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Self-employment in OECD countries

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Abstract

The paper examines the role and influence of self-employment across the OECD. The overall trend in self-employment, at the economy level in the years since 1966, has been down in most countries. The main exceptions to this are Portugal, New Zealand and the United Kingdom where the trend has been upward. For most countries there is a negative relationship between the self-employment rate and the unemployment rate. The probability of being self-employed is higher among men than women and rises with age. The least educated have the highest probability of being self-employed, however, evidence is found that the most highly educated also have relatively high probabilities. The self-employed have higher levels of job satisfaction than employees. I could find no evidence that increases in the self-employment rate increased the real growth rate of the economy; in fact there was even evidence of the opposite. The self-employed are less willing to move from their neighborhoods, towns and regions than are employees, presumably because of the pull of their customers. I developed a flexibility index based on information provided by individuals in 1995. According to this index the US economy was the most flexible, followed by Canada, Germany and the Netherlands. Latvia, Russia and Hungary were found to be the least flexible countries. Of the OECD countries examined, Austria and Ireland were ranked lowest. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: Self-employment; OECD countries; Agricultural employment

1. Introduction

A large proportion of the labor force apparently would like to be their own bosses. Self-employment presents an opportunity for the individual to set his or

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her own schedule, to work when they like, to answer to nobody and possibly even as a way to become rich. Unfortunately on the downside, if the business fails the individual may lose their job, their savings, their home if as often happens it is used as security on a loan, and perhaps even their marriage because of the stresses and strains. If we have learnt anything from portfolio theory it is that an individual should diversify their portfolio and not to pool their resources into a single risky activity.

Governments, on the other hand, frequently see self-employment as a route out of poverty and disadvantage and, for this reason, offer aid and assistance for small businesses. The justification for these actions is usually that it is argued that self-employment will help promote invention and innovation and thus create new jobs; new firms may also raise the degree of competition in the product market bringing gains to consumers; greater self-employment may also go along with increased self-reliance and well being. Unfortunately, economists have little evidence on whether these hypothetical benefits exist in practice. Even the widely held view, best expressed in Birch (1979), that small firms disproportionately are the creators of jobs has been challenged by Davis et al. (1996) who have undertaken the most careful empirical analysis of the job creation process to date.[1] They argue persuasively that "conventional wisdom about the job creating powers of small businesses rests on statistical fallacies and misleading interpretations of the data" (1996, p. 57). Indeed, they go on to conclude the following.

> It is true that small businesses create jobs in disproportionate numbers. That is gross job creation rates are substantially higher for smaller plants and firms. But because gross job destruction rates are also substantially higher for smaller plants and firms, they destroy jobs in disproportionate numbers. We found no strong systematic relationship between employer size and net job growth rates.... Finally, and in contrast to the lack of a clear-cut relationship between employer size and job growth,... (we found)... clear evidence that large employers offer greater job durability. (1996, p. 170)

Despite the lack of clear and convincing evidence (I learnt that phrase from the Starr report!) of the benefits of having a larger small business sector and/or having a higher proportion of the workforce self-employed, as noted above, many governments around the world provide subsidies to individuals set-up and to remain in business. In Britain and France, for example, government programs provide transfer payments to the unemployed while they attempt to start businesses.[2] In the U.S., similar programs are being started for unemployment

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[1] Studies of Canadian employers by Picot et al. (1994), of Dutch manufacturing by Huigen et al. (1991), of Australian manufacturing establishments by Borland and Home (1994) and of German manufacturing firms by Wagner (1995) also find that standard measurement procedures exaggerate the relative growth performance of small firms.

[2] See Bendick and Egan (1987).

insurance and welfare recipients. Many countries, including the UK and the United States, have government programs to provide loans to small businesses, and even exempt small businesses from certain regulations and taxes. Furthermore, many states and municipalities in the U.S. have had programs to encourage minority and female-owned small businesses.[3]

Probably the greatest interest in entrepreneurship springs from a belief that small businesses are essential to the growth of a capitalist economy. While the view that small businesses are responsible for a disproportionate share of job creation and innovation is disputed,[4] this view is a common one. It is often argued that many of the problems of Eastern Europe come from the lack of entrepreneurs. Academics have been interested in self-employment as a safety valve where the unemployed and victims of discrimination could find jobs.[5] Interest in self-employment has also been prompted by the belief that they face a different set of economic incentives, and thus could be used to test various theories.[6]

The simplest kind of entrepreneurship is self-employment. There is recent survey evidence to suggest that, in the industrialized countries, many individuals who are currently employees would prefer to be self-employed. Although it cannot be definitive, this evidence suggests that there may be restrictions on the supply of entrepreneurs. The International Social Survey Programme[7] of 1989 asked random samples of individuals from eleven countries the question:

> Suppose you were working and could choose between different kinds of jobs. Which of the following would you choose? I would choose . . .

(i) Being an employee,
(ii) Being self-employed,
(iii) Can't choose.

As can be seen from Table 1, large numbers of people gave answer (ii) and thus stated that they would wish to be self-employed. This answer was given by, for example, a remarkable 63% of Americans (out of 1453 asked), 48% of Britons (out of 1297), and 49% of Germans (out of 1575). Answers are similar when the

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[3] For a discussion of the existence of discrimination in the market for business loans see Blanchflower et al. (1998). The existence of these programs that offer preferential treatment to minorities and women is the subject of a series of challenges in the US courts. This paper is also being presented at this conference.

[4] See Brown et al. (1990) for a critical appraisal of these schemes.

[5] See Light (1972), Moore (1983) or Sowell (1981).

[6] See Wolpin (1977), Moore (1983) and Lazear and Moore (1984).

[7] For information on the International Social Survey Programme (ISSP) data series see http://www.issp.org.

Table 1
Suppose you were working and could choose between different kinds of jobs. Which of the following would you choose? "Being an employee or being self-employed?" — % reporting self-employed

	All individuals		Employees	
	%	N	%	N
Austria	60	1779	56	724
Great Britain	48	1183	43	600
Hungary	38	894	41	560
Ireland	51	944	50	379
Israel	49	910	44	477
Italy	65	969	61	387
Netherlands	39	1489	33	379
Northern Ireland	52	705	47	266
Norway	26	1589	22	970
USA	63	1283	59	693
West Germany	49	1207	47	474

Source: International Social Survey Programme, 1989.

sample is restricted to employees only. These numbers can be compared with an actual proportion of workers that are self-employed in these countries of approximately 15%. As pointed out by a referee, one possible interpretation of the answers to this question is that individuals would like to be considered as self-employed by the tax authorities, thereby paying less tax. Numerous expenses such as travel-to-work costs are tax deductible for the self-employed but not for employees.

The data raise a puzzle: why do not more of these individuals follow their apparent desire to run a business? This paper explores the factors that may be important in determining who becomes and remains an entrepreneur across many countries. A number of other issues are examined including (a) to what extent do the characteristics of the self-employed vary across countries; (b) the relationship between the self-employment rate, variously defined, and the unemployment rate across countries; (c) how satisfied the self-employed are with their jobs; (d) whether higher levels of self-employment increase the real growth rate of the economy; (e) how mobile the self-employed are across neighborhoods, regions and towns. Finally, I develop a flexibility index across countries based upon individuals' reports on how willing they are to move. According to this index, the US economy was the most flexible, followed by Canada, Germany and the Netherlands. Latvia, Russia and Hungary are found to be the least flexible countries.

The paper uses data for a number of countries drawn from a variety of sources. The main source of data is the Eurobarometer Surveys conducted by EUROSTAT which provides information on member countries of the European union. These data are supplemented with cross-country data from the International Social Survey Programme series as well as the General Social Surveys for the United

States and the Surveys of Consumer Finances in Canada. In Section 2 of the paper we discuss previous research findings. Section 3 describes measurement of a self-employment rate and the important role the agricultural sector plays in any analysis of the determinants of self-employment. It initially models the determinants of the self-employment rate using a panel of 23 countries for the period 1966–1996 and then performs a similar analysis of the determinants of self-employment at the level of the individual using a time-series of cross-sections for the period 1975–1996 for 19 countries. Section 4 examines whether the self-employed are more satisfied with their job than are individuals who are not their own boss. Section 5 examines whether self-employment enhances labor marker flexibility. Section 6 contains our conclusions.

