

# Comparability in self-employment income

(EU-SILC 2004-2007)

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## Abstract

Income from self-employment is perhaps the most difficult component to measure in income surveys, posing major challenge in data quality and comparability. This paper examines data on self-employment income as obtained in EU-SILC from a comparative prospective. The measures compared include the percentages of households and persons receiving self-employment income, the mean value per recipient, and the average share it forms of the total household income. Among other findings, interesting differences emerge in the patterns observed between countries collecting income data from personal interview surveys and countries compiling those from registers.

## 1. Introduction

The scope of this paper consists in analysing some empirical information on self-employment income collected in EU-SILC (European Union – Statistics on Income and Living Conditions) during the years 2004 - 2007, covering 26 countries<sup>1</sup>. The measurement of self-employment income presents major challenges in data quality and comparability.

In order to adequately assess the quality and comparability of this variable in EU-SILC data, it is necessary to examine the sources of information used, the questionnaires and procedures used by different countries, procedures used in the treatment of data (imputation, modelling, net/gross conversion), special aspects of the national situations, coherence of the data obtained with other sources, and so on.

Compared to this broader framework, this paper is of a more limited scope. It examines and compares characteristics and patterns of the data on self-employment income as recorded in the survey data files – i.e., examines some of these aspects from the “outcome” side. An examination from the “input” side would require details on the methodology - in particular the

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<sup>1</sup> In this paper, we draw on an earlier work, Ciampalini, Bartoletti and Verma (2007), extending and updating it using more extensive and recent data.

questionnaires used for collecting the data. Such information is not available to the authors, or indeed to the international research community generally.

Despite the limited scope noted above, this empirical investigation of the micro data brings to light many important aspects and issues concerning quality and comparability of the data on self-employment income in EU-SILC.

In order to set the context, in the rest of this section we note, in general terms, some common problems in and possible approaches to the measurement of self-employment income.

Income related to self-employment is defined as the income which is received, over a given reference period, by individuals, for themselves or in respect of their family members, as a result of their current or former involvement in self-employment jobs (ILO, 1998).

Obtaining accurate information about the incomes of the self-employed has long been acknowledged as one of the most difficult challenges in survey research. This is for several reasons (Church and Verma, 2001):

- o The self-employed often have accounting practices which make it difficult for them to provide accurate responses to survey questions (e.g. they may not separate their business and personal finances).
- o Their financial and accounting framework does not relate well to that used by statisticians in constructing national account or households income analysis.
- o The self-employed are less likely than the employed to respond to income surveys, and self-employment income variables are subject to higher levels of item non response.
- o Not only the self-employed are less likely than employees to respond to surveys, those that do respond are more likely to under-report their income.
- o The growth in self-employment as a secondary activity for employees possess additional problems. Unless such secondary activities are properly covered in an income survey with questions that are just as detailed as those for the primary employment, this too will be a source of under-reporting.

Some authors (e.g., Brandolini, 2000) identify the major problems with self-employment in the inadequacy of self-employment income as an indicator of economic well-being; in the difficulty to capture the incomes earned by the self-employed, and in the very definition of the self-employment income adopted for measurement and analysis.

In fact there usually exists a large mismatch between income (measured in terms of net profit/loss) and expenditure data of households with one or more self-employed persons. This

means that in contrast to other population groups the concept of income of the self-employed – or at least the way in which the concept is operationalised - appears to be a poor approximation of their economic well-being, i.e. their capacity to acquire goods and services. This has sometimes led to suggestions that in addition to income, consumption expenditure should also be used in order to analyse the level of and the trend in the distribution of economic well-being of the self-employed. Furthermore, data on assets less liabilities (the drawings from the family business and the accumulation of the net worth) of the family business may also add more relevant statistical information.

However, there are formidable barriers to the practical implementation of integrated income, expenditure and wealth surveys, for example in terms of respondent burden, choice of a reference period appropriate to all the concepts being measured, and cost. This approach is therefore rarely feasible, and indeed is explicitly rejected in the Canberra Report (2001) as a possible source of internationally comparable data.

Thus there is no real alternative to the use of purely income data to reflect the current economic well-being of the self-employed. Eurostat (2005) notes the following.

“...Self-employment income is one of the most problematic elements of household income to define and to measure accurately. These difficulties result not only in inaccurate income data but also in lack of comparability both across time and across countries. It is generally agreed that it is neither possible nor desirable to insist on the use of a single uniform approach, not only across countries, but also for different groups among the self-employed in the same country. The appropriate approach in each country would be to distinguish different groups of self-employed people and to try to tailor questions more closely to their circumstances.”

Various alternative approaches to the measurement of income from self-employment are allowed and mentioned in the EU-SILC Commission Regulation on Updated Definition.

1. The ‘entrepreneurial income’ that corresponds to the concept of profit/loss normally used in business accounting.
2. The ‘net operating benefits/losses’ shown on the annual tax accounts.
3. The money (goods) drawn out of the business for personal use.

An important question is whether different approaches can be used in combination. Indeed, “it is also possible to use the approaches in combination. This is also the opinion of some Member States. ... [for example,] two Member States, France and Sweden, agree that

different approaches will be necessary ... [By contrast,] Belgium supports the idea that the same data collection method should be used in order to compare data from different kind of self-employment.” (Eurostat, 2002). The report also mentions that the UK expressed preference for the use always of the best national methods

We may note some particular attempts at improving the enumeration of self-employment income.

Di Marco (2006) proposed a procedure for dealing with the problem of under-reporting self-employment income. This procedure, which has been implement in Italian EU-SILC, is as follows. Under the assumption that no individuals over-report their income, the adoption of the following rule in the Italian EU-SILC can be expected to minimise underestimation of self-employment income in the administrative and in the survey data. The disposable self-employment income is set as the larger of the two values, namely the net income reported in the survey questionnaire and the net taxable income displayed in the tax return. Such a procedure can reduce the particularly serious problem of under-reporting of self-employment income in Italy. In fact, the authors of the Italian report believe that the introduction of country-specific methods such as this can improve international comparability.

Martin *et al.* (1996) undertook a project to improve questions about self-employment income. Their work took place in several stages: interview focus groups and qualitative interviews with the self-employed to determine the nature of the problem with the existing survey questions; further qualitative interviews to test possible alternative approaches; and a large-scale pilot of a set of new questions. Their idea was to ask an initial question to sort the self-employed into a number of distinct categories and then ask appropriate income questions for each type of self-employment. “For some people such as casual workers and subcontractors, their remuneration is more akin to employment income than to gross revenue – they have very few if any of the outgoings ... such as operating costs. They may even be uncertain about their employment status – whether they are in fact self-employed or employees. In the UK, it was found that the best way to distinguish this type of self-employed person from one who is in fact running a business was whether they prepared annual accounts for the tax authority. If they do not, it is more appropriate to use a concept akin to that of earnings from employment to capture their income.”

