1. Entrepreneurship among older workers: international evidence

Raquel Fonseca and Simon C. Parker

1. INTRODUCTION

As lifespans lengthen, annuity yields remain at record lows and unfunded state pension schemes creak under the pressure of ageing populations, governments are keen to encourage older workers to remain actively employed. Because comparatively few incumbent corporations seem willing to employ surplus elderly workers, self-employment presents itself to policy-makers as an attractive alternative option. The feasibility of this kind of “third age entrepreneurship” is ostensibly bolstered by the widespread observation that a disproportionate number of workers over 50 years of age are self-employed, and that propensities for self-employment appear broadly to increase with age. One can therefore ask whether there is scope for governments to further increase self-employment rates among older workers – and more generally, whether and how a nation’s institutional and socio-demographic structure influences self-employment propensities of older workers.

Before weighing in on these questions, it is necessary to gather information about the structure of self-employment among older workers in different countries. For over three decades, labor economists have sporadically studied this issue, and generated valuable insights which have advanced our knowledge in several ways. Most notably, prior research suggests that older self-employed workers are significantly less likely to retire than their employee counterparts, and there is a core group of self-employed for whom retirement seems not to be an important or desirable end state. Most of this literature – which is briefly reviewed in section 2 of this chapter – pertains to two countries: The United States and the United Kingdom. These two “Anglo-Saxon” countries, as they will be categorized in this chapter, have numerous institutional and economic factors in common, including an English common law tradition that rigorously enforces business contracts; relatively liberal and open economies; high rates of individualism; and flexible labor markets. Yet much less is known about other countries, especially in Europe, where there are institutional differences between the Southern Mediterranean countries, the

Eastern European transition economies, and the Western and more liberal Northern European nations. These four categories of European countries will be analyzed in this chapter alongside two Anglo-Saxon ones.

Our contention is that the literature on third age entrepreneurship lacks evidence on cross-country comparisons. This lacuna is important because it hampers our understanding of the extent to which the US and UK experience in this domain is also applicable to European countries. The present chapter attempts to fill this gap by assembling a large sample of internationally comparable data on several European countries as well as the Anglo-Saxon economies of England (which is the dominant country within the United Kingdom) and the United States. After providing some descriptive cross-country statistics about rates of entrepreneurship among older workers, all measured on a common basis, some logistic regressions are run to explore the drivers of entrepreneurship in the pooled sample. In common with prior research on this topic, we operationalize entrepreneurship as self-employment.

This chapter makes the following contributions. First, it extends the empirical knowledge base of drivers of self-employment among older workers, using a large, recent dataset spanning several countries. This dataset and some descriptive statistics are described and presented in section 3. Second, it investigates the relationship between self-employment rates and age groups, comparing different country categories. Specifically, we analyze drivers of self-employment propensities among older workers using multi-level analysis, investigating the role played by country-level institutional variables. These variables relate to government expenditures on policies that affect work incentives. Consequently, this chapter makes a novel addition to the literature by exploring differences in entrepreneurship at older ages across countries. Third, the results inform several public policy recommendations which are discussed in section 4.

2. STATE OF THE LITERATURE

It is well established that, among workers who have passed retirement age, entrepreneurs are more likely to continue participating in the workforce than employees are (for UK evidence, see Moralee, 1998; Parker, 2003; and Parker and Rougier, 2007; for US evidence, see Quinn, 1980; Fuchs, 1982; Zissimopoulos and Karoly, 2007). In both countries, around one-third of the workforce aged over 65 is self-employed (Moralee, 1998). Among the very oldest segment of the workforce, self-employment rates are higher still. Older self-employed Americans are significantly less likely to retire than comparable employees (Hogan and Perrucci, 2007). According

to Atalay et al. (2014), the self-employment rate of older Australians (Australia being another Anglo-Saxon country) exceeds that of younger Australians, though the gap decreased between 2001 and 2010.

Cutting the data another way, 42 percent of all British self-employed are aged 50 and over, and this group accounted for 84 percent of self-employment growth between 2008 and 2012 (Reuschke and MacLennan, 2014; Wainwright and Kibler, 2014). Among American self-employed, the percentage who are aged 55 and over increased from 27 percent in 2003 to nearly 33 percent in 2009 (Biehl et al., 2014).

Several explanations of these phenomena can be proposed:

1. Older workers are from cohorts in which self-employment was once more common than it is now (Parker, 2018).
2. Anticipating a greater return to their labor effort, there is a greater willingness among optimists to retire later (Puri and Robinson, 2007). Since entrepreneurs are more over-optimistic than non-entrepreneurs are, this might explain entrepreneurs' later retirement ages.
3. Some employees face a statutory retirement age and enjoy early retirement incentives embodied in occupational pension rights. Neither factor is applicable to entrepreneurs (Parker, 2003). There might also be bias by employers against hiring older workers, which encourages such workers to set up on their own enterprise if they wish to continue working.
4. The self-employed may have insufficient pension rights (Parker, 2003). The policy backdrop is relevant here. In the UK and many other developed countries, state and occupational pension entitlements have become less generous or have disappeared entirely, while decisions about (and funding of) pension plans have been increasingly passed over to workers. For workers who lack the education, expertise or wealth to make good financial decisions, self-employment might be an attractive or even necessary option (Wainwright and Kibler, 2014).
5. The self-employed may have devoted their lives to creating and growing their businesses, having established an emotional connection which makes them unwilling to give them up (Parker, 2016). The self-employed approaching retirement may therefore prefer to work fewer hours rather than relinquishing control entirely (on which, see also the next point).
6. Self-employment offers flexibility. Many employees switch into entrepreneurship as they approach retirement, especially in their fifties (Zissimopoulos and Karoly, 2007). In all, US Health and Retirement Survey (HRS) data indicate that over 1992–2004, about 5 percent of retirees “unretired” over a two-year period, of which one-third

unretired into self-employment (Zissimopoulos and Karoly, 2009). Prior experience of self-employment turned out to be the key determinant of these self-employment transitions, which were most common among high-wage workers in small firms who lacked pension benefits. The pronounced tendency of older workers to transition into part-time work in self-employment (as opposed to full-time work in paid employment) suggests that self-employment might be a means of obtaining work hours flexibility (Zissimopoulos and Karoly, 2007).

Little prior research has attempted to evaluate the relevant importance of these different explanations of high self-employment rates among older workers. However, using a sample of 197 older self-employed individuals taken from the 1994 British Retirement Survey, Parker and Rougier (2007) estimated that individuals who were self-employed six years earlier were significantly *less* likely to retire than those who had recently switched into self-employment. Less than 1 percent of employees and virtually no retirees were observed to switch into self-employment in later life. The switches that did occur seem to have been motivated less by attempts to treat self-employment as a bridge job or “stepping stone” to full retirement, than by self-employment being an “occupation of last resort” among less affluent workers with job histories of weak attachment to the labor market.