2. Previous research

After years of comparative neglect, research on the economics of entrepreneurship — especially upon self-employment — is beginning to expand. Microeconometric work includes Fuchs (1982), Borjas and Bronars (1989), Evans and Jovanovic (1989), Evans and Leighton (1989), Fairlie (1999), Fairlie and Meyer (1996, 1998), Reardon (1998) for the United States, Rees and Shah (1986), Pickles and O'Farrell (1987), Blanchflower and Oswald (1990, 1998a); Blanchflower and Freeman (1994), Meager (1992), Taylor (1996), and Robson (1998a,b) for the UK; De Witt and Van Winden (1990) for the Netherlands; Alba-Ramirez (1994) for Spain; Bernhardt (1994), Schuetze (1998), Arai (1997), Lentz and Laband (1990) and Kuhn and Schuetze (1998) for Canada; Laferrere and McEntee (1995) for France; Blanchflower and Meyer (1994) and Kidd (1993) for Australia and Foti and Vivarelli (1994) for Italy. There are also several theoretical papers including Kihlstrom and Laffont (1979), Kanbur (1982), Coate and Tennyson (1992), and Holmes and Schmitz (1990) plus a few papers that draw comparisons across countries, i.e. Schuetze (1998) — Canada and the USA, Blanchflower and Meyer (1994) — Australia and the USA; Alba-Ramirez (1994) for Spain and the United States and Acs and Evans (1994) for many countries.

One possible impediment to entrepreneurship is lack of capital. In recent work using US micro data, Evans and Leighton (1989) and Evans and Jovanovic (1989) have argued formally that entrepreneurs face liquidity constraints. The authors use the National Longitudinal Survey of Young Men for 1966–1981 and the Current Population Surveys for 1968–1987. The key test shows that, all else remaining equal, people with greater family assets are more likely to switch to self-employment from employment. This asset variable enters probit equations significantly and with a quadratic form. Although Evans and his collaborators draw the conclusion that capital and liquidity constraints bind, this claim is open to the objection that other interpretations of their correlation are feasible. One possibility, for example, is that inherently acquisitive individuals both start their own busi-

nesses and forego leisure to build up family assets. In this case, there would be a correlation between family assets and movement into self-employment even if capital constraints did not exist. A second possibility is that the correlation between family assets and the movement to self-employment arises because children tend to inherit family firms.

Blanchflower and Oswald (1998a) find that the probability of self-employment depends positively upon whether the individual ever received an inheritance or gift. This emerges from British data, the National Child Development Study; a birth cohort of children born in March 1958 who have been followed for the whole of their lives. Second, when directly questioned in interview surveys, potential entrepreneurs say that raising capital is their principal problem. Third, the self-employed report higher levels of job and life satisfaction than employees. Fourth, psychological test scores play only a small role. Work by Holtz-Eakin et al. (1994a,b) drew similar conclusions using different methods on US data. The work of Black et al. (1996) for the UK discovers an apparently powerful role for house prices (through its impact on equity withdrawal) in affecting the supply of small new firms. Cowling and Mitchell (1997) find a similar result. Again this is suggestive of capital constraints. Finally, Lindh and Ohlsson (1996) adopts the Blanchflower–Oswald procedure and provide complementary evidence for Sweden. Bernhardt (1994) in a study for Canada using data from the 1981 Social Change in Canada Project also found evidence that capital constraints appear to bind. Using the 1991 French Household Survey of Financial Assets, Laferrere and McEntee (1995) examined the determinants of self-employment using data on intergenerational transfers of wealth, education, informal human capital and a range of demographic variables. They also find evidence of the importance played by the family in the decision to enter self-employment. Intergenerational transfers of wealth, familial transfers of human capital and the structure of the family were found to be determining factors in the decision to move from wage work into entrepreneurship.

There has been relatively little work on how institutional factors influence self-employment. Such work that has been conducted includes examining the role of minimum wage legislation (Blau, 1987), immigration policy (Borjas and Bronars, 1989) and retirement policies (Quinn, 1980). Studies by Long (1982) and Blau (1987) and more recently by Schuetze (1998) have considered the role of taxes. In an interesting study pooling individual level data for the US and Canada from the Current Population Study and the Survey of Consumer Finances, respectively, Schuetze (1998) finds that increase in income taxes have large and positive effects on the male self-employment rate. He found that a 30% increase in taxes generated a rise of 0.9 to 2 percentage points rise in the male self-employment rate in Canada compared with a rise of 0.8 to 1.4 percentage point rise in the US over 1994 levels.

A number of other studies have also considered the cyclical aspects of self-employment and, in particular, how movements of self-employment are

correlated with movements in unemployment. Meager (1992) provides a useful summary of much of this work. Evans and Leighton found that white men who are unemployed are nearly twice as likely as wage workers to enter self-employment. Bogenhold and Staber (1991) also find evidence that unemployment and self-employment are positively correlated. In Blanchflower and Oswald (1990), we found a strong negative relationship between regional unemployment and self-employment for the period 1983–1989 in the UK using a pooled cross-section time-series data set.[8] In Blanchflower and Oswald (1998a), we confirmed this result, finding that the log of the county unemployment rate entered negatively in a cross-section self-employment probits for young people age 23 in 1981 and for the same people aged 33 in 1991. Taylor (1996) confirmed this result using data from the British Household Panel Study of 1991, showing that the probability of being self-employed rises when expected self-employment earnings increase relative to employee earnings, i.e. when unemployment is low. Acs and Evans (1994) found evidence from an analysis of a panel of countries that the unemployment rate entered negatively in a fixed effect and random effects formulation. However, Schuetze (1998) found that, for the US and Canada, the elasticity of the male self-employment rate with respect to the unemployment rate was considerably smaller than he found for the effect from taxes discussed above. The elasticity of self-employment associated with the unemployment rate is about 0.1 in both countries using 1994 figures. A decrease of 5 percentage points in the unemployment rate in the US (about the same decline occurred from 1983–1989) leads to about a 1 percentage point decrease in self-employment. It does seem then that there is some disagreement in the literature on whether high unemployment acts to discourage self-employment because of the lack of available opportunities or encourage it because of the lack of viable alternatives.

There is, however, a good deal of agreement in the literature on the micro-economic correlates of self-employment (see Aronson, 1991) on this. It should be pointed out that most of this work is based on US data and, as we shall see below, the results do not necessarily carry through elsewhere. Subject to that caveat it appears that self-employment rises with age, is higher amongst men than women and higher among whites than blacks. Increases in educational attainment are generally found to lead to increases in the probability of being self-employed. The more children in the family the higher likelihood of (male) self-employment.

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[8] Self-employment as a percentage of civilian employment and the OECD standardised unemployment rate in the UK over the years 1983–1989 were as follows (Source: *OECD Economic Outlook*):

	1983	1984	1985	1986	1987	1988	1989
Unemployment rate (%)	12.4	11.7	11.2	11.2	10.3	8.6	7.2
Self-employment rate (%)	9.6	11.4	11.5	11.5	12.4	12.6	13.3

Workers in agriculture and construction are also especially likely to be self-employed.

3. The determinants of self-employment

The self-employed are a very disparate group. They are likely to include farmers, craftsmen, shopkeepers, lawyers, doctors, architects, entertainers, sportsmen and women, computer programmers and analysts amongst others. Unfortunately, most of the data files we have access to do not report the occupation of the self-employed person — self-employment *is* the reported occupation. It would be a good idea, as suggested by a referee, to analyze self-employment for a distinct occupational group such as cleaning and catering, but unfortunately this is not possible with the data we have available to us.

It turns out it is also not a simple matter to determine whether an individual is actually self-employed or not. It is certainly not a simple task to do so in a consistent way across countries. Some of the individuals who report being self-employed are *unpaid family workers*. This is considerably more prevalent in the agricultural sector than it is in non-agriculture — the unweighted average over the 16 countries for which I have data in 1996 is 19.6% in agriculture and 7.3% in the non-agricultural sector and 11.6% overall. There is also considerable variation by country — overall 33.6% of the self-employed in Japan are unpaid family workers compared with 1.7% in the USA; 12.9% in Germany; 14.0% in Italy and 3.7% in Canada.[9] The extent to which individuals report being unpaid family workers is likely to be a function of both the tax regime and the welfare system prevailing within a country. It does not seem to be appropriate to simply throw away these individuals from any analysis; not least because there are other ways of remunerating the self-employed than via a wage. An example would be that an individual's expenses can be charged to the business and/or the value of the business may increase over time even though no salary is being paid. In my experience, this is more of a problem in Europe than it is in North America. Earnings data for the self-employed seem to convey some information in the US. In the UK, for example, earnings of the self-employed are low and frequently zero or negative.

There is a further issue which needs to be confronted — how to deal with the owners of larger businesses — known in the USA as the incorporated self-em-

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[9] The proportion of the self-employed that are unpaid family workers in the remaining countries in 1996 was Australia 6.1%; Denmark 10.6%; Finland 4.6%; Iceland 2.3%; Ireland 5.1%; Netherlands 9.6%; Norway 10.3%; Portugal 5.8%; Spain 14.3%; Sweden 3.4%.

ployed. In the USA, they are usually treated as employees (see Bregger, 1996). In Europe, and as far as I am aware in most of the rest of the OECD, they are included in the self-employment count. In a paper like this, it is difficult to reconcile these differences. The approach we take in this paper to overcome these definitional problems is as follows.