The question has also risen as to whether more than one self-employment income variables should be included in the EU-SILC standard data file in order to capture more than one

possible sources of income. However, after the discussion “...the conclusion is always the same: just one variable about ‘self-employment income’, the variable PY050, will be sent to Eurostat. This variable allows various alternative approaches to the measurements income from self-employment and it permits each country to choose the best approach according to the different groups of self-employment people and according to the information available.” (Eurostat, 2005).

## **2. Percentage receiving self-employment income – three levels of comparison**

The percentage of households or persons receiving self-employment income is an important indicator of the structure of the economy and personal incomes.

For the scopes of the present paper we may identify three levels of comparability in self-employment income figures:

- 1) comparability among countries;
- 2) comparability among years for the same country;
- 3) comparability among successive releases of the same data set / year for the same country.

Table 1 reports the percentage, respectively of individuals and households, receiving self-employment income from 2004 to 2007 data in the EU-SILC<sup>2</sup>.

Expectedly, we find large differences in these figures at household level among the countries: from over 30% in Greece and Denmark, to under 8% in France and Luxembourg. Undoubtedly, these figures reflect real differences in national situations. However, some of the differences may also be due to the effects of differences in: modes of data collection (e.g. registers and other administrative sources versus personal interviews); the form of questioning (e.g. the approach taken – measurement of entrepreneurial income, or net operating benefits/losses, or withdrawals from business, or some combination of these); unit and item non-response rates; and of course, response errors. It is not possible to separate out these sources of difference with the information currently available. From general substantive knowledge it is possible to form some judgement of the plausibility of the level and pattern of variation of the indicator across countries.

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<sup>2</sup> Unless otherwise stated, all tables show weighted figures, generally using household cross-sectional weights (DB090) or individual cross-sectional weights (PB040).

The focus in Table 1 is also on the comparison between four successive years for the same country. Since the situation in a country cannot be expected to change greatly in such a short time, large differences from other factors of the type noted above affecting the data collection. Table 1 also shows the percentage receiving self-employment income, broken down into positive and negative values received – those with no self-employment or zero self-employment income being excluded. Also shown is the proportion negative among the receipts. This analysis is performed both at the level of households and of persons aged 16+. The percentage receiving self-employment income is much higher at the household level than at the level of persons. This is because in a multi-adult household only one adult has to receive self-employment income for the whole household to be classified as ‘receiving’.

The most important figures in the table concern the cases with very large differences. It is important to document and study all changes between the two years in data collection methodology or implementation.

The next important point is whether, for any given country, the reported level of change is similar for the two types of units considered – households and individual adults. If not, this also requires looking into changes in data collection methodology and practice introduced in the four years.

Large discrepancies among the four years are present for the following countries. Only the countries can investigate and report possible reasons for the descriptions in details. Outside researchers generally cannot have the necessary knowledge or information..

Slovakia: a very large (30-40%) increase in the proportion receiving income from self-employment between 2005 and 2006. The discrepancy is somewhat higher (40%) for persons than for households (30%).

Belgium: a very large (20-25%) increase in the proportion receiving income from self-employment between 2004 and 2005. The discrepancy is somewhat higher (25%) for persons than for households (20%).

Estonia: a very large (30%) decrease in the proportion receiving self-employment income between 2004 and 2005. (The figure is very similar for persons and households.) This is followed by a 10% increase between 2005 and 2006 and a further drop of about 20% between 2006 and 2007.

Hungary: a very large (20-25%) increase in the proportion receiving income from self-employment between 2005 and 2006. (The figure is very similar for persons and households.)

Spain: a very large (25%) increase among households between 2004 and 2005, but a much smaller (10%) increase when we consider persons age 16+. The discrepancy in the figures between the two types of units need added explanation.

Slovenia: a very large (20%) increase in the proportion of individuals receiving income from self-employment between 2005 and 2006, but a very much smaller (less than 4%) increase when we consider households. The discrepancy in the figures between the two types of units need added explanation.

Portugal: a 10% reduction in the proportion receiving self-employment income between 2004 and 2005 and between 2005 and 2006, but little (3%) reduction with the households as the unit. Again, the discrepancy in the figures between the two types of units needs explanation.

Denmark: a drop of 10% in the proportion receiving self-employment income between 2004 and 2005 – a similar figure whether we consider households or persons. This is followed by a 10% increase between 2005 and 2006 and a further drop of about 10% between 2006 and 2007.

France: an increase of around 10% in the proportion receiving self-employment income between 2004 and 2005 – a similar figure whether we consider households or persons.

Lithuania: an increase of around 10% in the proportion receiving self-employment income between 2005 and 2006 – a similar figure whether we consider households or persons.

Luxembourg: a drop of 10% in the proportion receiving self-employment income between 2005 and 2006, followed by an increase of 10% between 2006 and 2007. Slight different figures are present for individuals and households.

Latvia: a drop of 20% between 2005 and 2007 – a similar figure whether we consider households or persons.

Poland: an increase of 10% between 2005 and 2007 – a similar figure whether we consider households or persons.

Difference between the four years' results are small or minor for the remaining 13 countries, giving a consistent series in each case. Table 1 also compares the incidence of reporting negative self-employment income among the 2004 - 2007 surveys.



**Table 1a Percentage of persons aged 16+ receiving self-employment income – comparison of 2004 – 2005 – 2006 - 2007 data\***

