are more serious in the case of self-employment. Yet, if self-employment gets closer and closer to a dependent employment status, this justification is no longer applicable.

The question of who is or is not an "employee" and thus eligible for full social insurance has been controversial. The 2017 Taylor Review of Modern Work Practices in the United Kingdom emphasized this issue, especially in the context of gig workers (Taylor 2017). In several high-profile court cases, self-employed individuals legally challenged the companies that classified them as self-employed independent contractors, rather than as employees: for example, such cases have been brought to court by currently self-employed individuals working for Uber and Pimlico Plumbers in the United Kingdom, by Foodora riders in Italy, by Take Eat Easy deliverymen in France, and by Dynamex delivery drivers in California.

Demand for Social Protection

Given the income insecurity and lack of access to employment rights that self-employed workers face, it is not surprising that they express a strong demand for social insurance.

In the UK and US surveys, we elicited opinions of the self-employed about the proposal to establish "Shared Security Accounts," whereby all workers would have social insurance and social security coverage funded through contributions paid in by their employers, contractors, or online platforms (Hanauer and Rolf 2015, Krueger 2018). In particular, we asked the following: "Policymakers have been discussing the idea of creating a fund to help self-employed workers obtain work-related benefits, such as health insurance and retirement savings, that they would be able to receive regardless of where they worked, and they could take with them if they changed jobs. Do you think this is a good idea?" The vast majority (approximately 80 percent) in the two countries and self-employment groups think it is a good idea.[9] There does not appear to be any substantial heterogeneity between self-employed with and without employees—the latter being, if anything, slightly more in favor of creating a fund. Of course, this question does not specify

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[9] See Table A6 in online Appendix A for details.

Table 5
Benefit Ranked First

	United Kingdom		United States		Italy	
	Solo	With employees	Solo	With employees	Solo	With employees
Retirement savings	0.40	0.46	0.16	0.15	0.42	0.34
Unemployment insurance	0.12	0.09	0.07	0.05	0.15	0.22
Paid sick leave	0.22	0.18	0.03	0.03	0.10	0.08
Health insurance	0.06	0.07	0.52	0.44		
Life insurance	0.05	0.07	0.06	0.10		
Worker compensation insurance	0.05	0.03	0.08	0.13	0.09	0.11
Paid family leave	0.05	0.05	0.04	0.03		
Disability insurance	0.05	0.05	0.04	0.07		
Maternity leave					0.10	0.12
Family allowance					0.14	0.13
Number of observations	1,633	228	1,014	299	2,037	367

Source: LSE-CEP Survey, Princeton Self-Employment Survey, fRDB Survey.
Note: The table show the distribution of responses to the question: "If the government were to help you obtain benefits, which one would be most desirable to you personally?" Answers are reported separately for solo self-employed and self-employed with employees in the United Kingdom, the United States, and Italy.

who would pay for it, and as we discuss in the next section, designing social insurance for self-employed workers raises some tough questions.

We also asked survey respondents in the three countries to rank a list of possible benefits from the most to the least desirable (randomly changing the order in which the benefits were listed across respondents). Table 5 reports the result. A social program for retirement savings was by far the top choice among the self-employed in Italy (35–40 percent) and the United Kingdom (40–45 percent), while health insurance was the most preferred social program for the US self-employed (45–50 percent). Interestingly, no substantial differences emerge between self-employed with and without employees, indicating that the two are rather homogeneous in their preferences for social protection. Also, gig workers as distinguished in our Italian survey seem to have preferences over social protection that are very similar to those of solo self-employed individuals.

In the US survey, we investigated in more depth the extent to which the solo self-employed and the self-employed with employees already had health insurance or a tax-deferred retirement account. For US workers, the solo self-employed are somewhat less likely to have health insurance coverage than self-employed with employees (76 versus 86 percent) and much less likely to take advantage of a tax-deferred retirement savings account (28 versus 60 percent). The solo self-employed are also substantially less likely to use a third party to assist them in gaining benefit coverage (7 versus 34 percent) and are less willing to provide

tax data to a third party to gain such assistance (41 versus 63 percent).[10] This differential in health insurance coverage—which takes on added importance if compared to health coverage rates close to 90 percent for traditional employees (Jackson, Looney, and Ramnath 2017)—is suggestive of unmet demand for social protection.