This last point, to which we will return later in the chapter, finds echoes in Evans and Leighton (1989), who estimated that poorer wage workers – the unemployed, lower-wage workers and those with a history of job instability – were especially likely to become self-employed in the USA. As a result, one expects to observe that many self-employed people working at and beyond retirement age earn low incomes, and have little or no pension provision. HRS data bears out the notion that job loss is associated with entries into self-employment among older American men (Moulton and Scott, 2016). For their part, Parker and Rougier (2007) observed that most British employees who switched into entrepreneurship in later life had labor market histories characterized by low incomes and multiple job spells. Since these “switchers” were more likely to become self-employed only for short periods before retiring, the value-added of their businesses was questionable. In addition, using English Longitudinal Study of Ageing data, Kautonen et al. (2017) estimated that late-age switches into entrepreneurship were accompanied by significant average income reductions. These findings all cast doubt on the potential for generating meaningful increases in labor force participation rates and wealth creation via self-employment schemes for older workers (see also Schuetze, 2015).

Zissimopoulos and Karoly (2007) used five waves of HRS data over 1992 to 2000 to study the transitions from full-time paid employment

among American workers aged 51–67. Zissimopoulos and Karoly (2007) estimated that transitions to self-employment were more likely for men with health conditions which limited work. For older women, Zissimopoulos and Karoly (2007) also observed positive effects on transitions into self-employment from a health condition which limited work; negative effects from own or spouse health insurance and private pensions; and insignificant effects from social security wealth. But unlike men, female transitions to self-employment were negatively associated with age, marital status and having a working spouse, and these authors reported insignificant effects for women from their wages in paid employment, education or inheritances.

The findings so far have been based on data from Anglo-Saxon countries. There is however a small but growing body of work which uses data from European countries, mainly the Netherlands. First, the Dutch study by Knoef et al. (2016) highlighted the vulnerability of self-employed households to low retirement incomes. Even the median self-employed household was relatively disadvantaged, with post-retirement incomes dropping to 74 percent of pre-retirement incomes, compared with 83 percent for all working-age households (Knoef et al., 2016). Second, using a large sample from administrative panel data for the Netherlands, Li et al. (2016) showed that older self-employed workers are sensitive to changes in retirement wealth. To isolate the causal effect of wealth, they analyzed a pension system reform that abolished preferential tax treatment of early retirement for cohorts born after 1 January 1950. This exogenous reduction in pension wealth was found to have a significant negative effect on transitions into self-employment. Third, Been and Knoef (2017) analyzed a Dutch 2004 policy reform which made receipt of unemployment benefits contingent on job search by recipients aged 57.5 years and older. Using a difference-in-difference approach, they estimated negative impacts of the reform on flows of older workers into unemployment: flows into both self-employment and paid employment increased, but the ratio between them changed little.

These findings matter for public policy. Against a backdrop of rapidly ageing populations and non-fully funded public pension schemes, self-employment is a potential silver bullet for policy-makers concerned about encouraging older people to stay in the workforce. Some pundits have responded to this opportunity by arguing that entrepreneurship among older workers – so-called “third age entrepreneurship” – will become an increasingly important phenomenon in the future. For example, bridge jobs are projected to increase in importance over time, as individuals enjoy longer and healthier lives, and formal wage employment continues to fracture and fragment into unstable portfolios of part-time jobs. The

institutional backdrop is that governments in the USA and elsewhere in the last 20 years have made continued work among older people increasingly attractive, for example by dismantling incentives for companies to operate occupational pension schemes and by removing pension earnings penalties.

However, the modest switching rates among older workers into entrepreneurship cited earlier cast doubt on the likely effectiveness of “third age entrepreneurship” policies. Furthermore, CPS data indicated that there was a decline in self-employment among American near-retirees over 1994–2012. This decline was driven by several factors: an increase in exit from self-employment to paid employment; a decline in the rate of self-employment among new entrants into the older age cohort; and an increased population share of these new entrants (Heim, 2015).

To summarize, there is a well-established body of US and UK evidence on self-employment participation among older self-employed workers. Various socio-demographic and wealth-related factors – influenced by regulatory and other institutional factors – have been related to engagement in self-employment in these countries. Although the last few years have witnessed the emergence of several European studies on this topic, we still know much less about self-employment in that setting, and how similar or different the European context is. It is therefore timely to present new evidence on this topic, based on comparable cross-country data, to better identify empirical regularities which can underpin evidence-based policy-making relating to self-employment among older workers.

3. CROSS-COUNTRY EVIDENCE ON SELF-EMPLOYMENT AMONG OLDER WORKERS

3.1 Data

The empirical analysis utilizes information on self-employment and wage employment status. This information is obtained from three longitudinal surveys: The Health and Retirement Study (HRS), for the US; the English Longitudinal Survey of Ageing (ELSA) for England; and the Survey of Health, Ageing and Retirement in Europe (SHARE), which covers 27 European countries and Israel. For our analysis, for 13 European countries (Austria, Germany, Sweden, the Netherlands, Spain, Italy, France, Denmark, Greece, Belgium, Czech Republic, Poland, and Slovenia) we maximize the number of waves that can be used since some countries leave and/or enter the survey at different points in time. Using waves 7–12 of

the HRS, waves 2–7 of the ELSA, and waves 1–6 of some countries of SHARE, the analysis spans 2004/2005 through 2014/2015.¹ These data sets are representative of the working population aged 50 years and over, and they use harmonized data on employment and socio-demographic variables.^{2, 3}

The analysis is limited to respondents 50 to 75 years of age, excluding family and unpaid workers and those working in the primary sector. We analyze all respondents together, as well as males and females separately. The main outcome variable of interest is the self-reported current economic status of the respondent, which distinguishes between worker, retired, unemployed, disabled, homemaker and other. For our main analysis we use individuals who report being workers and classify them as employed or self-employed in their main job according to the relevant survey question. We also define a second outcome variable that takes on the values of employed, self-employed and retired.

We study a broad set of independent variables that have previously been shown to be related to self-employment propensities. These include age, education, marital status, health status, and wealth. The age variable is partitioned into five categories: 50 to 54 years old, 55 to 59 years old, 60 to 64 years old, 65 to 69 years old, and 70 to 75 years old. Education is categorized into three levels: less than secondary, secondary and tertiary. The binary marital status variable takes the value of one if the respondent is married or in a civil partnership, and equals zero if the respondent is divorced, separated, widowed, or has never married. The household size variable indicates the number of respondents per household. In the original surveys, the health variables are self-reported and reported on a five-point scale. From those, we construct a binary variable. Bad health corresponds to the two worst scores on the five-point scale. Good health corresponds to the three higher scores. We also construct a binary variable to indicate whether or not a respondent is working full-time. Full-time is when a person works 40 hours or more per week at their main job. We also construct an alternative variable considering full-time work as being 30 hours or more per week in their main job. Net worth is measured at the household level and is categorized into quantiles.