	AT	BE	CY	CZ	DE	DK	EE	ES**	FI	FR	GR**	HU	IE	IS	IT**	LT	LU	LV**	NL	NO	PL	PT**	SE	SI	SK	UK			
<b>2004</b>																													
% receiving (1)	9.4	4.8				24.9	8.7	6.7	11.8	4.1	16.6		9.5	11.6	17.9		4.4		9.9		11.0		12.9						
% positive	8.6	4.7				22.2	7.7	6.1	11.8	4.1	16.2		9.5	11.6	17.9		4.3		8.2		11.0		9.8						
% negative (2)	0.8	0.1				2.8	1.0	0.6			0.4				0.0		0.1		1.7				3.1						
% (2)/(1)	8.6	1.9				11.1	11.5	8.7			2.5				0.1		1.6		17.0				23.9						
<b>2005</b>																													
% receiving (1)	9.5	6.0	9.4	9.6	7.4	22.5	6.1	7.5	11.4	4.6	16.1	10.1	9.8	10.8	16.9	8.2	4.1	5.4	9.6	9.6	9.1	10.2	13.4	12.6	3.6	7.4			
% positive	9.2	6.0	9.4	9.6	7.4	19.6	5.5	6.9	11.4	4.6	15.6	9.7	9.8	10.8	16.8	8.2	4.0	5.0	8.2	7.8	9.1	10.2	10.4	12.6	3.2	7.4			
% negative (2)	0.3	0.0				2.9	0.6	0.6			0.5	0.3			0.1		0.1	0.4	1.4	1.8			3.1		0.4	0.0			
% (2)/(1)	3.1	0.7				13.0	9.5	7.9			2.9	3.2			0.8		1.2	7.2	14.4	19.1			22.7		11.3	0.1			
<b>2006</b>																													
% receiving (1)	8.8	6.6	10.5	9.7	5.8	23.5	6.7	7.5	11.1	4.6	16.1	7.7	10.0	10.1	16.4	9.2	3.7	5.1	9.7	10.0	9.6	9.4	13.1	15.2	5.2	7.1			
% positive	8.3	6.5	10.5	9.7	5.8	20.8	6.0	7.1 ***	11.1	4.6	15.7	7.6	10.0	10.1	16.3	9.2	3.6	5.0	8.3	7.8	9.6	9.4	9.9	15.2	5.1	7.1			
% negative (2)	0.5	0.1				2.7	0.7	0.4 ***			0.4	0.2			0.1		0.1	0.1	1.5	2.2			3.2		0.2	0.0			
% (2)/(1)	5.9	0.9				11.4	10.6	5.2			2.7	2.5			0.5		3.8	2.2	15.0	21.5			24.5		3.2	0.4			
<b>2007</b>																													
% receiving (1)	9.7	6.1	11.7	10.1	5.7	21.8	5.4	7.2	10.5	4.5	19.3	11.0	10.8	10.6	16.1	9.2	4.1	4.4	9.8	9.8	10.2	10.6	12.9	14.8	5.0	7.5			
% positive	9.4	6.0	11.7	10.1	5.7	19.4	5.2	6.8 ***	10.5	4.5	19.3	10.5	10.8	10.6	15.9 ***	9.2	4.1	4.3 ***	8.3	7.7	10.2	10.6 ***	9.9	14.8	4.9	7.5			
% negative (2)	0.2	0.0				2.4	0.2	0.4 ***			0.5				0.1 ***		0.1	0.1 ***	1.5	2.1			3.0		0.1	0.0			
% (2)/(1)	2.5	0.7				11.2	4.4	5.5			4.3				0.7		1.2	2.3	15.5	21.1			23.5		1.8	0.3			

\* Weighted by PB040

\*\* Net variable (PY050n)

\*\*\* There is also the gross variable, but here the net one has been shown

Note: In 2004 and 2005 France collected income components net of social contributions (but gross of income tax), and records these mostly in the same form without conversion of the reported amounts.

**Table 1b Percentage of households receiving self-employment income – comparison of 2004 – 2005 – 2006 - 2007 data\***

	AT	BE	CY	CZ	DE	DK	EE	ES**	FI	FR	GR**	HU	IE	IS	IT**	LT	LU	LV**	NL	NO	PL	PT**	SE	SI	SK	UK	
<b>2004</b>																											
% receiving (1)	15.8	8.4				34.4	14.2	11.8	16.7	7.1	32.6		19.9	18.8	29.3		7.5		14.3		21.3		18.6				
% positive	15.8	8.3				30.5	12.6	10.8	16.7	7.1	31.8		19.9	18.8	29.3		7.4		11.8		21.3		14.3				
% negative (2)		0.2				3.9	1.6	1.0			0.8						0.13		2.5				4.3				
% (2)/(1)		2.0				11.3	11.2	8.5			2.5						1.7		17.3				23.1				
<b>2005</b>																											
% receiving (1)	15.9	10.0	20.4	17.1	10.8	31.5	10.2	14.8	16.2	7.7	31.2	18.7	19.7	17.7	28.2	16.1	7.3	10.4	14.6	14.0	19.0	20.8	19.3	24.7	7.6	12.3	
% positive	15.9	9.9	20.4	17.1	10.8	27.3	9.3	13.7	16.2	7.7	30.4	18.0	19.7	17.7	27.9	16.1	7.2	9.7	12.5	11.2	19.0	20.8	15.0	24.7	6.7	12.3	
% negative (2)		0.1				4.2	0.9	1.1			0.8	0.7			0.3		0.1	0.7	2.1	2.8			4.3		0.9	0.0	
% (2)/(1)		0.8				13.4	9.2	7.2			2.7	3.5			0.9		1.5	7.1	14.5	20.0			22.1		11.5	0.2	
<b>2006</b>																											
% receiving (1)	14.8	11.1	22.8	17.5	9.8	33.0	11.4	14.7	16.0	7.9	31.4	14.6	20.3	16.5	27.6	18.2	6.3	9.6	14.8	14.3	20.5	19.2	19.0	25.5	10.9	12.1	
% positive	14.2	11.0	22.8	17.5	9.8	29.0	10.2	14.1 ***	16.0	7.9	30.6	14.2	20.3	16.5	27.4	18.2	6.1	9.4	12.6	11.2	20.5	19.2	14.5	25.5	10.7	12.0	
% negative (2)	0.6	0.1				4.0	1.2	0.6 ***			0.8	0.4			0.1		0.2	0.2	2.2	3.1			4.6		0.3	0.1	
% (2)/(1)	4.3	0.8				12.0	10.8	4.3			2.5	2.4			0.5		3.3	2.2	14.9	21.7			23.9		2.5	0.5	
<b>2007</b>																											
% receiving (1)	16.2	10.3	24.7	18.5	10.4	30.8	9.4	14.4	15.2	7.7	32.1	15.6	21.1	17.4	27.3	18.7	6.8	8.2	15.1	14.1	21.7	20.8	18.8	24.9	10.8	12.5	
% positive	16.2	10.2	24.7	18.5	10.4	27.3	9.0	13.4 ***	15.2	7.7	32.1	15.3	21.1	17.4	27.1 ***	18.7	6.7	8.0 ***	12.8	11.1	21.7	20.8 ***	14.5	24.9	10.6	12.5	
% negative (2)		0.1				3.5	0.5	1.0 ***				0.4			0.2 ***		0.1	0.2 ***	2.3	2.9			4.3		0.2	0.0	
% (2)/(1)		0.7				11.5	4.8	7.1				2.4			0.8		1.5	2.6	15.3	20.9			22.9		1.7	0.1	

\* Weighted by DB090

\*\* The variable used to construct the self-employment income at household level is NET (PY050n)

\*\*\* There is also the gross variable, but here the net one has been shown

Note: In 2004 and 2005 France collected income components net of social contributions (but gross of income tax), and records these mostly in the same form without conversion of the reported amounts.