Potential Supply of Social Insurance

It is difficult to design social insurance schemes for self-employed workers. For example, it is not clear who should pay the employers' contributions. If a solo self-employed person works for a single client, then presumably the client could be made liable for these contributions. However, rules that apply only to those with a single client will encourage them to hire workers only on a part-time or temporary basis, and coordinating cost-sharing rules across multiple clients is complex.

One option is to use platforms to coordinate across employers. The Italian social security administration (INPS) takes this approach in covering some gig workers by requiring their employers to register to the online platform managed by INPS and to pay the worker in advance together with the social security contributions. This system also protects the self-employed against the risk of not being paid by their clients, which can be substantial. In the US survey, we asked the respondents whether in the last year they had at least one incident in which they were not paid on time or not paid in full for a job or project that they completed. We find that 36.1 percent were not paid on time (the figure being 31.8 percent for solo self-employed and 51.3 percent for self-employed with employees). The German artists' insurance—a special scheme that offers artists and writers insurance at a subsidized rate involving mandatory membership for low-earning artists—also charges the final customers for the contributions to social security (Tobsch and Eichhorst 2018).

However, charging employers for social insurance in the presence of an elastic demand for labor means that the incidence of these costs will fall onto self-employed workers in terms of lower prices for their services. In the case of pensions and many other social security contributions that are earnings-related, this makes social insurance into a forced savings plan with a substantial cost borne by the self-employed.

An alternative would be to pay social security contributions for self-employed workers out of general government revenues. However, this approach will raise issues of fairness vis-à-vis other categories of workers, notably low-wage employees. More importantly, moral hazard can make a government-paid system extremely expensive. For example, the self-employed have some control over the timing of their employment and payments, which can complicate the assessment of their eligibility for social insurance. It is precisely for this reason that most countries do not have unemployment benefit schemes covering self-employed workers. A partial exception is provided by the Italian DISCOLL, a program introduced in

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[10] For details of the response to these questions, see Table A7 in online Appendix A.

2015 targeting self-employed persons without employees who contributed to the social security system as independent collaborators and who then lost their job. The maximum duration of this benefit is one-half of the months of contribution since the beginning of the year predating the job loss for a maximum of six months. The initial replacement rate is initially 75 percent with a cap at 1,300 euros and declining after the third month. This scheme has provided supplementary income to about 22 percent of the eligible population in the first year and 40 percent in the second year (INPS 2018). There is no evidence that this led to increasing flows from independent collaborators to unemployment.

One strategy to reduce moral hazard is to increase insurance premia. But if the system is compulsory for self-employed workers, then, as argued above, this may crowd out self-employment in relatively low paid services. If instead the system is voluntary, then raising contribution rates for the self-employed may create a problem of adverse selection, whereby only workers with higher risk of unemployment subscribe. The experience of Sweden after a hike in contribution rates suggests that it was mainly those facing a lower risk of long-term unemployment who left the scheme (Kolsrud 2018).

A hypothetical valuation experiment that we carried out in the Italian surveys confirms adverse selection may be an important issue. A hypothetical discrete choice experiment was set up in the survey through offering respondents a "vignette" style choice of different scenarios regarding sick pay so as to elicit willingness to pay.[11] Respondents were asked to choose between two otherwise identical jobs: the first with no paid sick leave coverage, the second with paid sick leave provided by social security conditional on social insurance contributions of a given percentage of their gross monthly income, ranging across eight randomly chosen values from 0.05 to 5 percent. Such percentage was varied randomly across individuals. By plotting the percentage of respondents choosing the contract with paid sick leave coverage at any given level of the contribution rate, we can trace a willingness to pay or demand curve for paid sick leave. Results are reported in Figure 2. As we would expect, the curve is downward sloping and points to relatively high levels of willingness to pay for paid sick leave, with approximately 85 percent of respondents willing to pay a contribution rate of 0.72 percent—which was the prevailing contribution rate in Italy at the time the survey was deployed.[12] It also appears that the demand curve for the self-employed above the age of 50 is systematically above the demand curve for workers less than 50 years of age, which is suggestive of adverse selection,