We also use country-level institutional variables on policies that affect work incentives. Specifically, we include public expenditure (as

¹ We do not use wave 3 of SHARE, because it contains an historical survey in which most of our main variables are not asked.

² More details about the surveys are available in their web pages: for HRS hrs.isr.umich.edu; for ELSA elsa-project.ac.uk; for SHARE share-project.org.

³ We show sample sizes by country in the Appendix.

a percentage of GDP) on “employment incentives”, “unemployment benefits” and “early retirement”. These institutions affect the decision to fully retire, to work or to become self-employed. The measures we use are taken from the OECD’s database on public expenditures and labor market policy participation. In addition, we also group countries into five categories. “Northern Europe” includes Sweden and Denmark. “Western Europe” includes Austria, Germany, the Netherlands, France and Belgium. “Eastern Europe” comprises the Czech Republic, Poland and Slovenia. “Southern Europe” groups Spain, Italy and Greece. The United States and England represent the “Anglo-Saxon” countries. This classification of countries broadly follows prior work, such as Ferrera (1996), and Esping-Andersen (1990, 1999). The rationale is that policies in continental Europe are more generous and egalitarian, with more social transfers compared to the US and UK. Furthermore, Eastern European countries share similar recent history and an economic path as transition economies. Southern European countries have high self-employment rates, and similar institutions and contract enforcement, while the UK and the US share a similar base of their legal systems.

Tables 1.1 and 1.2 display descriptive statistics and correlations among the variables used in our analysis.

Table 1.1 Summary descriptive statistics

	Self-employed	Employee	Retired
Age	58.13	56.98	68.08
Male	60.60	45.40	49.57
Tertiary education	36.11	33.03	24.44
Secondary education	35.81	41.86	32.94
Less than secondary	28.07	25.11	42.62
Married	79.99	76.26	68.95
Household size	2.61	2.44	2.02
Bad health	16.62	16.91	35.35
Total wealth	589 287	297 280	276 576
Observations	10 884	55 129	165 917

Note: The table contains the average age by occupational group, the percentage of individuals that are male, that have tertiary education (university and college), secondary education (high school) or less than secondary education. It also includes the percentage of individuals who are married, the average household size (number of individuals), the percentage of individuals who report having bad health (self-reported health) and the average wealth in the three different samples of self-employed, employees and retired.

Table 1.2 Spearman rank correlations among all variables used in the analysis

	Self-employed	Age	Gender	Education	Married	Household size	Bad health	Wealth	Employment incentives	Unemployment benefits	Early retirement
Self-employed	1										
Age	0.185	1									
Gender	0.136	-0.022	1								
Education	-0.012	0.160	-0.069	1							
Married	0.036	-0.221	0.204	-0.068	1						
Household size	-0.006	-0.284	0.089	-0.013	0.377	1					
Bad health	-0.009	0.133	-0.034	0.242	-0.113	-0.022	1				
Wealth	0.182	0.006	0.043	-0.196	0.131	0.012	-0.118	1			
Employment incentives	-0.038	-0.047	0.026	0.088	0.066	0.021	-0.006	-0.026	1		
Unemployment benefits	-0.035	-0.068	0.019	0.127	0.061	0.047	0.031	-0.032	0.230	1	
Early retirement	-0.040	-0.069	0.017	0.000	0.021	0.033	-0.017	-0.015	0.188	0.167	1

3.2 Descriptive Analysis: Self-employment Across Countries

Based on pooled data for the period 2004–14 by country and group of countries, Table 1.3 presents the distribution of self-employment rates among older workers across 15 countries. Considerable heterogeneity is apparent. In North European countries, France, Czech Republic and Slovenia, the self-employment rates are lower than 15 percent, while for South European countries this percentage is higher than 24 percent. The rest of the countries show values in between. In all countries for given ages, women have lower self-employment rates than men.

Table 1.4 also reveals some other interesting patterns. While in England, Austria, Italy, Greece and Switzerland 25 percent of the self-employed hold tertiary education, in Spain, Italy, Greece, Portugal and Czech Republic the proportion of self-employment with less than secondary education tends to be greater. Marital status also differs across countries and across types of employment. Table 1.4 shows that in the US, Sweden,

Table 1.3 Self-employment rates by gender

	Country				Group of Countries		
	All	Female	Male		All	Female	Male
England	0.23	0.15	0.28	Anglo-Saxon	0.22	0.17	0.27
USA	0.22	0.17	0.27				
Sweden	0.13	0.06	0.19	N. Europe	0.13	0.07	0.18
Denmark	0.12	0.07	0.16				
Austria	0.19	0.16	0.22	W. Europe	0.15	0.12	0.18
Germany	0.15	0.12	0.17				
Netherlands	0.17	0.14	0.19				
France	0.13	0.10	0.17				
Belgium	0.15	0.11	0.18				
Spain	0.25	0.22	0.27	S. Europe	0.29	0.21	0.35
Italy	0.25	0.14	0.33				
Greece	0.45	0.34	0.51				
Czech Republic	0.14	0.10	0.18	E. Europe	0.15	0.10	0.27
Poland	0.24	0.15	0.31				
Slovenia	0.13	0.06	0.17				

Note: The table shows the percentage of older workers that are self-employed by gender in each country. The table also shows the results per group of countries. Anglo-Saxon countries include England and USA; North Europe includes Sweden and Denmark; West Europe includes Austria, Germany, the Netherlands, France and Belgium; South Europe includes Spain, Italy and Greece; East Europe includes Czech Republic, Poland and Slovenia.

Table 1.4 *Socio-demographic characteristics and self-employment rates: Part I*

	SE Rate- Education			Proportion of married		Average HH size	
	Tertiary	Secondary	L. sec.	WE	SE	WE	SE
England	0.30	0.23	0.19	0.73	0.75	1.94	1.93
USA	0.23	0.20	0.23	0.72	0.78	2.42	2.32
Austria	0.29	0.20	0.12	0.66	0.64	2.29	2.39
Germany	0.20	0.13	0.11	0.71	0.68	2.21	2.12
Sweden	0.15	0.14	0.16	0.68	0.73	2.05	2.12
Netherlands	0.19	0.17	0.18	0.77	0.78	2.42	2.48
Spain	0.19	0.22	0.29	0.74	0.79	2.89	2.85
Italy	0.29	0.23	0.29	0.76	0.83	2.82	2.83
France	0.17	0.13	0.11	0.69	0.69	2.44	2.48
Denmark	0.12	0.13	0.12	0.72	0.73	2.16	2.19
Greece	0.32	0.41	0.57	0.78	0.82	2.71	2.75
Belgium	0.18	0.16	0.16	0.72	0.72	2.51	2.53
Czech Republic	0.22	0.15	0.16	0.70	0.78	2.46	2.42
Poland	0.17	0.22	0.37	0.74	0.86	2.91	3.63
Slovenia	0.12	0.17	0.07	0.80	0.82	2.81	3.00

Note: Columns 1 to 3 show the percentage of older workers that are self-employed that hold a tertiary degree, a secondary degree or that have less than secondary education. Columns 4 and 5 show the proportion of wage workers (WE) or self-employed workers (SE) that are married and columns 6 and 7 the average household size for wage workers and self-employed workers respectively.