**Table 2 Percentage of persons aged 16+ receiving self-employment income – comparison of several releases of 2004 data**

	AT	BE	DK	EE	ES**	FI	FR	GR**	IE	IS	IT**	LU	NO	PT**	SE
<b>2004r1</b>															
% receiving (1)	9.4	4.8	24.9	8.7	6.7	11.8	4.1	16.57	9.5		16.60	4.39	9.9	10.93	12.9
% positive	8.6	4.7	22.2	7.7	6.1	11.8	4.1	16.17	9.5		16.51	4.32	8.2	10.93	9.8
% negative (2)	0.8	0.1	2.8	1.0	0.6			0.40			0.09	0.07	1.7		3.1
% (2)/(1)	8.6	1.9	11.1	11.5	8.7			2.41			0.54	1.59	17.0		23.9
<b>2004r2</b>															
% receiving (1)	9.4	4.8	24.9	8.7	6.7	11.8	4.1	16.57	9.5	11.6	17.90	4.40	9.9	10.93	12.9
% positive	8.6	4.7	22.2	7.7	6.1	11.8	4.1	16.16	9.5	11.6	17.89	4.33	8.2	10.93	9.8
% negative (2)	0.8	0.1	2.8	1.0	0.6			0.41			0.01	0.07	1.7		3.1
% (2)/(1)	8.6	1.9	11.1	11.5	8.7			2.47			0.06	1.59	17.0		23.9
<b>2004r3</b>															
% receiving (1)	9.4	4.8	24.9	8.7	6.7	11.8	4.1	16.57	9.5	11.6	17.90	4.40	9.9	11.03	12.9
% positive	8.6	4.7	22.2	7.7	6.1	11.8	4.1	16.16	9.5	11.6	17.89	4.33	8.2	11.03	9.8
% negative (2)	0.8	0.1	2.8	1.0	0.6			0.41			0.01	0.07	1.7		3.1
% (2)/(1)	8.6	1.9	11.1	11.5	8.7			2.47			0.06	1.59	17.0		23.9
<b>2004r4</b>															
% receiving (1)	9.4	4.8	24.9	8.7	6.7	11.8	4.1	16.57	9.5	11.6	17.90	4.40	9.9	11.03	12.9
% positive	8.6	4.7	22.2	7.7	6.1	11.8	4.1	16.16	9.5	11.6	17.89	4.33	8.2	11.03	9.8
% negative (2)	0.8	0.1	2.8	1.0	0.6			0.41			0.01	0.07	1.7		3.1
% (2)/(1)	8.6	1.9	11.1	11.5	8.7			2.47			0.06	1.59	17.0		23.9

\* Weighted by PB040

\*\* Net variable (PY050n)

The more relevant figure is the ratio “%(2)/(1)”, giving the percentage of (2) negative values, among (1) households/persons receiving (positive or negative, i.e. non-zero) self-employment income, though the proportions of negative values of the total sample is also relevant. In Norway and Sweden 3-4% of sample units report negative self-employment income, but this amounts to a high proportion of around 20% of *self-employment income recipients*.

Other high figures are present in the Netherlands (15% of recipients), Denmark (11-13%), followed by Estonia (around 10%, but comprising only 1% or less of the total sample – reflecting the low reported incidence of receipt of self-employment income. Slovakia shows a big gap between 2005 and 2006, where there is a drop from 11.5% to 2.5%, probably resulting from some methodological change. No negative values are reported (or permitted) in some countries: Cyprus, Czech Republic, Germany, Finland, France, Ireland, Island, Lithuania, Poland, Portugal and Slovenia. These differences in the incidence of negative self-

employment income arise, at least in good part we believe, from methodological differences among the surveys. To the extent that is true, they affect data comparability. This is an important reason for agreeing on a common treatment of this problem in EU-SILC.

Table 2 reports the percentage receiving self-employment income in four successive releases of the 2004 wave data set. Following Eurostat regulation, each data set should be revised only once; in fact, minor changes are present only between revision 1 and revision 2. Minor changes are present in Greece, Italy, Luxembourg and Portugal. From this third aspect (i.e. in relation to being subject to subsequent revision) the treatment of the 2004 data is very comparable among countries.

### **3. Percentage receiving, share of total income and mean per recipient for self-employment income 2007**

Henceforth we examine the 26 countries in the 2007 survey taking the household as the unit. The emphasis is on the pattern of variation of various statistics across the countries.

We have also noted the large variation across countries in the percentages receiving self-employment income. We have already noted the pattern of negative values in notes to Table 1 above. The figures in Table 3 refer to households, and to incomes reported in the gross form if available; the reference is to net values in countries reporting only net amounts.

The last panel in the table shows the mean amount of self-employment income received among households receiving such income – it includes positive and also negative values where present, but excludes households with zero or missing values. In order to remove the effect of national differences in the level of total income, the figure has been divided by the mean total household income of the country concerned (gross or net as the case is).

“Mean per recipient” indicates how important a share self-employment income forms among those who do receive some self-employment income. A low figure means that, relatively, in the average there are many households receiving self-employment income, but each receiving on the average only a small amount. A high figure may mean that for those (possibly small number) who receive self-employment income, this source forms a major part of their household income.

We observe a very wide range of variation in this figure among countries in Table 3: from the highest of near 90% of the average income in Germany and France, to the lowest of 15% in Sweden.

**Table 3a Percentage receiving, share of total income and mean per recipient for self-employment income 2007**

	AT	BE	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HU	IE	IS	IT	LT	LU	LV	NL	NO	PL	PT	SE	SI	SK	UK
% negative	0.4	0.1				3.5	0.5	0.8				0.4			0.2		0.1	0.2	2.3	2.9			4.3		0.2	0.0
% zero**	83.8	89.7	75.3	81.5	89.6	69.2	90.6	85.6	84.8	92.3	67.9	84.4	78.9	82.6	72.7	81.3	93.2	91.8	84.9	86.0	78.3	79.2	81.3	75.1	89.2	87.5
% positive	15.8	10.2	24.7	18.5	10.4	27.3	9.0	13.6	15.2	7.7	32.1	15.3	21.1	17.4	27.1	18.7	6.7	8.0	12.8	11.1	21.7	20.8	14.5	24.9	10.6	12.5
<b>% receiving (a)</b>	<b>16.2</b>	<b>10.3</b>	<b>24.7</b>	<b>18.5</b>	<b>10.4</b>	<b>30.8</b>	<b>9.4</b>	<b>14.4</b>	<b>15.2</b>	<b>7.7</b>	<b>32.1</b>	<b>15.6</b>	<b>21.1</b>	<b>17.4</b>	<b>27.3</b>	<b>18.7</b>	<b>6.8</b>	<b>8.2</b>	<b>15.1</b>	<b>14.1</b>	<b>21.7</b>	<b>20.8</b>	<b>18.8</b>	<b>24.9</b>	<b>10.8</b>	<b>12.5</b>
negative as % of recipients	2.2	0.7				11.5	4.8	5.7				2.4			0.8		1.5	2.5	15.3	20.9			22.9		1.7	0.1
Share (b)	8.6	6.1	11.2	15.1	9.2	5.7	2.3	8.2	5.5	7.0	24.3	8.3	13.1	3.5	20.4	6.4	4.3	4.5	6.1	5.8	9.9	12.0	2.8	5.4	7.7	8.8
Mean per recipient [(b)/(a)]*100	53.2	59.8	45.4	81.5	88.4	18.4	24.4	56.7	36.5	90.6	75.5	53.2	61.9	19.9	74.6	34.0	62.2	54.8	40.0	41.3	45.6	57.4	14.8	21.6	71.6	70.4