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[11] Vignette-based questions have been used widely in some areas of economics to assess willingness to pay for amenities (most notably in environmental economics), but rarely to date in labor economics. Some exceptions include the already discussed Mas and Pallais (2017), an internet survey in Denmark assessing willingness to pay for fringe benefits (Eriksson and Kristensen 2014), and an internet survey in India assessing willingness to pay for a job guarantee (Dhingra and Machin 2019).

[12] Due to sample size issues, tracing a separate demand curve for self-employed with and without employees leads to noisy results for the former group. From a visual inspection of the results, the two groups do not appear to have substantially different levels of willingness to pay. Detailed results of this vignette experiment are available upon request.

Figure 2
Willingness to Pay for Paid Sick Leave

A:

B:

- - ⊖ - - Aged <50   - -●- - Aged 50+
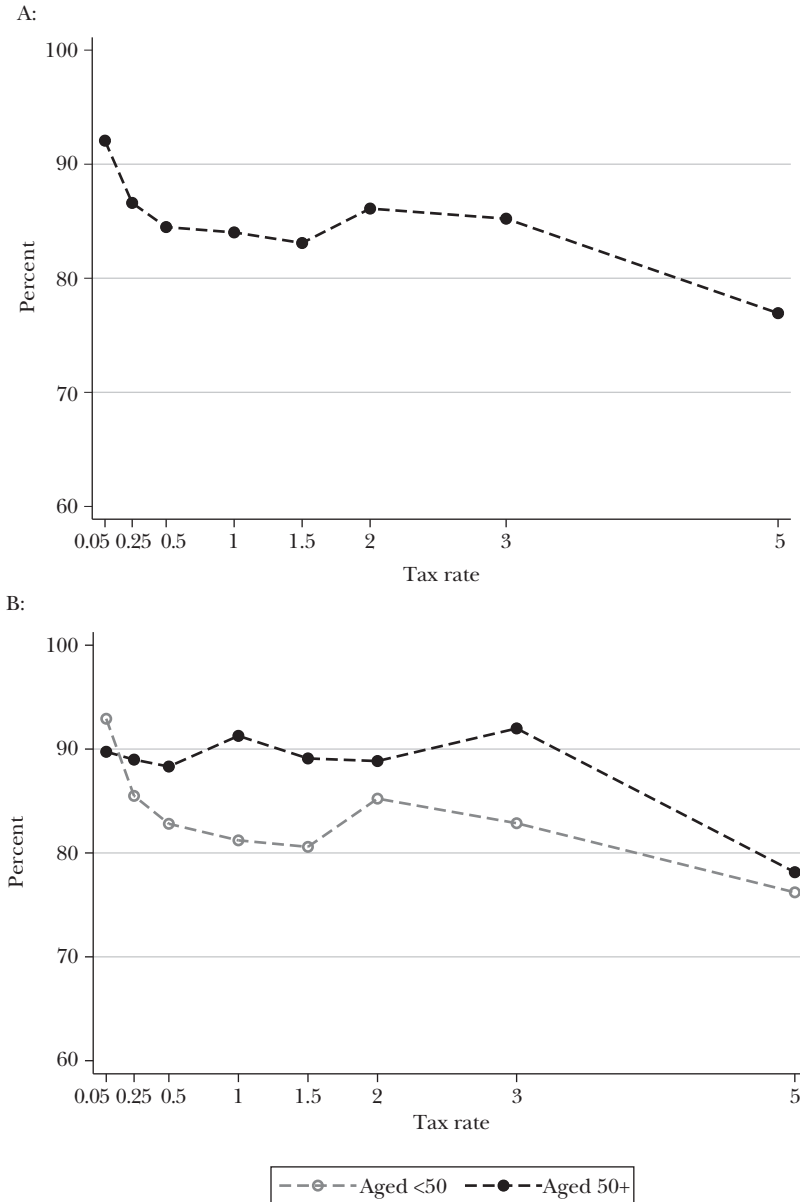
Source: fRDB Survey.
Note: The graphs report the results of a hypothetical valuation experiment carried out in the Italian survey. Respondents were asked to choose between two otherwise identical jobs, the first with no paid sick leave coverage and the second with paid sick leave coverage conditional on social insurance contributions of a given percentage of their gross monthly income. Such percentage was varied randomly across individuals. The randomized contribution rate could take the following values: 0.05, 0.25, 0.5, 1, 1.5, 2, 3, or 5 percent. The graphs plot the percentage of respondents choosing the contract with paid sick leave coverage at any given level of the contribution rate, that is, the empirical demand curve for paid sick leave. Panel A reports results pooling all self-employed workers. Panel B reports results separately for individuals aged less than 50 (black circles) and aged 50 and over (hollow circles).