Spain, Italy, Greece, Czech Republic and Poland a higher proportion of self-employed are married than employees. An exception is Austria, where the proportion of married is lower for self-employed workers. Although we also detect substantial cross-country differences, the household size of the self-employed is usually larger than for the wage employed workers.

Table 1.5 summarizes variables by gender, age and type of employment. Relative to wage employment, males dominate self-employment in all countries. The average age of the self-employed is also higher than that of the wage employed workers in all countries – consistent with prior work discussed in section 2.

Also interesting is the cross-country variation in self-employment rates across age groups depicted in Figure 1.1. Prior to age 75, the percentage of self-employment systematically increases with age in all countries. But for ages over 75, the pattern turns out to be different across countries. While

*Table 1.5 Socio-demographic characteristics and self-employment rates:
Part II*

	Male/Female ratio		Average age	
	WE	SE	WE	SE
England	0.53	0.69	60.35	62.49
USA	0.49	0.64	59.41	62.11
Austria	0.51	0.61	55.30	58.08
Germany	0.50	0.60	65.78	59.80
Sweden	0.49	0.75	57.76	60.65
Netherlands	0.55	0.65	55.83	58.25
Spain	0.57	0.63	55.84	57.43
Italy	0.54	0.79	55.26	58.79
France	0.49	0.64	54.61	56.86
Denmark	0.52	0.72	56.82	59.52
Greece	0.58	0.75	56.35	57.94
Belgium	0.54	0.68	55.14	58.38
Czech Republic	0.53	0.65	56.26	58.07
Poland	0.52	0.71	55.77	56.97
Slovenia	0.55	0.76	54.63	56.32

Note: Columns 1 and 2 show the male/female ratio for waged employees (WE) and for self-employed workers (SE). Columns 3 and 4 show the average age of the waged employees and the self-employed workers.

Figure 1.1 Self-employment rates and age: group of countries

for most of them the percentage of self-employment starts to decrease, for some countries like England and the US, the percentage continues to increase. This suggests that some of the patterns detected in previous research for those two countries do not necessarily apply to others. However, because there are small numbers of observations, especially for some countries, we will not consider self-employment rates for individuals older than 75 any further.

3.3 Descriptive Analysis: Entrepreneurship, Work Hours and Retirement

Table 1.6 presents the percentage of self-employed who work 40 hours per week or more (Full Time Equivalent of 40 hours, or “FTE40”). There are clear disparities across groups of countries. The percentage of self-employed workers working at FTE40 is larger than for the wage-employed workers in the North, West and South of Europe, while we observe the opposite in the Anglo-Saxon countries and East Europe. The pattern changes when we consider FTE30. In that case, the percentage of wage-employed workers working at FTE30 is greater than the percentage of self-employed workers in all regions, with the exception of South Europe and West Europe.

We turn next to pensions, which form part of the institutional setting affecting the occupational choice of older workers. The countries in our sample have different pension systems (OECD, *Pensions at a Glance* 2004–2016). Table 1.7 summarizes individuals’ perceptions about some policy changes affecting pensions or the retirement age in European countries (comparable data are unavailable for England or the US). We observe systematic differences in the ways that wage-employed and self-employed workers answer these questions.

Table 1.6 Full time equivalents

	FTE 40		FTE 30	
	WE	SE	WE	SE
Anglo-Saxon	0.66	0.55	0.78	0.60
North Europe	0.51	0.63	0.84	0.74
West Europe	0.41	0.69	0.74	0.76
South Europe	0.59	0.78	0.80	0.81
East Europe	0.86	0.81	0.94	0.83

Note: Columns 1 and 2 show the percentage of self-employed (SE) and wage-employed (WE) workers that work 40 hours per week or more. Columns 3 and 4 show the percentage of self-employed and wage-employed workers that work 30 hours per week or more.

Table 1.7 Pension perception among salary workers and self-employed workers

		Wage-employed	Self-employed
North Europe	Chance the gov will reduce your pension before you retire	53.01	50.40
	Chances the gov will raise your ret age	47.44	46.65
	Chance will be working FT after 63	58.17	63.34
West Europe	Chance the gov will reduce your pension before you retire	55.45	52.01
	Chances the gov will raise your ret age	55.76	55.64
	Chance will be working FT after 63	38.21	57.88
South Europe	Chance the gov will reduce your pension before you retire	59.13	56.33
	Chances the gov will raise your ret age	59.59	58.83
	Chance will be working FT after 63	55.72	67.60
East Europe	Chance the gov will reduce your pension before you retire	58.52	60.62
	Chances the gov will raise your ret age	53.28	58.28
	Chance will be working FT after 63	46.22	63.42

Note: Columns 1 and 2 show the share of self-employed (SE) and wage-employed (WE) workers that report “yes” to these statements.

To the question *Is there a chance that the government reduces your pension before you retire?* the proportion of wage-employed workers answering yes is generally higher than the proportion of self-employed workers, except in East Europe, where the opposite is observed. We also observe very small differences between employment status groups on the beliefs that the government could raise the retirement age, except for East Europe where the difference is larger, with the self-employed there being more likely to believe that their government will raise the retirement age. The answer to these questions could be related to how well-informed different individuals are about these policy changes in their countries. In that case, the level of education might explain most of the observed variation. But there may also be differences in individuals’ attitudes towards life in general (like optimism) or towards their politics and institutions.

Also informative is the question *Is there a chance that you will be working full-time after 63 years old?* Here there is broad consensus across countries:

Table 1.8 Average retirement age by gender

Country	Female	Male
England	57.5	61.3
USA	58.5	59.4
Austria	56.5	57.6
Germany	59.8	60.3
Sweden	61.3	61.4
Netherlands	61.2	60.8
Spain	60.1	59.7
Italy	55.7	56.8
France	58.3	58.4
Denmark	61.7	61.9
Greece	57.7	58.9
Belgium	58.0	59.3
Czech Republic	54.7	58.3
Poland	55.3	57.0
Slovenia	53.2	56.3

compared to wage-employed workers, the self-employed give significantly more positive answers to this question. This is of course confirmed by the observed data on actual self-employment rates, which rise with age, at least up to age 75.