\* The variable analysed (PY050) is gross and the percentages are weighted by DB090

\*\* This row may contain small number of missing values on income

**Table 3b (Countries ordered by mean per recipient of self-employment income)**

	FR	DE	CZ	GR	IT	SK	UK	LU	IE	BE	PT	ES	LV	AT	HU	PL	CY	NO	NL	FI	LT	EE	SI	IS	DK	SE
% negative					0.2	0.2	0.0	0.1		0.1		0.8	0.2	0.4	0.4			2.9	2.3			0.5			3.5	4.3
% zero**	92.3	89.6	81.5	67.9	72.7	89.2	87.5	93.2	78.9	89.7	79.2	85.6	91.8	83.8	84.4	78.3	75.3	86.0	84.9	84.8	81.3	90.6	75.1	82.6	69.2	81.3
% positive	7.7	10.4	18.5	32.1	27.1	10.6	12.5	6.7	21.1	10.2	20.8	13.6	8.0	15.8	15.3	21.7	24.7	11.1	12.8	15.2	18.7	9.0	24.9	17.4	27.3	14.5
<b>% receiving (a)</b>	<b>7.7</b>	<b>10.4</b>	<b>18.5</b>	<b>32.1</b>	<b>27.3</b>	<b>10.8</b>	<b>12.5</b>	<b>6.8</b>	<b>21.1</b>	<b>10.3</b>	<b>20.8</b>	<b>14.4</b>	<b>8.2</b>	<b>16.2</b>	<b>15.6</b>	<b>21.7</b>	<b>24.7</b>	<b>14.1</b>	<b>15.1</b>	<b>15.2</b>	<b>18.7</b>	<b>9.4</b>	<b>24.9</b>	<b>17.4</b>	<b>30.8</b>	<b>18.8</b>
negative as % of recipients					0.8	1.7	0.1	1.5		0.7		5.7	2.5	2.2	2.4			20.9	15.3			4.8			11.5	22.9
Share (b)	7.0	9.2	15.1	24.3	20.4	7.7	8.8	4.3	13.1	6.1	12.0	8.2	4.5	8.6	8.3	9.9	11.2	5.8	6.1	5.5	6.4	2.3	5.4	3.5	5.7	2.8
Mean per recipient [(b)/(a)]*100	90.6	88.4	81.5	75.5	74.6	71.6	70.4	62.2	61.9	59.8	57.4	56.7	54.8	53.2	53.2	45.6	45.4	41.3	40.0	36.5	34.0	24.4	21.6	19.9	18.4	14.8

\* The variable analysed (PY050) is gross and the percentages are weighted by DB090

\*\* This row may contain small number of missing values on income

Countries where self-employment tend to be a full-time activity would tend to have high values of this index; those with self-employment as part-time activity tend to have low values. However, while generally this pattern of variation is an expected one, it is very likely that in part this is simply the result of differences among countries in data source and the mode of data collection. All countries using income registers are at the lower end<sup>3</sup>, from the high value of around 35-40% in Finland and Norway, around 20% in Island and Denmark, down to 15% in Sweden as noted. In part this may be because registers also include relatively small amounts of self-employment income for persons part-time self-employed, while such incomes are less likely to be captured in an interview survey.

**4. Percentage of households according to the proportion (X) of total income coming from self-employment**

The differences in country-patterns identified in Table 3 are explored further in this section. Table 4 shows the distribution of households receiving self-employment income according to the proportion (X) this income forms of the households total income. The classes shown are:

i=1	X>0.90
i=2	0.75<X≤0.90
i=3	0.50<X≤0.75
i=4	0.25<X≤0.50
i=5	0.10<X≤0.25
i=6	0<X≤0.10
i=7	X=0 <sup>4</sup>

Table 5 shows cumulative distribution of the ratio (HPY050g/HY010). The three panels of Table 5 are displayed in Graph 1. Here the countries included are sorted according the percentage of households receiving self-employment income (row X>0 of the panel concerned). It is clear that the ranking of countries is very different in terms of the proportions at other points in the cumulative distributions. For instance, according to the proportion with self-employment income forming 10% or more of total household income (X>0.10), the rank of Denmark or Sweden, for example, is much reduced compared the ranking in terms of the proportions receiving any self-employment income (X>0).

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<sup>3</sup> To bring this out we also show below Table 3 sorted according to “mean per recipient”.

<sup>4</sup> This class (X=0) includes missing, zero, and negative values of the numerator (HPY050, self-employment) and/or denominator (total gross or disposable, HY010 or HY020). The figure in this table may slightly differ from the same in Table 3, as the latter does not involve the above-mentioned denominator variables.

**Table 4 Percentage of households according to the share (X) of total income coming from self-employment**

	AT	BE	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HU	IE	IS	IT	LT	LU	LV	NL	NO	PL	PT	SE	SI	SK	UK
<b>x&gt;0.90</b>	2.0	1.8	2.6	3.3	1.4	1.1	0.4	3.7	0.9	1.3	9.3	1.1	2.1	0.6	6.5	1.8	0.9	0.9	1.7	1.0	2.9	3.5	0.6	0.6	1.2	1.8
<b>0.75&lt;x≤0.90</b>	1.0	0.8	1.6	1.8	1.3	0.6	0.2	1.0	0.7	1.0	3.3	0.9	2.5	0.5	2.7	0.8	0.4	0.6	0.8	0.9	1.3	1.5	0.4	0.5	0.7	1.3
<b>0.50&lt;x≤0.75</b>	2.5	1.9	5.2	4.2	2.0	1.9	0.5	2.7	2.0	2.0	6.7	3.2	4.1	2.0	5.1	2.1	1.0	2.0	1.5	1.9	3.2	4.7	1.1	1.9	3.0	2.6
<b>0.25&lt;x≤0.50</b>	3.9	2.6	7.4	5.2	1.8	1.6	1.2	3.7	2.6	1.9	6.4	4.0	4.7	3.0	5.9	4.6	1.8	2.0	1.9	2.4	4.2	5.4	1.8	4.0	3.5	3.0
<b>0.10&lt;x≤0.25</b>	2.7	1.5	5.3	2.1	1.4	1.9	2.1	2.0	2.4	0.9	3.9	3.0	3.9	3.1	3.6	4.9	1.4	1.0	2.0	1.8	3.6	3.3	1.9	5.0	1.6	1.8
<b>0.00&lt;x≤0.10</b>	4.1	1.7	2.6	1.9	2.5	20.3	4.8	0.5	6.5	0.5	2.5	3.0	3.8	8.2	3.4	4.5	1.2	1.5	4.8	3.1	6.4	2.4	8.7	12.9	0.6	2.0
<b>x=0**</b>	83.8	89.8	75.3	81.5	89.6	72.7	91.0	86.4	84.8	92.3	67.9	84.7	78.9	82.6	72.9	81.3	93.3	92.0	87.2	88.9	78.3	79.2	85.5	75.1	89.4	87.5