1. Analyze a series of micro-data files that have been collected across several countries with similar sample design, definitions and questions.
2. Pool data across countries and through time and include a group of country and year fixed effects in an attempt to control for the nuances of the economic and legislative environment within which the self-employed operate.
3. Work with the official data published by the OECD who have made considerable efforts over the years to make these estimates as comparable as possible across countries (see Annex 4A, OECD, 1992).

There is also considerable disagreement on how *the* self-employment rate should be measured. As we show below, differences in results across papers are on occasions to be explained by differences in what is included in the denominator of the self-employment rate as well as on the sample restriction rules used. The problem is twofold. First, there is a good deal of disagreement in the literature whether the self-employed to be examined should include individuals working in both agriculture and non-agriculture. Second, there are three main ways of measuring the denominator

    (a) employees,
    (b) the labor force (employees plus unemployed),
    (c) the population and sometimes restricted to include the population ages 16–65.

In this section, we consider what if any differences arise in modeling self-employment as a result of such differences in definition and sample selection. Table 2 reports data on the change in the proportion of all workers who were self-employed for the years 1966, 1976, 1986 and 1996 in our sample of 23 countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Turkey, UK, USA). Data are taken from various issues of the *OECD Economic Outlook*. In 1996, the highest proportions were found in Turkey (58%) and Greece (46%) and the lowest in Luxembourg (7.5%) and the USA (8.4%). If we compare the two end years, we observe that over the last 30 years this rate fell in all countries except Iceland, New Zealand, Portugal and the UK.

Table 2
Self-employment as a % of all employment

	1966	1976	1986	1996
Australia	15.9	15.2	16.8	15.1
Austria	27.8[a]	19.2	14.8	13.7[h]
Belgium	21.9	16.7	18.1	18.4[d]
Canada	14.8	9.7	9.7	11.3
Denmark	22.5[b]	16.8	11.6	9.5
Finland	29.6	20.2	14.9	14.5
France	25.1	17.8	15.8	11.6[c]
Germany	19.1	13.6	11.5	10.6
Greece	n/a	52.4[e]	50.7	46.1[c]
Iceland	18.0	15.1	13.5	18.2
Ireland	34.4	28.3	23.4	20.9
Italy	37.4	24.1	29.9	28.9
Japan	38.0	29.4	24.9	17.7
Luxembourg	22.4	15.4	11.3	7.6[c]
Netherlands	18.5	12.7	11.3	12.5
New Zealand	14.0	14.1	17.9	20.4
Norway	22.5	14.8	12.7	8.7
Portugal	25.9	35.2	31.3	28.7
Spain	36.8[g]	31.5	30.0	25.0
Sweden	13.1[g]	8.2	6.5	11.0
Turkey	n/a	n/a	58.5[f]	58.3
UK	6.7	8.0	11.5	13.6
USA	12.7	9.3	8.9	8.4

a = 1969; b = 1967; c = 1995; d = 1992; e = 1977; f = 1988; g = 1968; h = 1994.
Source: OECD Labour Force Statistics (various).

Table 3, which presents the proportion of *non-agricultural* work that is accounted for by the self-employed, also shows considerable diversity in experience across countries. However, now there are several additional countries where there has been an upward trend between 1966 and 1996 (Australia, Canada, Finland, Iceland, Ireland, Portugal, Sweden, New Zealand and the United Kingdom) than was found in Table 2, which included both the agriculture and non-agricultural sectors. Clearly, there are broad similarities with the trends in self-employment identified in the two tables. Overall, the predominant trend in self-employment is downward; the main exceptions are New Zealand, Portugal and the UK where there have been substantial increases in the self-employment rate, however measured.

The next issue we examine is what are the determinants of self-employment and to what extent do they vary across countries? We do so in Table 4 by estimating five self-employment equations using different definitions of the dependent variable. Total observations are 626 for the years 1966–1996; using a lagged

Table 3
Self-employment as a % of all non-agricultural employment

	1966	1976	1986	1996
Australia	9.8	10.1	11.8	11.3
Austria	11.5[a]	8.7	7.4[g]	7.4
Belgium	14.8	12.3	13.8	14.4[d]
Canada	8.3	6.2	6.9	8.9
Denmark	12.9[b]	10.4	7.7	7.2
Finland	7.6	7.4	6.6	9.1
France	12.5	9.8	9.5	7.8
Germany	10.0	8.1	7.7	8.3
Greece	–	23.6[e]	24.6	25.1[c]
Iceland	9.0	7.7	8.6	13.2
Ireland	9.6	10.2	10.4	11.7
Italy	20.8	14.1	20.5	20.8
Japan	18.3	17.1	15.8	12.0
Luxembourg	11.8	9.0	7.6	5.4[c]
Netherlands	11.6	8.2	7.6	9.6
New Zealand	–	–	12.1	14.5
Norway	8.7	7.6	7.1	5.4
Portugal	13.1	12.5	14.5	17.3
Spain	18.2	16.8	18.4	17.4
Sweden	7.0[b]	4.4	4.1	8.5
Turkey	–	–	21.9[f]	22.8
UK	5.3	6.6	9.6	11.3
USA	8.6	6.8	7.1	6.8

a = 1969; b = 1967; c = 1995; d = 1992; e = 1977; f = 1988; g = 1994.
Source: OECD Labour Force Statistics (various).

dependent variable reduces the sample size to 600. The data set is an unbalanced panel. As we move across the columns the definition of self-employment is varied.[10] Included in each of the regressions is a lagged dependent variable, a time trend (1966 = zero), the percentage of total employment in agriculture, 21 country dummies, the natural logarithm of the unemployment rate and a full set of interactions between the country dummies and the log of the unemployment rate. The main conclusions are as follows:

(1) In the first four equations the trend in self-employment is positive and significant. It is negative in the final column for the agricultural sector.

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[10] Definitions of the dependent variables in Table 7 are as follows — column 1 = self employment/total employment; column 2 = self employment/labor force; column 3 = self employment/population aged 16–64; column 4 = (self-employed/all workers) — in the non-agricultural sector; column 5 = (self-employed/all workers) in the agricultural sector.

Table 4
Self-employment regressions, 1966–1996

	Self	Self1	Self2	Self3	Self4
Self$_{t-1}$	0.3606 (11.88)	0.7435 (33.66)	0.3188 (9.79)	0.5742 (17.05)	0.8177 (36.46)
% Agriculture	0.4469 (16.32)	0.1334 (8.56)	0.2251 (9.95)	0.1025 (4.42)	−0.0130 (0.33)
Time	0.0008 (5.05)	0.0002 (2.42)	0.0004 (3.40)	0.0006 (4.26)	−0.0011 (4.08)
Unemployment rate	−0.0190 (3.00)	−0.0058 (1.62)	−0.0182 (3.57)	−0.0106 (1.79)	−0.0124 (1.34)
Belgium * unemployment rate	0.0164 (2.28)	0.0055 (1.39)	0.0118 (2.04)	0.0096 (1.42)	−0.0068 (0.63)
Denmark * unemployment rate	0.0056 (0.81)	−0.0001 (0.04)	0.0052 (0.93)	0.0022 (0.34)	−0.0295 (2.84)
Finland * unemployment rate	0.0294 (4.17)	0.0072 (1.86)	0.0139 (2.47)	0.0199 (2.96)	−0.0102 (0.98)
Greece * unemployment rate	0.0249 (2.93)	0.0012 (0.27)	0.0185 (2.71)	0.0153 (1.91)	−0.0045 (0.35)
Ireland * unemployment rate	0.0322 (3.99)	0.0044 (1.00)	0.0040 (0.62)	0.0262 (3.38)	−0.0000 (0.00)
Lux * unemployment rate	0.0085 (1.23)	0.0021 (0.56)	0.0109 (1.94)	0.0040 (0.61)	−0.0196 (1.88)
Norway * unemployment rate	0.0077 (1.07)	0.0001 (0.04)	0.0096 (1.65)	0.0040 (0.59)	−0.0202 (1.87)
Portugal * unemployment rate	0.0128 (1.26)	−0.0226 (3.97)	−0.0572 (7.11)	0.0106 (1.15)	−0.0661 (4.48)
Spain * unemployment rate	0.0264 (4.01)	0.0034 (0.95)	0.0106 (2.03)	0.0134 (2.18)	−0.0069 (0.72)
Canada * unemployment rate	0.0084 (0.81)	0.0058 (1.02)	0.0141 (1.68)	0.0082 (0.84)	−0.0356 (2.16)
Japan * unemployment rate	−0.0205 (2.16)	−0.0124 (2.37)	−0.0223 (2.82)	−0.0161 (1.80)	−0.0014 (0.10)