Table 1.8 shows average retirement ages by gender. Note that the reported average sample retirement ages are downward biased compared to the mean retirement age of the current working population, since they are computed using only observations from individuals who have already retired.

3.4 Descriptive Analysis: Health, Inequality and Entrepreneurship

Figure 1.2 summarizes the different answers, given by wage-employed and self-employed workers before their age of retirement, to the question: *Are you afraid that health can limit your ability to work before retirement?* Wage-employed workers report being more afraid than the self-employed workers in North Europe and West Europe, while the opposite is found in South Europe and East Europe (there are no comparable questions for the Anglo-Saxon countries). These results could be related to differences in work stability and fringe benefits across countries. Figure 1.2 also shows the proportion of individuals who self-report having bad health, by group of country and work status.

Figure 1.3 presents values of the Gini measure of net wealth inequality

Figure 1.2 Health limitation and self-reported bad health

by country group and gender. We see that there is greater inequality within self-employment than within wage employment in the Anglo-Saxon countries, West Europe and South Europe. These inequalities are greater among self-employed women than self-employed men in Western, Northern and Eastern Europe. These differences suggest the value of including wealth quantiles as a control in the multivariate analysis of self-employment choices.

4. ECONOMETRIC ANALYSIS

4.1 Probit Analysis of Self-Employment versus Paid Employment among Older Workers

This section analyzes the main variables related to the likelihood of being self-employed relative to being wage employed, conditional on being non-retired. Drawing on the descriptive analysis of the previous section, we estimate a binary multilevel probit model on the pooled dataset over the period 2004/2005 to 2014/2015. A broad set of explanatory variables is used to predict the probability individuals are self-employed rather than wage-employed. Of particular interest is average hours worked, reflecting the body of literature (reviewed in section 2) that suggests older self-employed workers may have different labor market engagement patterns than wage-employed workers. This is operationalized using a dummy variable for working more than 40 (or 30) hours per week. We also add institutional variables at country level that could be relevant for individual

Figure 1.3 Gini Index: net worth

decisions to work longer or retire (see Dingemans et al., 2017). Concretely, we include public expenditure on employment protection, on unemployment benefits, and on early retirement.

Other explanatory variables mirror the previous section's discussion and presentation of descriptive statistics. These include (grouped) age, since as noted earlier, occupational choices have a clear relationship with age; and dummies for secondary and less than secondary education. Household size is also included, as is wealth, grouped into quantiles: these variables capture resource abundance, which is known to be important for entrepreneurs. A dummy for bad health is included since the flexibility of self-employment may make it easier to continue working in that occupation with a health condition (Parker, 2018). To capture idiosyncratic variables which manifest themselves across time and space, year dummies and country group dummies are added as well; and we will go on to separate the sample between men and women. Robust standard errors are clustered at the individual level.

Table 1.9 presents the results. Consistent with prior literature, the likelihood of self-employment increases with age. Older males are more likely to be self-employed than older females, and wealthy older individuals are also more likely to be self-employed. This last finding is consistent with Elitcha and Fonseca (2018) who also detected a strong positive relationship between the propensity to become self-employed and personal wealth. The coefficients on the institutional variables are statistically significant and negative, indicating that self-employment is less likely to be observed in countries where incentives to make choices other than self-employment (namely, wage employment, unemployment, and early retirement) are stronger.

Model 1 includes the explanatory variable for working at least 40 hours per week. Interestingly, given the longer average work hours of the self-employed in general (Ajayi-obe and Parker, 2005), the regressions reveal that older self-employed workers are *less* likely to work more than 40 hours per week relative to the wage employed. Model 2 changes the variable to working at least 30 hours per week. The same results obtain, with a coefficient more than double in magnitude. This result cannot be ascribed to different welfare states and institutions, since these effects are incorporated into the country group fixed effects and/or captured by the country-level institutional variables. This finding regarding work hours is interesting because it suggests that many older self-employed are part-time workers. This is probably capturing the prevalence of small-scale, opportunistic and even casual, occasional work performed by older self-employed workers. It is a far cry from the ambitious growth-oriented entrepreneurship so beloved of policy-makers and entrepreneurship professors. The results

Table 1.9 Self-employment probit: marginal effects

	(1) FT40	(2) FT30	(3) no hours
55–59	0.014*** (0.005)	0.014*** (0.005)	0.015*** (0.005)
60–64	0.033*** (0.007)	0.025*** (0.006)	0.038*** (0.007)
65–69	0.088*** (0.008)	0.065*** (0.008)	0.099*** (0.008)
70–75	0.121*** (0.009)	0.088*** (0.009)	0.138*** (0.009)
76 or more	0.085*** (0.008)	0.065*** (0.008)	0.095*** (0.008)
Male	0.100*** (0.005)	0.110*** (0.005)	0.092*** (0.005)
Less than secondary	0.030*** (0.007)	0.027*** (0.007)	0.031*** (0.007)
Married	–0.007 (0.006)	–0.010* (0.006)	–0.006 (0.006)
No. of resp per HH	–0.004* (0.002)	–0.002 (0.002)	–0.004* (0.002)
Bad health	0.011* (0.006)	0.007 (0.005)	0.013** (0.006)
FTE	–0.043*** (0.005)	–0.116*** (0.005)	
Q2 wealth	0.000 (0.007)	0.003 (0.007)	–0.001 (0.007)
Q3 wealth	0.026*** (0.008)	0.029*** (0.007)	0.025*** (0.008)
Q4 wealth	0.062*** (0.008)	0.064*** (0.008)	0.062*** (0.008)
Q5 wealth	0.191*** (0.008)	0.188*** (0.008)	0.190*** (0.008)
Employment incentives	–0.096*** (0.036)	–0.102*** (0.035)	–0.106*** (0.036)
Unemployment benefits	–0.053*** (0.005)	–0.046*** (0.005)	–0.053*** (0.005)
Early retirement	–0.033** (0.014)	–0.027** (0.013)	–0.028** (0.014)
West Europe	0.038** (0.016)	0.025 (0.015)	0.036** (0.016)
South Europe	0.172*** (0.014)	0.166*** (0.014)	0.164*** (0.014)

Table 1.9 (continued)

	(1) FT40	(2) FT30	(3) no hours
East Europe	0.044** (0.018)	0.042** (0.018)	0.031* (0.018)
Anglo-Saxon	0.039** (0.018)	0.027 (0.018)	0.033* (0.018)
Year controls	yes	yes	yes
Observations	62 193	62 193	62 193

Notes:

The base category in the regression corresponds to an individual who is between 50 and 54 years old, who has tertiary education, the first quintile of net wealth, and lives in North Europe.

* $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

show that older people who want to work full-time are more likely to do so as employees. Finally, Model 3 omits the work hours variable, since it might be endogenous. However, this change does not affect the main results.