\* The variable PY050 is analysed GROSS for all countries

\*\* Includes zero, negative and missing values on HPY050g or (HPY050g/HY010)

**Table 5 Cumulative distribution of percentage of households according to the share (X) of total income coming from self-employment**

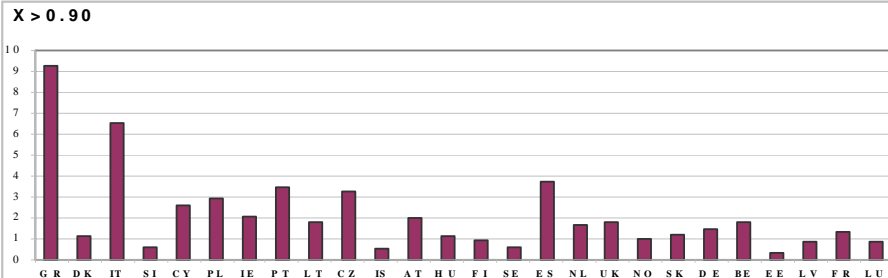
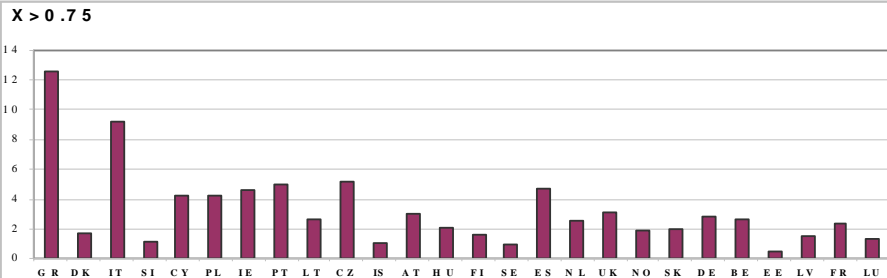
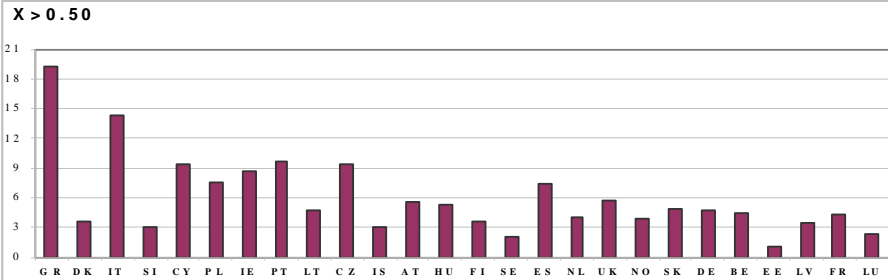
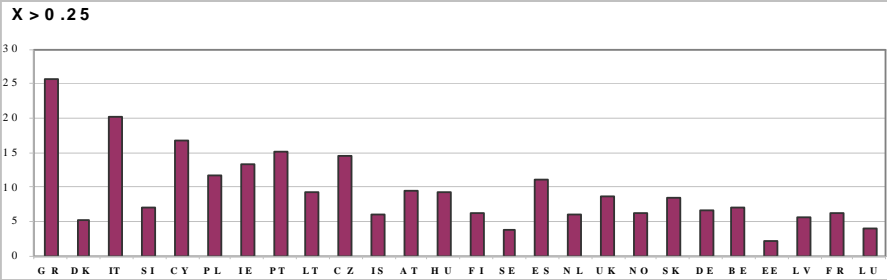
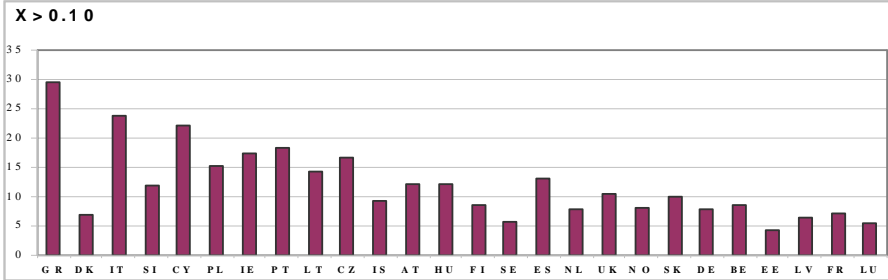
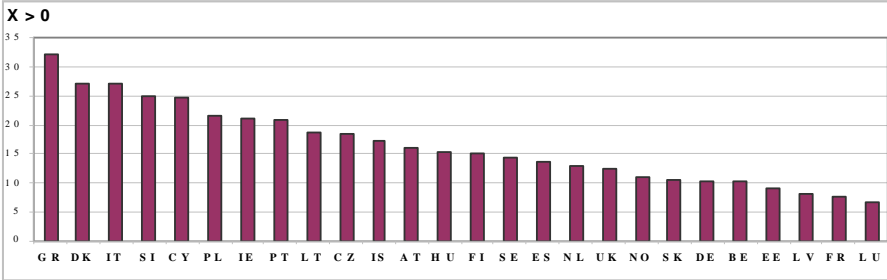
	AT	BE	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HU	IE	IS	IT	LT	LU	LV	NL	NO	PL	PT	SE	SI	SK	UK
<b>x&gt;0.90</b>	2.0	1.8	2.6	3.3	1.4	1.1	0.4	3.7	0.9	1.3	9.3	1.1	2.1	0.6	6.5	1.8	0.9	0.9	1.7	1.0	2.9	3.5	0.6	0.6	1.2	1.8
<b>x&gt;0.75</b>	3.0	2.6	4.2	5.1	2.8	1.7	0.5	4.7	1.6	2.4	12.6	2.1	4.6	1.1	9.2	2.6	1.3	1.5	2.5	1.9	4.3	5.0	1.0	1.1	2.0	3.1
<b>x&gt;0.50</b>	5.5	4.5	9.4	9.4	4.8	3.6	1.0	7.5	3.6	4.4	19.3	5.3	8.7	3.0	14.3	4.7	2.3	3.5	4.0	3.8	7.5	9.7	2.0	3.0	4.9	5.7
<b>x&gt;0.25</b>	9.4	7.1	16.8	14.5	6.5	5.1	2.2	11.1	6.3	6.3	25.7	9.3	13.4	6.1	20.2	9.3	4.1	5.5	6.0	6.2	11.7	15.1	3.9	7.0	8.4	8.7
<b>x&gt;0.10</b>	12.1	8.6	22.1	16.6	7.9	7.0	4.2	13.1	8.7	7.2	29.6	12.2	17.3	9.2	23.7	14.2	5.5	6.5	8.0	8.0	15.3	18.4	5.8	12.0	10.0	10.5
<b>x&gt;0.00</b>	16.2	10.2	24.7	18.5	10.4	27.3	9.0	13.6	15.2	7.7	32.1	15.3	21.1	17.4	27.1	18.7	6.7	8.0	12.8	11.1	21.7	20.8	14.5	24.9	10.6	12.5