Australia * unemployment rate	0.0277 (3.78)	0.0085 (2.04)	0.0228 (3.89)	0.0147 (2.14)	−0.0002 (0.02)
NZ * unemployment rate	0.0261 (2.34)	0.0085 (1.37)	0.0231 (2.57)	0.0261 (2.45)	−0.0488 (2.88)
France * unemployment rate	0.0058 (0.82)	0.0005 (0.15)	0.0028 (0.49)	0.0005 (0.08)	−0.0049 (0.46)
Iceland * unemployment rate	0.0351 (5.08)	0.0119 (3.01)	0.0322 (5.75)	0.0206 (3.17)	−0.0073 (0.74)
Italy * unemployment rate	0.0813 (7.79)	0.0252 (4.38)	0.0392 (4.58)	0.0469 (4.79)	0.0092 (0.61)
Netherlands * unemployment rate	0.0036 (0.51)	−0.0000 (0.02)	0.0087 (1.53)	−0.0000 (0.00)	−0.0148 (1.41)
Sweden * unemployment rate	0.0291 (3.71)	0.0098 (2.22)	0.0214 (3.41)	0.0163 (2.21)	0.0057 (0.50)
Turkey * unemployment rate	0.0977 (2.21)	0.0478 (1.97)	0.0766 (2.14)	0.0827 (1.99)	0.0303 (0.45)
Germany * unemployment rate	0.0120 (1.80)	0.0033 (0.91)	0.0094 (1.75)	0.0066 (1.06)	−0.0208 (2.08)
UK * unemployment rate	0.0312 (4.08)	0.0107 (2.46)	0.0263 (4.32)	0.0171 (2.39)	0.0181 (1.60)
USA * unemployment rate	0.0140 (1.24)	0.0065 (1.05)	0.0156 (1.71)	0.0080 (0.75)	−0.0225 (1.32)
Constant	0.0380 (3.75)	0.0187 (3.04)	0.0465 (5.90)	0.0193 (2.05)	0.1684 (6.20)
N	600	600	591	600	600
Adjusted R^2	0.9860	0.9949	0.9706	0.9686	0.9842
F	810.6	2259.7	372.5	354.1	716.2

Self = self employment/total employment; Self1 = self employment/labor force; Self2 = self employment/population; Self3 = (self-employed/all workers) — non-agricultural; Self4 = (self-employed/all workers) — agricultural. Unemployment rate is everywhere in natural logarithms. Excluded country is Austria. Equations also include a full set of country dummies.

(2) As might be expected, the higher the percentage of workers in agriculture, the higher the various self-employment rates. The variable is insignificant in the agricultural sample in the last column of the table.

(3) The unemployment rate enters significantly with a negative coefficient when entered on its own without any interaction terms when the dependent variable is defined only as in column 3 (results not reported) but is insignificant in the other specifications of the dependent variable used in Table 4 (results also not reported). The significance of the various interaction terms suggests there is considerable variation across countries in the influence of unemployment, both in terms of the direction and magnitude of any effect. If we look at the first column where self-employment is expressed as a proportion of total employment, the unemployment rate enters negatively in Austria, which is the excluded category.[11] There is an even larger negative effect in Japan. Most of the other coefficients are positive, although in a number of cases the *t*-statistic is low suggesting that the effect of the unemployment rate is not significantly different from that of Austria (i.e. Denmark, Luxembourg, Portugal, Canada, France, Netherlands, Germany, USA). Even though most of the other interaction terms have significant *t*-statistics, implying that the effect of unemployment in that country is significantly higher than it is in Austria, only in Iceland and Italy ($t = 2.3$ and 6.0, respectively) does the unemployment effect turn positive. There is evidence of even stronger negative unemployment effects when the sample is restricted to agriculture in the final column. Some experiments were done with lags on the unemployment rate in all five columns and the results were similar.

Any labor economist worth his/her salt is not going to limit him or herself to time-series data, so in the time honored fashion I move on to modeling self-employment using micro data. I make use of a data file I have constructed at the level of the individual for 19 countries[12] and just under 575,000 people. Data are taken from various Eurobarometer Surveys conducted by the European Commission for the years 1975–1996 which was merged with a set of data drawn from the United States from the General Social Surveys. The Eurobarometer Surveys cover member countries in all years as well as potential members even before they join — hence, information is available on Norway for a few years even though the Norwegians actually voted not to join the EU. A considerable amount of preliminary data work had to be conducted to put these 45 separate surveys on a

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[11] The *t*-statistics reported on the unemployment and country interaction terms test whether the coefficient is significantly different from the excluded category Austria whose coefficient is that on the unemployment rate (-0.0190).

[12] The countries are Austria, Belgium, Denmark, East Germany, Finland, France, Great Britain, Greece, Ireland, Italy, Luxembourg, Netherlands, Northern Ireland, Norway, Portugal, Spain, Sweden, West Germany and the United States.

comparable basis. The numbers of observations by country and the years for which data are available are as follows:

Country	N	Years
Austria	3887	1995–1996
Belgium	45,863	1975–1996
Denmark	48,481	1975–1996
East Germany	16,347	1990–1996
Finland	4392	1995–1996
France	46,599	1975–1996
Great Britain	44,338	1975–1996
Greece	35,988	1981–1996
Ireland	45,010	1975–1996
Italy	50,942	1975–1996
Luxembourg	21,029	1975–1996
Netherlands	48,556	1975–1996
Northern Ireland	13,734	1975–1996
Norway	7960	1991–1995
Portugal	30,958	1985–1996
Spain	27,340	1985–1996
Sweden	4084	1995–1996
USA	30,117	1975–1996
West Germany	46,131	1975–1996
Total	571,756	

We now look at a series of probit equations in Table 5 that model the probability that an individual is self-employed in their main job. The numbers of controls are limited because of the need for comparability over time and countries — they include age, education, gender, household size and the number of children under the age of 15 in the household. I have also mapped onto the data file the gender-specific country unemployment rate for each year. I am unable to distinguish agricultural and non-agricultural employment in my data files currently. As we move across the columns, the definition of the dependent variable is changed from a 1 if self-employed and a zero if an employee in column 1. Column 2, a zero also includes the unemployed and in column 3 those out of the labor force are added with the sample restricted to those individuals between the ages of 16 and 65. Eighteen country dummies and the log of the unemployment rate plus a full set of interactions between the country dummies and the unemployment rate also included. Robust standard errors are estimated with an adjustment to allow for the so-called Moulton problem (Moulton, 1986, 1987, 1990) because unemployment rates relate to groups that have common components in their residuals; without such an adjustment standard errors would be biased downwards. For a discussion

Table 5
Micro self-employment equations, 1975–1996 (ages 16–64)

	Self employed/ employed + self-employed	Self employed/ labour force	Self employed/ population ages 16–64
	(1)	(2)	(3)
Age	0.0055 (42.50)	0.0053 (46.46)	0.0016 (18.37)
Male	0.0573 (7.66)	0.0519 (7.57)	0.1035 (19.20)
ALS 15	−0.0416 (8.63)	−0.0356 (7.84)	−0.0150 (4.89)
ALS 16	−0.0428 (8.06)	−0.0332 (6.63)	−0.0142 (4.19)
ALS 17	−0.0422 (8.12)	−0.0290 (5.80)	−0.0086 (2.51)
ALS 18	−0.0415 (8.66)	−0.0286 (6.07)	−0.0043 (1.28)
ALS 19	−0.0370 (6.25)	−0.0244 (4.26)	0.0033 (0.85)
ALS 20	−0.0389 (5.98)	−0.0238 (3.80)	0.0070 (1.52)
ALS 21	−0.0335 (4.46)	−0.0169 (2.35)	0.0130 (2.36)
ALS ≥ 22	−0.0216 (3.65)	−0.0066 (1.16)	0.0242 (5.67)
Time	−0.0092 (4.39)	−0.0084 (4.40)	−0.0070 (5.21)
Time^2	0.0004 (3.97)	0.0003 (3.86)	0.0003 (4.96)
Household size	0.0099 (6.76)	0.0084 (6.42)	0.0056 (6.36)
# children < 15	−0.0025 (2.01)	−0.0000 (0.08)	0.0009 (1.13)
Unemployment rate	−0.0104 (0.32)	−0.0199 (0.69)	−0.0186 (0.76)
France * unemployment rate	−0.0056 (0.15)	0.0330 (1.05)	0.0103 (0.39)
Belgium * unemployment rate	0.0904 (2.58)	0.0799 (2.67)	0.0551 (2.11)
Netherlands * unemployment rate	0.0389 (1.02)	0.0396 (1.15)	0.0237 (0.84)
West Germany * unemployment rate	0.1121 (2.13)	0.1025 (2.17)	0.0838 (2.43)
Italy * unemployment rate	0.0376 (1.08)	0.0313 (1.04)	0.0073 (0.29)
Luxembourg * unemployment rate	0.0123 (0.34)	0.0227 (0.73)	0.0148 (0.58)
Denmark * unemployment rate	−0.1104 (2.33)	−0.1069 (2.49)	−0.0354 (1.14)