The socio-demographic variables mostly have the expected associations with self-employment choice. Individuals with less than secondary education are more likely to be self-employed, consistent with the earlier discussion about incentives for economically marginal workers to opt into self-employment spells later in their lives. Thus, third-age entrepreneurship may be associated with economic disadvantage, or “necessity entrepreneurship”, rather than opportunity entrepreneurship. An ostensibly more surprising result relates to the negative sign on marital status, since the relationship between marital status and self-employment is well-established in the literature (Parker, 2008). In fact, the gender breakdown presented below can explain this result: it turns out to be driven by women, who are much less likely than men to enter self-employment in later life. This finding is consistent with that of Zissimopoulos and Karoly (2007) cited in the literature review section above. Also consistent with prior empirical findings is a positive association between self-employment and poor health. In contrast, people living in larger households tend to be less likely, if anything, to be self-employed in later life than those living alone or in smaller households. It is unclear what underlies this pattern, though it could be the presence of children, who need to be supported and for which regular paid employment may be more attractive than self-employment.

Turning now to country dummies, where Northern Europe is taken as the omitted reference group, the country group coefficients are positive throughout, and largest for Southern Europe (around 16 percentage points), and smallest for the Anglo-Saxon countries (around 3 percentage points). These coefficients pick up the effect of time-invariant characteristics that are common to these country groups and not yet included in the regression, for example differences in labor and product market regulation, as well as other potential differences, coming for example from the tax system or differences in cultural norms (see also Dingemans et al., 2017.) As an example, Southern Europe's stricter institutional settings and more traditional economies with limited opportunities for flexible full-time work for older people might explain the stronger push into self-employment observed there.

Table 1.10 repeats the exercise but separately by gender. All estimated coefficients are larger in magnitude for men than women, but with two notable exceptions similar findings obtain as for Table 1.9. The first exception concerns education: older women with less than secondary education are more likely to be self-employed, unlike men. This might reflect more limited opportunities for less educated women in the formal labor force. This finding is also interesting because it suggests that the results in Table 1.9 relating to education may be driven by women, who may be the most economically marginal entrants to self-employment in later life. The second exception concerns marital status, which as noted above has a negative impact on self-employment propensities among older men but not among older women. Overall, though, our core results are similar across genders.

4.2 Multinomial Logit Analysis of Self-Employment, Paid Employment and Retirement among Older Workers

As previously mentioned, differences in retirement behavior across countries could also affect occupational choices. To take retirement decisions into account, we next estimate a multinomial logistic regression model where the dependent variable takes three possible values: working as self-employed, working as an employee, or being retired. The categories are mutually exclusive, and the information is based on respondent-reported current economic status.

The results appear in Table 1.11. They are consistent with those reported above, including for the policy variables. That suggests that our results are reasonably robust to different model specifications. The probability of being self-employed relative to being retired is statistically significantly negatively correlated with public expenditure that encourages wage employment or retirement. In contrast, the probability of wage

Table 1.10 Self-employment probit: marginal effects, by gender

	(1)		(2)		(3)		(4)		(5)		(6)	
	male		female		male		female		male		female	
	FTE40		FTE40		FTE30		FTE30		no hours		no hours	
55-59	0.012** (0.006)		0.019** (0.008)		0.012* (0.006)		0.018** (0.008)		0.013** (0.006)		0.020** (0.008)	
60-64	0.029*** (0.008)		0.040*** (0.010)		0.022*** (0.008)		0.029*** (0.010)		0.033*** (0.008)		0.045*** (0.010)	
65-69	0.072*** (0.008)		0.107*** (0.010)		0.053*** (0.008)		0.079*** (0.010)		0.080*** (0.008)		0.121*** (0.010)	
70-75	0.098*** (0.008)		0.148*** (0.010)		0.071*** (0.008)		0.108*** (0.010)		0.110*** (0.008)		0.169*** (0.010)	
76 or more	0.057*** (0.010)		0.115*** (0.012)		0.043*** (0.010)		0.089*** (0.012)		0.063*** (0.010)		0.128*** (0.012)	
Secondary	0.007 (0.008)		-0.008 (0.009)		0.004 (0.008)		-0.005 (0.009)		0.009 (0.008)		-0.009 (0.009)	
Less than secondary	0.038*** (0.009)		0.018* (0.011)		0.032*** (0.009)		0.020* (0.011)		0.041*** (0.009)		0.019* (0.011)	
Married	0.006 (0.007)		-0.024** (0.010)		0.001 (0.007)		-0.024** (0.010)		0.006 (0.007)		-0.025** (0.010)	
No. of resp per HH	0.000 (0.003)		-0.007** (0.003)		0.001 (0.003)		-0.005 (0.003)		0.000 (0.003)		-0.008** (0.003)	
Bad health	0.004 (0.007)		0.018** (0.008)		0.001 (0.007)		0.013 (0.008)		0.006 (0.007)		0.021** (0.008)	
FTE	-0.033*** (0.006)		-0.048*** (0.007)		-0.096*** (0.006)		-0.137*** (0.008)					

Q2 wealth	0.000 (0.009)	0.003 (0.011)	0.003 (0.009)	0.005 (0.011)	-0.001 (0.009)	0.001 (0.011)
Q3 wealth	0.016* (0.009)	0.040*** (0.012)	0.018** (0.009)	0.042*** (0.012)	0.016* (0.009)	0.037*** (0.012)
Q4 wealth	0.039*** (0.010)	0.089*** (0.012)	0.040*** (0.010)	0.091*** (0.012)	0.039*** (0.010)	0.088*** (0.012)
Q5 wealth	0.142*** (0.010)	0.242*** (0.012)	0.138*** (0.010)	0.240*** (0.012)	0.143*** (0.010)	0.240*** (0.012)
Employment incentives	-0.057 (0.051)	-0.125** (0.053)	-0.055 (0.050)	-0.140*** (0.052)	-0.066 (0.051)	-0.135** (0.053)
Unemployment benefits	-0.035*** (0.007)	-0.071*** (0.008)	-0.029*** (0.007)	-0.063*** (0.008)	-0.035*** (0.007)	-0.072*** (0.008)
Early retirement	-0.023 (0.018)	-0.038* (0.021)	-0.019 (0.018)	-0.032 (0.020)	-0.019 (0.018)	-0.032 (0.021)
West Europe	0.073*** (0.022)	0.005 (0.023)	0.058*** (0.022)	-0.002 (0.022)	0.073*** (0.022)	0.001 (0.023)
South Europe	0.158*** (0.020)	0.193*** (0.021)	0.155*** (0.019)	0.183*** (0.020)	0.150*** (0.020)	0.184*** (0.021)
East Europe	0.081*** (0.025)	0.014 (0.027)	0.081*** (0.025)	0.009 (0.026)	0.068*** (0.025)	0.001 (0.026)
Anglo-Saxon	0.073*** (0.026)	0.011 (0.027)	0.065** (0.025)	-0.006 (0.026)	0.067*** (0.026)	0.005 (0.027)
Year controls	yes	yes	yes	yes	yes	yes
Observations	32022	30171	32022	30171	32022	30171

Notes:

The base category in the regression corresponds to an individual who is between 50 and 54 years old, who has tertiary education, the first quintile of net wealth, and lives in North Europe.