\* The variable PY050 is analysed GROSS for all countries

**This table excludes households with either total income or self employment income reported as negative, zero or missing**

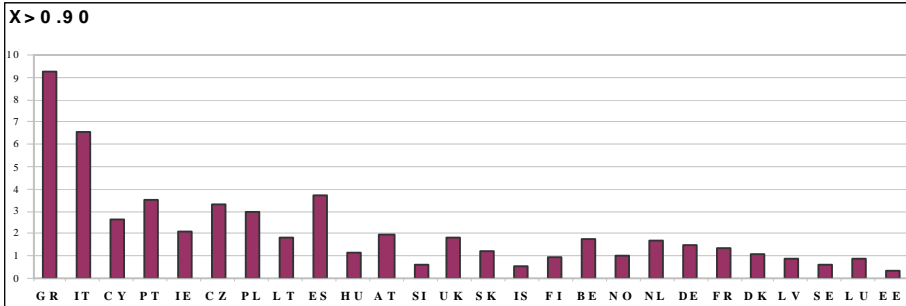
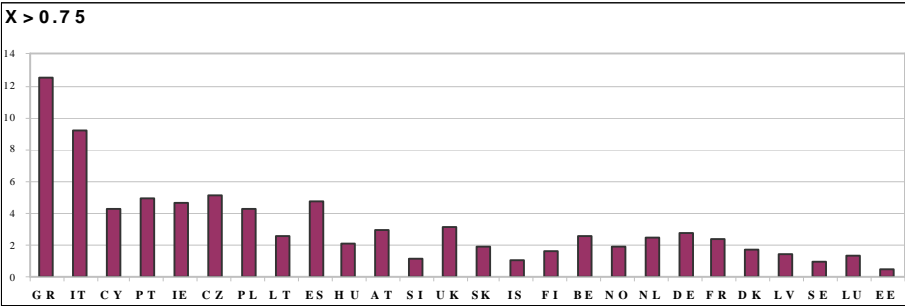
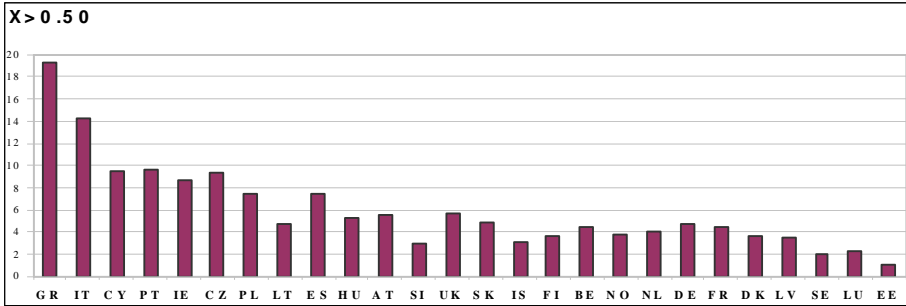
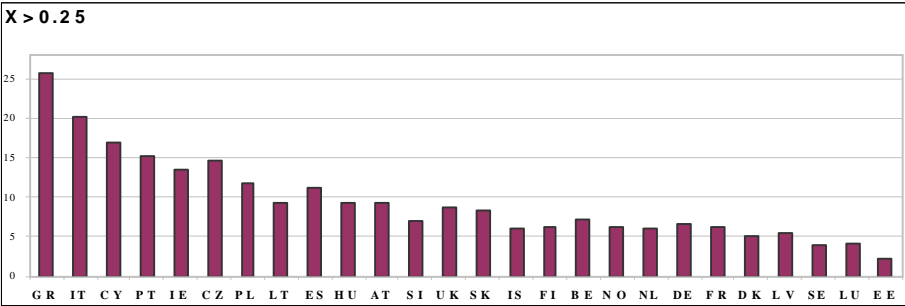
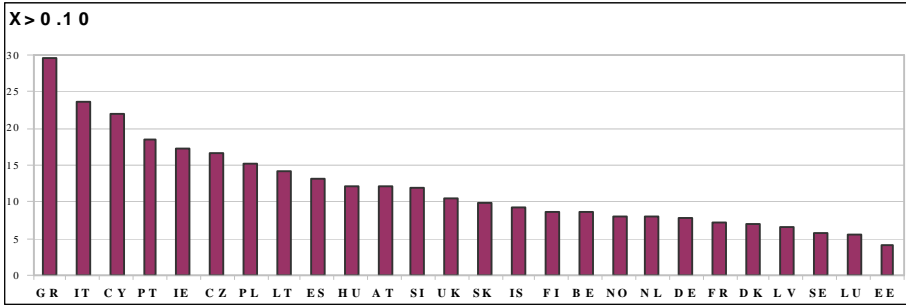
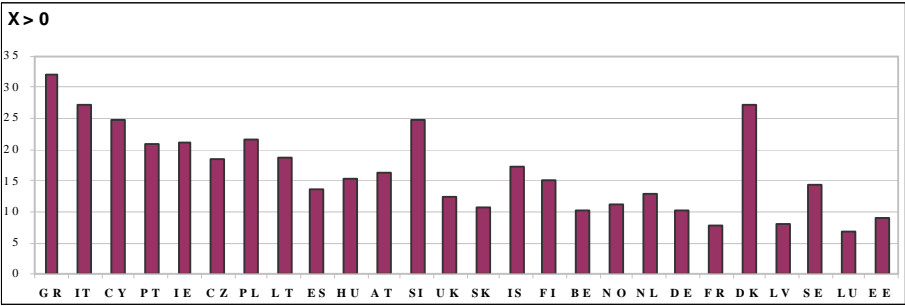
**Proportions of households receiving self-employment income, above various thresholds of the share (X) of self-employment to total household income.**

Graph 1. Countries sorted according to row X>0.