Ireland * unemployment rate	0.0780 (1.83)	0.0658 (1.79)	0.0785 (2.34)
Great Britain * unemployment rate	0.0801 (2.26)	0.0724 (2.35)	0.0437 (1.66)
N. Ireland * unemployment rate	0.1160 (2.89)	0.0944 (2.76)	0.0663 (2.36)
Greece * unemployment rate	0.0460 (1.09)	0.0396 (1.06)	−0.0216 (0.75)
Spain * unemployment rate	0.0496 (1.21)	0.0498 (1.41)	0.0088 (0.27)
Portugal * unemployment rate	−0.0135 (0.32)	−0.0150 (0.38)	0.0038 (0.13)
East Germany * unemployment rate	0.1275 (2.19)	0.0850 (1.74)	0.1183 (3.03)
Norway * unemployment rate	0.3811 (4.79)	0.3425 (5.04)	0.0659 (1.44)
Finland * unemployment rate	−1.1833 (6.67)	−1.0446 (6.43)	0.7290 (5.88)
Sweden * unemployment rate	0.9530 (12.74)	0.8888 (13.09)	0.1851 (3.66)
Austria * unemployment rate	−1.0091 (2.46)	−0.6647 (1.77)	−1.7268 (6.22)
N	255,147	283,762	393,924
Chi^2	728,576.0	1,066,748	700,301.9
Pseudo R^2	0.0940	0.0931	0.0767
Log likelihood	−116,576.3	−122,221.2	−135,730.2

Excluded categories; USA, age left school ≤ 14 years. Unemployment rate is measured in natural logarithms. Sample consists of the self-employed plus employees (columns 1 and 2); the unemployed are also included in the zeroes in columns 3 and 4 and those who are Out of the Labour Force (OLF) are added in columns 5 and 6. Method of estimation is dprobit in STATA. Standard errors adjusted for common components in the residuals.
Source: Eurobarometer Surveys and General Social Survey, 1975–1996.

of this procedure see p. 238 of *Stata Release 5 User's Guide* (1997) and Rogers (1993).

The probability of being self-employed rises with age, is higher for men than women and is higher the larger is household size. Interestingly, the least educated (age left school < age 15) and the most educated (age left school ≥ 22 years) have the highest probabilities of being self-employed. The time trend in all cases has a significant U-shape minimizing towards the end of the 1980s. When entered on its own without the country interactions, the log of the unemployment rate is significantly positive in the first two columns and zero in the third (results not reported). The inclusion of the interaction terms in all three cases significantly improves the overall fit. Hence, specifications with interactions are the ones reported. The coefficient on the unemployment rate refers to the US, which is not significantly different from zero in all three specifications. In column 1, significant negative effects are found in Austria, Denmark and Finland (based on a *t*-test of whether the overall effect for the country is significantly different from zero). On the other hand, significant positive effects are found in Belgium, the United Kingdom, Germany, Norway and Sweden. No evidence of any effect from unemployment was found in France, Netherlands, Luxembourg, Greece, Spain and Portugal, These results are little changed as the measurement of the dependent variable and, hence, the size of sample is altered as we move across the columns.

In order to get a clearer picture of how the determinants of self-employment vary across countries, I estimated a series of equations for each country. I also report results for Canada using a time series of cross sections of the Surveys of Consumer Finances for the years 1984–1995. Results are reported in Table 6. I exclude the unemployment rates as there are only two unemployment observations per year — one each for males and females. I group Austria, Finland, Norway and Sweden together as there are only two years of data available for each of these countries and include three country dummies. Analogously, I combined East and West Germany and Great Britain and Northern Ireland. To examine the role of education two dummy variables, which distinguish the highest and lowest education categories, were also included. With only a couple of exceptions both the age and male variables are significantly positive. The results for the time trend, household size and the number of children are much more mixed across countries. Interestingly, the findings in Table 8a are broadly confirmed; self-employment is highest for individuals at the tails of the education distribution. Individuals with the least education have the highest probability of being self-employed which is consistent with the recent findings of Reardon (1998) for the USA. The main exception is the UK where the reverse is the case.

To conclude this section, it appears that there is little consistent evidence that self-employment is correlated with unemployment consistently across countries. On balance, there is probably more evidence in support of a negative effect but there is evidence of positive effects in a number of countries. Second, there is also a good deal of variation in the determinants of self-employment. Common to most

Table 6
Self-employment regressions by country (ages 16–64). (Dependent variable: 1 = self-employed; zero = employee)

	Low education	High education	Age	Male	Household size	# children	Time	N
All countries	0.05	0.01	+	+	+	−	+	262,714
USA	0.02 *	0.02	+	+	0	0	+	18,574
France	0.05	0.01 *	+	+	+	−	0	21,982
Belgium	− 0.01 *	0.04	+	−	−	−	−	20,705
Netherlands	− 0.01 *	0.03	+	+	+	0	0	19,573
Germany	0.02	0.04	+	+	+	−	+	30,151
Italy	0.10	0.00 *	+	+	0	−	+	21,725
Luxembourg	0.08	− 0.03	+	0	+	0	+	9181
Denmark	0.05	− 0.03	+	+	+	0	+	26,002
Ireland	0.00 *	0.04	+	+	−	−	−	18,910
United Kingdom	− 0.05	0.11	+	+	−	+	+	28,199
Greece	0.19	0.00 *	+	+	+	−	−	15,399
Spain	0.02	0.02 *	+	+	0	0	+	9947
Portugal	0.09	0.03	+	+	+	0	+	14,316
Norway, Austria, Finland and Sweden	0.03 *	− 0.01 *	+	+	+	−	n/a	8050
Canada	0.05	− 0.02	+	+	n/a	+	+	577,911

Method of estimation dprobit. Equation for Austria, Sweden, Norway and Finland contains no time trend as data available only for 1995/6. Regressions for Canada also include 10 province dummies and five family status variables (see Table 8a). Low education defined as age left school ≤ 14 years. High education defined as age left school ≥ 22 years in all countries except Canada where they are defined as ≤ 8 years of schooling and at least a degree.
Source: Eurobarometer Surveys, Surveys of Consumer Finances (Canada, 1981–1995) and General Social Survey (USA).
*Insignificantly different from zero at the 5% level on a two-tailed test.

countries is the fact that self-employment is dominantly male and more prevalent among older age groups than it is among the young (see Blanchflower and Oswald, 1998b for more on this). There is some evidence that self-employment is more prevalent among groups at the two ends of the education distribution and especially so for the least educated.

4. Job satisfaction

In this section, I examine how satisfied the self-employed are with their jobs in comparison with employees. Questions about job satisfaction are difficult to interpret due to the subjective nature of the variable and the problem of making

interpersonal comparisons (Freeman, 1978). Still, the econometric literature based upon satisfaction data has yielded interesting and consistent results across data sets that show links between satisfaction and economic and demographic variables. The small economics literature on this issue includes Hamermesh (1977), Borjas (1979), Freeman (1978), Meng (1990), Clark and Oswald (1992, 1994), Clark (1966), Blanchflower and Freeman (1994) and Blanchflower and Oswald (1999). Comparisons of responses to satisfaction questions across countries are fraught with even greater dangers, and we are aware of only one study making satisfaction comparisons across countries (Blanchflower and Freeman (1994) who compare job satisfaction in 10 countries). People in one country may "scale" responses differently than those in another. For instance, Americans may be relatively optimistic, with an "everything will work out" mentality that leads people with the same true satisfaction (on some objective scale) to respond more positively to a "Are you satisfied with your job?" question than the potentially more reserved British. Subject to these caveats it is not without interest to compare the satisfaction of the self-employed with that of employees.

In two earlier jointly authored papers, I found that the self-employed reported being more satisfied with their jobs than was the case for employees. In Blanchflower and Oswald (1998a), we examined data for the UK from the National Child Development Study of 1981 for a sample of 23 years and found that the self-employed were more satisfied with their jobs.[13] Approximately 46% of the self-employed said that they were in the top category of "very satisfied", whereas the figure was 29% for employees. Ordered probit equations which also included controls for union membership, marital status, gender, disabled status, region, highest educational qualification, part-time, ever unemployed in the previous 5 years, a dummy for problems with arithmetic, months of experience, and job tenure confirmed this result. As an experiment into the effects of access to capital, we split the data into two sub-samples — those who had received no inheritance (the capital constrained) and those people who had received a kind of inheritance or gift — that we suggested might be considered to be less capital constrained. There is some evidence that the self-employment dummy variable had a smaller impact in the group who inherited; the dummy even goes negative. Such evidence, we argued, might be taken to be consistent with the idea that those with capital — through an inheritance — are more able to enter the self-employment sector and drive down the rents available there.

In Blanchflower and Freeman (1997), a series of job satisfaction equations across 11 countries were estimated using data from the International Social Survey Programme of 1989 (for details see the Data Appendix) and found that the

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[13] The question asked was "Taking everything into consideration, how satisfied or dissatisfied are you with your job as a whole" (Q19j, p. 9: NCDS4 questionnaire). The responses were coded into five categories — very dissatisfied, dissatisfied, neither, satisfied, and very satisfied.