although income effects (likely to be higher for older workers) may also contribute to explain this result.

Final Remarks

Solo self-employment accounts for between 4 and 22 percent of total employment in the countries of the OECD area. It has been rising relative to self-employment with dependent workers in most countries and rising in absolute terms in almost half of the countries. However, we still know little about the nature of these jobs, the way they interact with wage setting, or the welfare gains and losses associated with their development. This paper begins the task of filling this gap by drawing on ad hoc surveys carried out in the United Kingdom, the United States and Italy, and on secondary individual-level and country-level data sources.

Although these three countries have quite different labor market institutions, historical levels of self-employment, and recent unemployment dynamics, some of the patterns we find are remarkably similar. Solo self-employment appears to be an intermediate category between employment and unemployment. It shares important characteristics with underemployment. In particular, many workers are hourly and liquidity constrained and earn less than workers in traditional jobs and in self-employment with employees, even on an hourly basis. Moreover, a substantial share of solo self-employed workers are vulnerable to idiosyncratic shocks because a single client provides more than 50 percent of their earnings.

The income insecurity that these workers face, together with the fact that they typically have few (if any) employment rights, creates a strong demand for social protection. However, designing such a program raises hard questions. Introducing social insurance programs where the self-employed make contributions on a voluntary basis would pose problems of adverse selection. Making the contributions compulsory and costly in order to reduce moral hazard may drive some of the self-employed—and in some cases their employees as well—out of work. It would also increase the liquidity constraints of the self-employed remaining in business.

In designing employment and tax policies, policymakers should reduce the incentives to hide what are de facto dependent employment positions under self-employment conditions. One example of distorted incentives is the case of employers who tilt the contractual composition of their workforce towards nondependent employment in order to avoid minimum wage and employment protection legislation. Another example is the more favorable tax treatment that many countries have of self-employment vis-à-vis dependent employment and that distorts individual incentives to sort into self-employment and firms' incentives to hire under traditional employment contracts. In this respect, reforms in the direction of preventing minimum wage or employment protection legislation avoidance and equalizing differential tax treatment ought to be considered. Finally, even relatively light exclusivity clauses—preventing the worker from supplying labor to other employers—should be carefully monitored and possibly banned if they strengthen

the monopsony power of the firm in using the services of gig workers and limit the use of self-employment as an income smoothing device by workers. Similar considerations apply to "no compete" or "no poaching of workers" agreements which are becoming increasingly pervasive in the US labor market (Krueger and Ashenfelter 2018). Whilst predominantly applied to employees, such clauses appear to be extended to freelance workers, too.

Our findings and conclusions should be further tested over a larger variety of settings and institutional configurations. One possibility is by running similar surveys in other countries and through time. Another research area is the development of methods for measuring the extent of labor market slack, particularly in light of the observation that the conventionally used unemployment rate has become increasingly narrow in its inability to pick up various aspects of underemployment that have acted to dampen wage growth in the recent past. Our surveys suggest that measures of labor market slack could usefully be refined to take into account the hours-constrained features of some of the new solo self-employment and other types of alternative work arrangements that have become increasingly prominent in contemporary labor markets.

> This paper is dedicated to the memory of Alan Krueger, our friend and colleague, who passed away on March 16, 2019.

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