* p < 0.10, ** p < 0.05 and *** p < 0.01.

Table 1.11 Multinomial logit: marginal effects

	Baseline outcome: retired	
	Self-employed	Employee
55–59	–0.013*** (0.002)	–0.064*** (0.003)
60–64	–0.033*** (0.002)	–0.149*** (0.003)
65–69	–0.046*** (0.001)	–0.194*** (0.002)
70–75	–0.049*** (0.001)	–0.198*** (0.002)
76 or more	–0.049*** (0.002)	–0.237*** (0.004)
Gender	0.010*** (0.002)	–0.065*** (0.003)
Secondary	0.007*** (0.002)	0.004 (0.004)
Less than secondary	–0.009*** (0.003)	–0.075*** (0.004)
Married	–0.002 (0.002)	0.011*** (0.004)
No. of resp per HH	0.010*** (0.001)	0.034*** (0.001)
Bad health	–0.023*** (0.002)	–0.081*** (0.003)
Q2 wealth	–0.001 (0.003)	–0.009*** (0.004)
Q3 wealth	0.003 (0.003)	–0.014*** (0.004)
Q4 wealth	0.015*** (0.004)	–0.014*** (0.005)
Q5 wealth	0.074*** (0.006)	–0.032*** (0.005)
Employment incentives	–0.077*** (0.012)	–0.033 (0.018)
Unemployment benefits	–0.005*** (0.002)	0.027*** (0.003)
Early retirement	–0.011** (0.005)	–0.006 (0.007)
West Europe	–0.023*** (0.004)	–0.062*** (0.007)
South Europe	0.014** (0.005)	–0.077*** (0.005)

Table 1.11 (continued)

	Baseline outcome: retired	
	Self-employed	Employee
East Europe	−0.034*** (0.003)	−0.108*** (0.005)
Anglo-Saxon	−0.072*** (0.005)	−0.343*** (0.007)
Year Controls	yes	yes
Observations	86631	86631

Notes:

The base category in the regression correspond to an individual who is between 50 and 54 years old, who has tertiary education, the first quintile of net wealth, and lives in North Europe.

* $p < 0.10$, ** $p < 0.05$ and *** $p < 0.01$.

employment relative to retirement is positively related to the generosity of unemployment benefits.

5. CONCLUSION

This chapter presented new international evidence on drivers of self-employment relative to wage employment among older workers. For workers who have not yet retired, we discovered that those seeking full-time and long work hours are more likely to be wage employed. In contrast, those wanting (or willing to take) part-time work are disproportionately found in self-employment. This finding, which required multivariate analysis to reveal it most clearly, challenges policy-makers looking to promote high-growth self-employment as an antidote to limited pension coverage and/or low incomes or poverty among older workers.

This chapter abstracted from the retirement decision per se. That is, we did not analyze what causes older self-employed people to retire; nor did we compare their retirement choices with those of older employees. Much prior research has considered the retirement question, which we did not want to repeat here; instead, this chapter focused on occupational choices at later ages, and especially country-level differences in these (aggregate) choices. Evidence on this topic is of keen interest to policy-makers since if few employment opportunities for older workers exist, self-employment becomes one of the few viable alternatives. Following this line of logic further leads us to suspect that it would be peripheral workers (who lose

out in the competition for those limited opportunities) who are most likely to opt for self-employment in old age. Our results that highlight the prevalence of part-time work among the older self-employed would seem to bear out this logic.

The results in this chapter are subject to some limitations. First, the nature of the available data meant that we could only detect (conditional) correlations rather than causal linkages between the variables of interest. There is a risk of endogeneity problems and sample selection bias, which may call into question the results obtained here. It is hoped that future researchers might obtain datasets containing suitable instrumental variables. Second, numerous variables are missing from the datasets we used, which may generate omitted variable bias. It would for example be interesting to condition current occupational choices on prior self-employment, distinguishing “career self-employed” from in-switchers from paid employment. However, the short length of the available panel data does not allow this to be done satisfactorily at present. Hence, addressing this issue using recall variables from the HRS would make for an interesting future research task.

What implications do our results carry for policy-makers? The key to viable and successful entrepreneurship in old age is, we suspect, rooted in viable and successful entrepreneurship that originated much earlier in life. For example, we conjecture that business succession issues in family business might be a more important driver of continuation as self-employed in old age than pensions, since successful businesses often serve as the asset from which future annuities (in lieu of formal “pensions”) are drawn by successful entrepreneurs. Hence policies which serve to strengthen the quality of business start-ups in earlier stages of entrepreneurs’ lives, and which do not overly interfere with entrepreneurs’ later stage business operations and transfers, are to be encouraged. For example, entrepreneurship training and assistance programs have a role in enhancing quality early on, while estate taxation and the availability of successors may affect continuation in self-employment among older entrepreneurs (Brunetti, 2006; Grossman and Strulik, 2010).

Our interest in policy issues complements that of Christelis and Fonseca (2015), who explored labor market policies and institutional factors on transitions into later-stage self-employment. Christelis and Fonseca (2015) argued that self-employment is strongly affected by government labor market policies. They estimated that transitions into self-employment by older workers are positively associated with expenditures on employment incentives. Conversely, they are negatively associated with the strength of the rule of law and of employment protection legislation, and with expenditure on early retirement incentives and on unemployment benefits.

Finally, what have we learned about international differences in self-

employment participation among older workers? We grouped several countries into a few categories largely for expositional convenience, to be sure; but this device also served to focus attention on the kinds of institutions common to these categories. It seems that the liberal economies of the US and England do not have institutions which push older workers strongly into self-employment. In contrast, South Europe's institutional rigidities and more traditional economies with limited opportunities for flexible full-time working for older people, might explain the stronger push into self-employment observed in those countries.

As a rule, policy-makers generally want to encourage opportunity entrepreneurship rather than necessity entrepreneurship. Yet necessity entrepreneurship at older ages occurs in both the Anglo-Saxon and the Southern European settings. In the former case, inequality is higher and poor workers who seek extra income can readily find it in both paid and self-employment. Inequality is less pronounced in Southern Europe, but rigidities in the labor market provide a strong push to self-employment for workers who are unable to find a job in paid employment. It seems that the underlying economic forces are similar even if the institutional constraints are different. More research would help uncover these mechanisms in greater detail and propose more fine-grained policies which might reasonably improve on free market outcomes.