Table 7
Job satisfaction, 1989

	Other[a]	Fairly satisfied	Very satisfied	Completely satisfied	N
(a) Employees					
West Germany	17	43	32	8	578
UK	16	47	27	10	856
USA	13	39	35	13	694
Austria	15	40	29	16	721
Hungary	23	64	6	6	524
Netherlands	16	46	29	9	603
Italy	20	50	16	14	402
Ireland	10	39	34	17	375
Norway	15	44	28	13	982
Israel	15	50	25	10	559
All	16	46	27	12	6296
(b) Self-employed					
West Germany	4	22	57	17	67
UK	5	41	27	27	133
USA	8	25	36	31	96
Austria	9	34	31	25	86
Hungary	31	51	11	6	35
Netherlands	5	40	38	17	42
Italy	17	40	20	23	174
Ireland	6	45	26	23	95
Norway	18	36	25	21	66
Israel	10	46	28	16	114
All	11	38	29	22	908

[a] "Other" includes "neither", "fairly dissatisfied", "very dissatisfied" and "completely dissatisfied". Sample restricted to workers only; all estimates are weighted. Source: International Social Survey Programme, 1989.

self-employed had higher levels of job satisfaction than employees in an equation where the countries were pooled.[14] Job satisfaction was especially low in Hungary. Table 7 reports levels of job satisfaction using these same data for the self-employed and employees and confirms the finding that the self-employed report higher levels of satisfaction than do employees in every country except Hungary. Table 8 reports the results of estimating an ordered logit with a full set of country dummies (Blanchflower and Freeman (1997) only included a Hungary dummy). The higher level of job satisfaction of the self-employed is confirmed.

[14] The question asked was "How satisfied are you in your main job?" (Q21 ISSP 1989 questionnaire). The responses were coded into seven categories — completely dissatisfied, very dissatisfied, fairly dissatisfied, neither, fairly satisfied, very satisfied and completely satisfied.

Table 8
Job satisfaction ordered logit, 1989

	(1)
Self-employed	0.4673 (5.49)
Age	0.0187 (9.05)
Male	−0.1996 (4.08)
Union member	−0.1788 (3.49)
Austria	0.2017 (2.02)
Great Britain	−0.1623 (1.56)
Hungary	−0.9503 (8.92)
Ireland	0.3963 (3.48)
Italy	−0.3932 (3.24)
Netherlands	−0.0535 (0.51)
Northern Ireland	0.0659 (0.51)
Norway	0.0503 (0.53)
USA	0.2203 (2.02)
cut1	−4.7354
cut2	−3.7690
cut3	−2.4286
cut4	−1.2552
cut5	0.93334
cut6	2.5106
N	6053
Chi^2	370.6
Pseudo R^2	0.0217
Log likelihood	8358.9

Excluded category West Germany. Sample consists of workers only.
Source: International Social Survey Programme, 1989.

When separate equations by country were estimated (results not reported), the coefficient on self-employment is significantly positive in all countries except Ireland and Hungary where it is insignificantly different from zero.

New data on job satisfaction has recently become available for the 15 member countries of the European Union from one of the special supplements to the Eurobarometer Survey #44.2 (available through ICPSR as survey #6722) that was collected between November 1995 and 1996. The survey included a series of questions on working conditions that included a question on job satisfaction.[15] The weighted responses by country are tabulated in Table 9 separately for employees and the self-employed. Despite the rather small sample sizes for the self-employed, once again it appears to be true that the self-employed have higher levels

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[15] The question asked was "on the whole, are you very satisfied, fairly satisfied, very satisfied or not at all satisfied with your main paid job?" (Q36). These data were also examined by Blanchflower and Oswald (1999).

Table 9
Job satisfaction, 1995–1996

	Not at all satisfied	Not very satisfied	Fairly satisfied	Very satisfied	N
(a) Employees					
Belgium	1	6	52	41	775
Denmark	2	3	45	49	919
West Germany	5	11	52	32	889
Greece	6	25	56	13	526
Italy	5	18	57	20	727
Spain	4	17	57	23	757
France	5	14	61	20	862
Ireland	1	5	39	55	775
Luxembourg	2	6	57	35	418
Netherlands	1	7	47	44	962
Portugal	3	14	62	21	696
Great Britain	5	9	49	37	925
East Germany	2	9	57	33	927
Finland	2	5	63	31	903
Sweden	2	6	55	37	967
Austria	1	9	47	43	937
Euro 15	4	12	54	30	12,965
(b) self-employed					
Belgium	0	5	41	54	233
Denmark	0	0	39	61	73
West Germany	2	11	39	49	135
Greece	13	34	44	10	476
Italy	2	7	53	39	301
Spain	3	14	58	26	239
France	8	12	52	28	126
Ireland	0	2	31	67	229
Luxembourg	1	2	34	62	71
Netherlands	1	1	39	59	101
Portugal	2	12	63	23	299
Great Britain	3	4	47	46	137
East Germany	2	8	49	41	119
Finland	2	10	56	32	150
Sweden	0	3	34	63	88
Austria	2	9	38	52	128
Euro 15	3	10	48	38	2905

Sample consists of the employed. All estimates are weighted.
Source: Eurobarometer #44.2. Working conditions in the European Union, November 1995–January 1996.

of job satisfaction than those who are not their own boss. The only exception to this is Greece. The survey is rich in information on other aspects of the job which can be included in a job satisfaction in an attempt to distinguish the source of this

higher level of satisfaction. In Table 10, ordered logit equations are estimated with job satisfaction as the dependent variable (1 = not at all satisfied, 2 = not very

Table 10
Job satisfaction ordered logit, 1995–1996

	(1)	(2)
Self-employed	0.3663 (7.82)	0.3003 (4.61)
Age	−0.0139 (1.63)	−0.0193 (1.89)
Age^2	0.0002 (2.20)	0.0002 (2.04)
Male	−0.0177 (0.51)	0.0047 (0.12)
16–19 years schooling	0.0834 (1.87)	0.1112 (2.26)
≥ 20 years schooling	0.1473 (2.86)	0.1994 (3.47)
Mining and quarrying/Manufacturing	0.0971 (0.66)	0.0375 (0.22)
Electricity, gas and water supply	0.4375 (2.24)	0.2184 (1.01)
Construction	0.1142 (0.74)	0.0000 (0.00)
Wholesale and retail trade, repairs	0.1829 (1.24)	0.0665 (0.39)
Hotels and restaurants	0.1049 (0.64)	−0.0163 (0.08)
Transportation and communication	0.2096 (1.34)	0.1321 (0.74)
Financial intermediation	0.1373 (0.82)	0.0015 (0.00)
Real estate and business activities	0.2500 (1.56)	0.1403 (0.77)
Public administration	0.4142 (2.75)	0.2869 (1.66)
Other services	0.3276 (2.24)	0.2246 (1.35)
Professionals	−0.0556 (0.72)	−0.0693 (0.81)
Technicians	−0.1323 (1.80)	−0.1286 (1.60)
Clerks	−0.2418 (3.38)	−0.2778 (3.55)
Service and sales workers	−0.3076 (4.31)	−0.3309 (4.17)
Agricultural and fishery workers…	−0.7937 (4.81)	−1.0178 (5.40)
Craft and related trades workers	−0.4314 (6.13)	−0.4560 (5.85)
Plant and machine operators	−0.6275 (7.26)	−0.5924 (6.26)
Elementary occupations	−0.6880 (9.18)	−0.7001 (8.30)
Armed forces	−0.2595 (1.34)	−0.1234 (0.59)
Commuting time		−0.0024 (4.64)
Job tenure		0.0075 (3.22)
Works irregular hours, but not in a shift		−0.1975 (4.27)
two shifts		−0.2759 (3.79)
three shifts		−0.2412 (2.62)
Yes, four shifts		−0.2724 (1.39)
Yes, five shifts and over		−0.1149 (0.63)
DK shift type		−0.2386 (1.00)
1 to 9 employees		0.3805 (5.08)
10 to 49 employees		0.3042 (3.57)
50 to 99 employees		0.1987 (1.99)
100 to 499 employees		0.1459 (1.59)
≥ 500		0.1419 (1.67)
DK # employees		0.1539 (1.46)
Public sector		0.1298 (2.56)
cut1	−4.2469	−4.42320
cut2	−2.6081	−2.7268

Table 10 (*continued*)

	(1)	(2)
cut3	0.15071	0.0982
N	15,870	13,103
Chi^2	1743.56	1511.30
Pseudo R^2	0.0527	0.0557
Log likelihood	− 15,662.0	− 12,814.0

Excluded categories — works alone; doesn't work shifts; agriculture; legislators/managers; Belgium; ≤ 15 years school.
Source: Eurobarometer #44.2. Working conditions in the EU, 1995–Jan 1996.
Equations also include a full set of country dummies.

satisfied and so on) which include controls for industry, occupation, age and its square and gender in column 1 and confirm the finding that the self-employed have significantly higher levels of satisfaction than employees ($t = 7.8$). In column 2, further controls for commuting time, job tenure, shift working, establishment size, and public sector are added and find the same self-employment result ($t = 4.6$). Reading from column 2, job satisfaction is U-shaped in age; lower for those who work shifts, who work alone or are employed in agriculture or live in Greece. Job satisfaction is higher for legislators/managers; for those in public sector jobs, with longer job tenure, with shorter commuting time to their place of work and who live in Denmark. When column 1 is re-estimated separately for each country, the coefficient on the self-employment dummy is positive in every case. It has a *t*-statistic above 2 for six countries (Belgium, Germany, Italy, Luxembourg, Netherlands and Sweden), between 1.8 and 2 for a further three countries (Ireland, Great Britain and Finland) and 1.5 for Denmark. It is insignificantly different from zero in Greece, Spain, France, Portugal and Austria.

Data on job satisfaction are also available for the United States in the General Social Surveys for the years 1972–1998[16] and are shown below for the employed and self-employed.

	Very dissatisfied	A little dissatisfied	Moderately satisfied	Very satisfied	*N* (unweighted)
Employees	4	10	40	46	19,903
Self-employed	2	5	29	63	3044
N (unweighted)	827	2256	8785	11,079	

Job satisfaction levels for the self-employed are considerably higher than for employees. This result is confirmed in column 1 Table 11 with the sample pooled over 21 years of data (this is not a panel of individuals but a rolling cross-section

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[16] There were no surveys in 1979, 1981, 1992 or 1995.

Table 11
Job satisfaction ordered logit, USA, 1972–1998

	(1)	(2)
Self-employed	0.5148 (12.47)	0.4837 (11.26)
Age	0.0260 (24.46)	0.0240 (21.13)
Male	−0.1393 (5.13)	−0.1667 (5.92)
Black	−0.3960 (10.40)	−0.4052 (9.80)
Other races	−0.1561 (2.14)	−0.1476 (1.93)
Years schooling	0.0358 (7.50)	0.0266 (5.13)
Time trend	−0.0116 (6.58)	−0.0170 (8.59)
Hours	0.0082 (8.52)	0.0079 (7.85)
Income per head $* 10^5$		0.9590 (7.10)
Region dummies (8)	Yes	Yes
cut1	−1.7516	−1.9171
cut2	−0.3134	−0.4794
cut3	1.6992	1.5357
N	21,943	20,568
Chi^2	1207.6	1162.0
Pseudo R^2	0.0258	0.0265
Log likelihood	−22,801.9	−21,366.2

Excluded categories — white.
Source: General Social Surveys, 1972–1998.

and which includes age and its square, gender, race, hours of work, years of schooling plus a time trend in addition to a dummy for self-employment. The self-employed report being more satisfied with their work than employees using this long time run of data for the United States. Indeed, this result is robust to the inclusion of per capita household in column 2 which leaves the size and significance of the self-employment variable essentially unchanged.

I conclude this section with a simple statement. The self-employed are more satisfied with their jobs than are individuals who work for somebody else.

5. Labor market flexibility and macro-economic performance

Over the last couple of decades many countries — and especially the United Kingdom and New Zealand — implemented reforms focused directly on the labor market. Such reforms were expected to improve the workings of the economy by changing the labor market: industrial relations laws that weakened union power; measures to enhance self-employment; privatization of government-run or owned businesses; reduction in the value of unemployment benefits and other social receipts relative to wages; new training initiatives; tax breaks to increase use of

Table 12
Growth in real GDP regressions, 1966–1996

	(1)	(2)	(3)
$\text{Self}_t - \text{Self}_{t-1}$	− 19.5624 (2.65)		
$\text{Self1}_t - \text{Self1}_{t-1}$		− 29.3480 (2.51)	
$\text{Self2}_t - \text{Self2}_{t-1}$			− 10.3710 (1.61)
GDP_{t-1}	0.3206 (8.32)	0.3332 (8.76)	0.3440 (8.87)
$\text{Empt}_t - \text{Empt}_{t-1}$	− 0.0000 (0.79)	0.0000 (.053)	0.0000 (0.50)
N	618	609	609
R^2	0.1922	0.1913	0.1828
F	5.88	5.44	5.84

All equations include 22 country dummies. t-Statistics in parentheses.
Self-employment rates defined as in Table 7 above.
Dependent variable = real GDP growth rate.
Source: real growth rates *OECD Economic Outlook* (various issues).

private pensions; lower marginal taxes on individuals; elimination of wage coun-cils that set minimum wages. In the price-theorists' ideal world, these changes were intended to reduce market rigidities, increase mobility, and raise incentives. They were intended to create the micro-institutional base for a more effective market economy with higher productivity, lower unemployment, improved living standards, and possibly a higher permanent rate of economic growth as well. Unfortunately, there is relatively little empirical evidence available to support these contentions and especially so in the case of entrepreneurship and self-em-ployment.[17] Indeed, relatively little is known about the macro-economic correlates of self-employment.

Table 12 examines the relationship between the growth in real GDP, and changes in the self-employment rate, using time series data on 23 countries for the period 1966–1996 (the countries are: Australia, Austria, Belgium, Canada, Den-mark, Eire, Finland, France, Germany, Greece, Iceland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Turkey, UK and the USA). The regressions should be thought of as a Cobb–Douglas production function, where the change in the numbers of employees over the previous period is included to distinguish the labor input. Capital is assumed to grow linearly and as the model is estimated in changes the effect of capital will be in the constant. Also included in the regressions are a set of country dummies plus a lagged dependent variable. The three columns experiment with different measures of the change in self-employment over the preceding period where the number of self-employed is expressed as a percentage of all workers in column 1; of the labor force in column 2 and the population age 16–64 in column 3. Increases in the

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[17] For a discussion of the relative lack of success of the Thatcher labor market reforms in transforming the UK economy, see Blanchflower and Freeman (1994).

proportion of self-employment appear to produce *lower* not higher GDP; this result is significant in columns 1 and 2 but not in 3. These results presume a particular direction of causation — from self-employment to growth and not the reverse, which is clearly a possibility — and are meant to be illustrative. Clearly, more work is warranted on this question, but it certainly does not appear that more is better in this instance, contrary to the assertions of some.

There seems to be a widely held belief that the self-employed are inherently more flexible and adaptable than are employees. Clearly, their earnings tend to be more cyclically volatile than that of employees: small firms are continuously dying as others are being born. There is another aspect of flexibility that does not seem to have been considered — are the self-employed more or less mobile geographically than are employees? A recent sweep of the International Social Survey Programme (ISSP) conducted in 1995 asked respondents in 23 countries the following questions

if you could improve your work or living conditions, how willing or unwilling would you be to

- move to another neighbourhood (or village); Q2a
- move to another town or city within this (county): Q2b
- move to another region: Q2c
- move outside your country? Q2d

Possible responses were very willing, fairly willing, neither willing nor unwilling, fairly willing and very unwilling

Table 13 reports four ordered logit equations relating to each of these questions. The dependent variable is set to 1 if very unwilling and so on; hence, a positive coefficient can be interpreted as indicating that the individual is more willing to move. The sample is restricted to 13 OECD countries (Austria, Canada, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Spain, Sweden, the UK and the USA). Information is also available on seven ex-Communist countries (Hungary, Czech Republic, Slovenia, Bulgaria, Russia, Latvia and Slovakia) plus the Philippines but these countries were dropped. There is some evidence that males are more willing to move regions and country than are females — but there is no difference between the sexes by town or neighborhood. Being prepared to move is negatively correlated with age and years spent living in the current location and

Notes to Table 13:
Excluded categories are employees West and East Germany, never lived abroad. *t*-statistics in parentheses. Method of estimation is ordered logit.
Source: International Social Survey Programme, 1995.