REFERENCES

- Ajayi-obe, O. and S.C. Parker (2005). The changing nature of work among the self-employed in the 1990s: evidence from Britain, *Journal of Labor Research*, **26**, pp. 501–17.
- Atalay, K., W.Y. Kim and S. Whelan (2014). The decline of the self-employment rate in Australia, *Australian Economic Review*, **47**(4), pp. 472–89.
- Been, J. and M. Knoef (2017). Job-search requirements for unemployed at the end of working life: effects on unemployment dynamics and self-employment probabilities, *Journal of Human Resources*, **52**(2), pp. 491–530.
- Biehl, A.M., T. Gurley-Calvez and B. Hill (2014). Self-employment of older Americans: do recessions matter? *Small Business Economics*, **42**, pp. 297–309.
- Brunetti, M.J. (2006). The estate tax and the demise of the family firm, *Journal of Public Economics*, **90**, pp. 1975–93.
- Christelis, D. and R. Fonseca (2015). Labor market policies and self-employment transitions of older workers. Available at papers.ssrn.com.
- Dingemans, E., K. Henkens and H. van Solinge (2017). Working retirees in Europe: individual and societal determinants. *Work, Employment & Society*, **31**(6), pp. 972–91.
- Elitcha, K. and R. Fonseca (2018). Self-employment, wealth and start-up costs: evidence from a financial crisis. *The B.E. Journal of Economic Analysis and Policy*, **18**(3).
- Esping-Andersen, G. (1990). *Three Worlds of Welfare Capitalism*. Oxford: Policy Press.
- Esping-Andersen, G. (1999). *Social Foundations of Post-industrial Economies*. Oxford: Oxford University Press.
- Evans, D.S. and L.S. Leighton (1989). Some empirical aspects of entrepreneurship. *American Economic Review*, **79**, pp. 519–35.

- Ferrera, M. (1996). The southern model of welfare in social Europe? *Journal of European Social Policy*, **6**(1), pp. 17–37.
- Fuchs, V.R. (1982). Self-employment and labor-force participation of older males. *Journal of Human Resources*, **17**, pp. 339–57.
- Grossman, V. and H. Strulik (2010). Should continued family firms face lower taxes than other estates? *Journal of Public Economics*, **94**, pp. 87–101.
- Heim, B.T. (2015). Understanding the decline in self-employment among individuals nearing retirement. *Small Business Economics*, **45**, pp. 561–80.
- Hogan, R. and C.C. Perrucci (2007). Black women: truly disadvantaged in the transition from employment to retirement income. *Social Science Research*, **36**(3), pp. 1184–99.
- Kautonen, T., E. Kibler and M. Minniti (2017). Late-career entrepreneurship, income and quality of life. *Journal of Business Venturing*, **32**(3), pp. 318–33.
- Knoef, M., J. Been, R. Alessie, K. Caminada, K. Goudswaard and A. Kalwij (2016). Measuring retirement savings adequacy: developing a multi-pillar approach in the Netherlands. *Journal of Pension Economics and Finance*, **15**(1), pp. 55–89.
- Li, Y., M. Mastrogiacomo, S. Hochguertel and H. Bloemen (2016). The role of wealth in the start-up decision of new self-employed: evidence from a pension policy reform. *Labour Economics*, **41**, pp. 280–90.
- Moralee, L. (1998). Self-employment in the 1990s. *Labour Market Trends*, **106**, pp. 121–30.
- Moulton, J.G. and J.C. Scott (2016). Opportunity or necessity? Disaggregating self-employment and entry at older ages. *Social Forces*, **94**(4), 1539–66.
- OECD *Pensions at a Glance* (2005, 2007, 2009, 2011, 2013, 2015).
- Parker, S.C. (2003). The distribution of wealth among older self-employed Britons. *Fiscal Studies*, **24**, pp. 23–43.
- Parker, S.C. (2008). Entrepreneurship among married couples in the United States: A simultaneous probit approach. *Labour Economics*, **15**(3), pp. 459–81.
- Parker, S.C. (2016). Family firms and the “willing successor” problem. *Entrepreneurship Theory and Practice*, **40**(6), pp. 1241–59.
- Parker, S.C. (2018). *The Economics of Entrepreneurship*, 2nd edn, Cambridge: Cambridge University Press.
- Parker, S.C. and J. Rougier (2007). Self-employment and the retirement decision. *Applied Economics*, **39**, pp. 697–713.
- Puri, M. and D.T. Robinson (2007). Optimism and economic choice. *Journal of Financial Economics*, **86**(1), pp. 71–99.
- Quinn, J.F. (1980). Labour-force participation patterns of older self-employed workers. *Social Security Bulletin*, **43**, pp. 17–28.
- Reuschke, D. and D. MacLennan (2014). Housing assets and small business investment: exploring links for theory and policy. *Regional Studies*, **48**(4), pp. 744–57.
- Schuetze, H.J. (2015). Self-employment and retirement in Canada: the labour force dynamics of older workers. *Canadian Public Policy*, **41**(1), pp. 65–85.
- Wainwright, T. and E. Kibler (2014). Beyond financialization: older entrepreneurship and retirement planning. *Journal of Economic Geography*, **14**(4), pp. 849–64.
- Zissimopoulos, J.M. and L.A. Karoly (2007). Transitions to self-employment at older ages: the role of wealth, health, health insurance and other factors. *Labour Economics*, **14**, pp. 269–95.
- Zissimopoulos, J.M. and L.A. Karoly (2009). Labour-force dynamics at older ages: movements into self-employment for workers and non-workers. *Research on Aging*, **31**(1), pp. 89–111.

APPENDIX

Table 1A.1 Number of observations by country and year

Country	2004	2006	2008	2010	2012	2014	Total
England	11 391	8810	7595	7178	6547	5681	47 202
USA	19 280	17 939	16 862	21 041	19 864	18 290	113 276
Austria	2043	1608	1318	6767	5821	4468	22 025
Germany	3844	3470	2505	2140	7688	5809	25 456
Sweden	3940	3906	2603	2596	5961	5081	24 087
Netherlands	3828	3858	2952	3687	5742	0	20 067
Spain	4379	4063	3568	5724	9987	8741	36 462
Italy	4357	4776	3898	5552	7223	8099	33 905
France	3966	4130	3357	7790	5991	5382	30 616
Denmark	1915	3209	2650	2953	5500	5146	21 373
Greece	4053	5 024	4626	0	0	7558	21 261
Belgium	4899	4386	3794	7312	8166	8696	37 253
Czech Republic	0	3719	2423	7441	7814	6882	28 279
Poland	0	5161	3931	3414	0	3698	16 204
Slovenia	0	0	0	4806	5068	6830	16 704