Table 13
Willingness to move, 1995

	Neighborhoods	Town	Region	Country
Self-employed	−0.1382 (2.65)	−0.1280 (2.44)	−0.0910 (1.74)	0.0115 (0.21)
Unpaid family worker	−0.3772 (2.13)	−0.2157 (1.21)	−0.2114 (1.16)	0.0959 (0.47)
Unemployed	0.2204 (3.02)	0.2062 (2.85)	0.1526 (2.10)	−0.0578 (0.75)
Student	−0.0117 (0.15)	0.1666 (2.26)	0.0926 (1.27)	0.2471 (3.34)
Retired	−0.0279 (0.46)	−0.0188 (0.30)	−0.0476 (0.76)	−0.3204 (4.45)
Housewife	0.0351 (0.67)	0.0161 (0.30)	−0.0083 (0.15)	−0.2221 (3.85)
Sick/disabled	0.0126 (0.11)	0.0039 (0.03)	−0.0670 (0.58)	−0.2511 (1.98)
Other	−0.1038 (0.98)	−0.0849 (0.80)	−0.2074 (1.92)	−0.0663 (0.57)
Male	0.0439 (1.34)	0.0597 (1.82)	0.0866 (2.63)	0.1181 (3.36)
Age	−0.0274 (18.87)	−0.0216 (14.94)	−0.0188 (12.94)	−0.0251 (15.71)
Years of schooling	0.0413 (8.55)	0.0462 (9.51)	0.0553 (11.37)	0.0820 (15.86)
Years living in this town	−0.0154 (14.61)	−0.0180 (16.83)	−0.0159 (14.84)	−0.0093 (7.83)
Lived abroad < 1 year	0.1901 (2.97)	0.3038 (4.75)	0.3901 (6.12)	0.8478 (13.07)
Lived abroad 1–4 years	0.2949 (4.83)	0.2959 (4.84)	0.3651 (5.98)	0.8976 (14.20)
Lived abroad ≥ 5 years	−0.1291 (2.25)	−0.0750 (1.30)	0.1095 (1.89)	0.9675 (16.17)
Austria	−0.1644 (2.21)	−0.2450 (3.26)	−0.2294 (3.05)	−0.1312 (1.61)
Canada	−0.1262 (1.79)	0.1171 (1.67)	−0.1705 (2.39)	−0.1419 (1.88)
Ireland	−1.0202 (12.82)	−0.8429 (10.44)	−0.8392 (10.34)	−0.6972 (7.85)
Italy	−0.9312 (12.04)	−0.8849 (11.03)	−0.7617 (9.67)	−0.7452 (8.31)
Japan	−1.0843 (14.95)	−0.6910 (19.52)	−0.5069 (6.98)	−0.6216 (7.55)
Netherlands	−0.0340 (0.53)	0.2199 (3.45)	0.1856 (2.92)	0.3016 (4.48)
New Zealand	−0.2035 (2.06)	−0.2280 (2.31)	−0.1040 (1.06)	−0.0721 (0.70)
Norway	−0.1320 (1.87)	−0.0585 (0.83)	−0.3813 (5.36)	−0.2062 (2.66)
Spain	−0.5436 (7.21)	−0.1183 (1.56)	−0.1151 (1.51)	0.0914 (1.11)
Sweden	−0.0742 (1.04)	−0.2308 (3.20)	−0.1217 (1.69)	0.4183 (5.45)
United Kingdom	−0.0780 (1.01)	0.0655 (0.84)	0.0175 (0.22)	0.1385 (1.67)
USA	0.2574 (3.62)	0.3144 (4.40)	0.1299 (1.82)	−0.5993 (7.68)
cut1	−2.9972	−2.239	1.5481	−0.2938
cut2	−2.0204	−1.135	0.4812	0.6936
cut3	−1.4860	−0.5990	0.0950	1.321
cut4	0.1022	1.028	1.4934	2.547
N	14,781	14,600	14,605	
Chi^2	3302.6	2987.1	2463.3	
Pseudo R^2	0.0721	0.0656	0.0546	
Log likelihood ratio	−21,251.5	−21,288.5	−21,309.4	

positively correlated with education, whether or not an individual had lived abroad
and for how long. The unemployed seem to be *more* mobile than the other labor
market groups. The self-employed appear to be *less* prepared to move neighbor-
hood, town or region than are employees. This presumably arises because of the

Table 14
Willingness to move flexibility index, 1995
Source: International Social Survey Programme, 1995.

	Neighborhood	Town	Region	Rank sum	Final rank	Self-employment rate 1996
(A) OECD Countries						
Austria	8	10	9	27	10	9.4
Canada	6	3	8	17	5	7.6
Germany	2	5	4	11	3	6.7
Ireland	12	12	13	37	13	11.7
Italy	11	13	12	36	12	14.7
Japan	13	11	11	35	11	13.5
Netherlands	3	2	1	6	2	8.2
New Zealand	9	8	5	22	7	14.4
Norway	7	6	10	23	8	6.5
Spain	10	7	6	23	8	11.6
Sweden	4	9	7	20	6	7.6
United Kingdom	5	4	3	12	4	9.3
USA	1	1	2	4	1	6.1
(B) All countries in sample						
Austria	18	15	18	51	17	
Canada	3	2	3	8	2	
Czech Republic	16	13	16	45	15	
Germany	5	3	5	8	2	
Hungary	19	19	19	57	19	
Ireland	17	17	17	51	17	
Italy	10	8	10	28	10	
Japan	15	18	15	48	16	
Latvia	21	20	21	62	21	
Netherlands	2	4	2	8	2	
New Zealand	8	9	8	25	8	
Norway	6	7	6	19	6	
Philippines	14	16	14	44	14	
Poland	12	12	12	36	12	
Russia	20	21	20	61	20	
Slovakia	11	10	11	32	11	
Slovenia	13	14	13	40	13	
Spain	7	11	7	25	8	
Sweden	9	6	9	24	7	
United Kingdom	4	5	4	13	5	
USA	1	1	1	3	1	

presence of a customer base for the self-employed along with business and personal contacts.

One possible interpretation of the coefficients on the country dummies reported in Table 13 would be as a flexibility index. This seemed an intriguing possibility, so in Part A of Table 14 I simply ranked the countries by the coefficient on the country dummy from the separate regressions in Table 13, for the sub-sample of OECD countries. Columns 1–3 relate to responses to questions on whether the individual was willing to move neighborhood, town or region, respectively. The next to last column is the sum of the ranks in the first three columns and the next column is a rank ordering derived from these sums. I exclude from these calculations the information on whether an individual is prepared to move to another country as this is not strictly relevant to the task in hand. Americans are the most willing to move within their country followed closely by the Dutch, whose labor market has performed remarkably well over the last decade or so.[18] The Irish are the least mobile followed closely by the Italians and the Japanese. The last column is the proportion of the total population that is self-employed in 1996. The results here are intended to simply be suggestive but it should be noted that countries with a low proportion of self-employment appear to the *most* flexible, confirming our earlier results.

In an attempt to validate these results, I re-estimated the equations in Table 13 but now with the full sample of countries which includes seven ex-communist countries and the Philippines (sample size now just under 24,000). The results are reported in Part B of Table 14. The results are slightly different from those reported in Part A for the OECD countries; the main difference is that now the US is ranked first, as the most flexible country, on all three measures, and Canada, Germany and the Netherlands all rank equal second. Latvia and Russia are the least flexible followed by Hungary. The highest ranked ex-Communist country is Slovakia which ranks eleventh. Our only developing country, the Philippines, is in the middle of the pack ranking fourteenth. One of the considerable advantages of this measure of flexibility is that it seems to match closely most people's priors. It certainly matches them more closely than my earlier attempts to generate a wage flexibility index across countries by comparing how individual's wages are influenced by local area unemployment rates.[19]

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[18] The Dutch economy has had strong growth in employment over the last decade or so and unemployment performance has also been strong. Its (standardized) unemployment rate in 1996 was well below that of other European countries at 6.3% (Source: *OECD Economic Outlook*, June 1998). This compares with 9.7% in Belgium, 6.9% in Denmark, 15.3% in Finland, 11.6% in Ireland, 8.2% in the UK, 8.9% in Germany, 12.4% in France and 12.0% in Italy.

[19] There is now a large literature that estimates wage curves across countries. Interestingly, most of the estimates of the so-called unemployment elasticity of pay which crowd closely around −0.1. That is, a doubling of unemployment lowers wages by 10% almost everywhere. For a discussion see Blanchflower and Oswald (1994, 1996).

6. Conclusions

The main conclusions are as follows.

(1) The overall trend in self-employment, at the economy level in the years since 1966, has been down in most countries. The main exceptions to this are Portugal, New Zealand and the United Kingdom where the trend has been upward.

(2) As a proportion of non-agricultural employment, self-employment has declined in some countries (Austria, Belgium, Japan, Luxembourg, Netherlands, Norway, Spain and the USA) but increased in others (Australia, Canada, Finland, Iceland, Ireland, New Zealand, Portugal, Sweden and the United Kingdom).

(3) For most countries, there is a negative relationship between the self-employment rate (variously defined) and the unemployment rate. From the time series regressions, evidence of positive effects is found only in Iceland and Italy. The effects are more strongly negative in the agricultural sector. There is more evidence of positive unemployment effects in the individual level equations.

(4) The probability of being self-employed is higher among men than women and rises with age. The least educated have the highest probability of being self-employed, however, evidence is found that the most highly educated have relatively high probabilities.

(5) The self-employed have higher levels of job satisfaction than employees.

(6) I could find no evidence that increases in the self-employment rate increased the real growth rate of the economy.

(7) The self-employed are less willing to move from their neighborhoods, towns and regions than are employees, presumably because of the pull of their customers.

(8) I developed a flexibility index based on information provided by individuals in 1995. According to this index, the US economy was the most flexible, followed by Canada, Germany and the Netherlands. Latvia, Russia and Hungary were found to be the least flexible countries. Of the OECD countries examined, Austria and Ireland were ranked lowest.

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