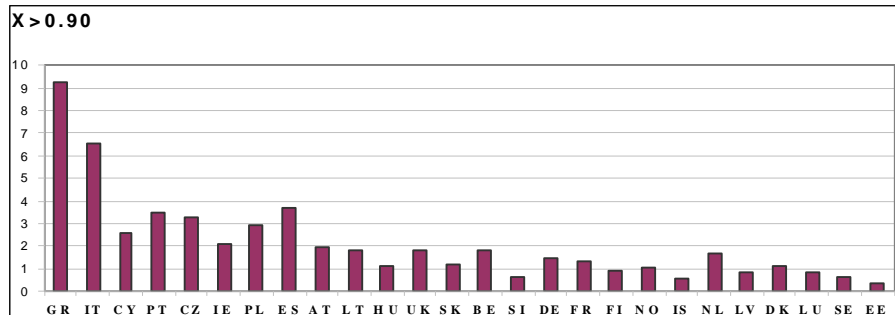
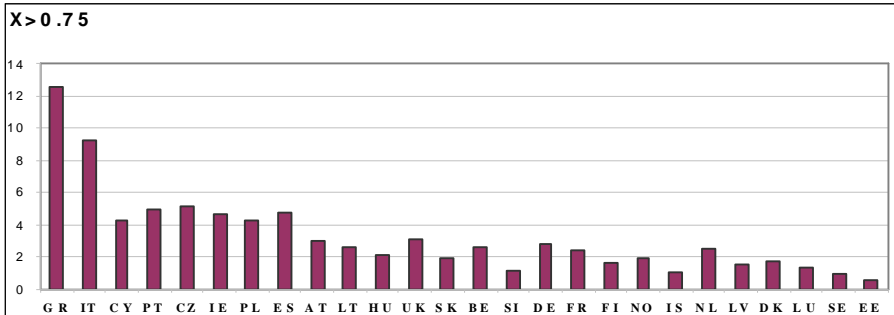
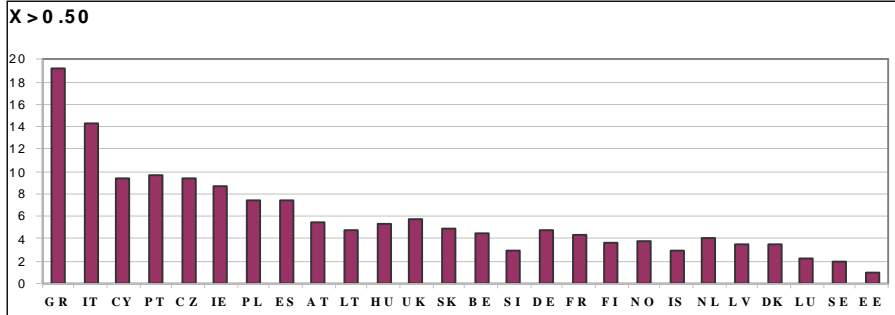
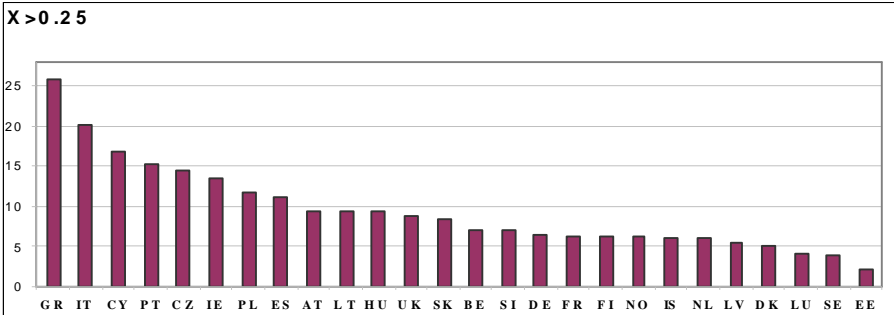
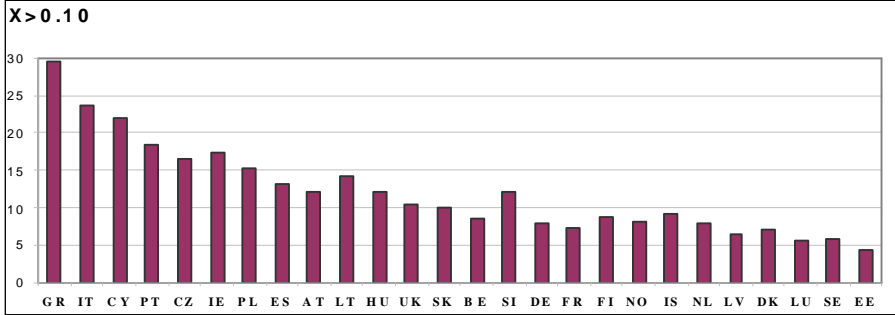
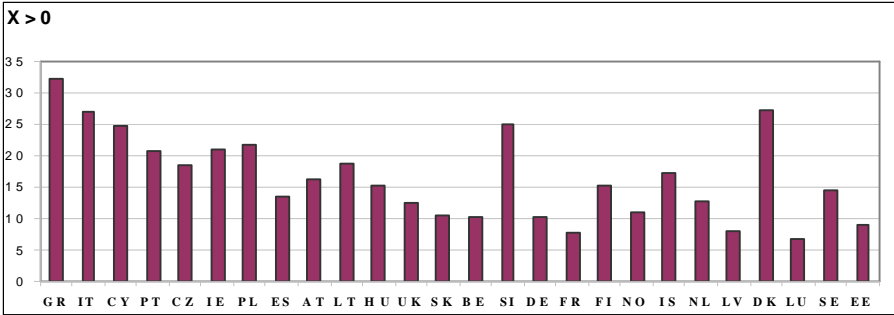




Graph 2. Countries sorted according to row  $X > 0.10$ .



Graph 3. Countries sorted according to and  $X > 0.25$ .




This sort of patterns highlights the situation that in the countries concerned have, relative to other countries, large proportions reporting small amounts of self-employment income.

Graphs 2 and 3 display the same information as Graph 1, but with the countries sorted differently: according to row  $X > 0$  in Graph 1, row  $X > 0.10$  in Graph 2, and  $X > 0.25$  in Graph 3. The objective is to investigate whether the ranking of countries becomes stable after a certain point in the cumulative distribution.

**Table 6 Ranking according to the proportion receiving self-employment income – for various cut-off points (sorted according to column  $X > 0.25$ )**

	$x > 0.00$	$x > 0.10$	$x > 0.25$	$x > 0.50$	$x > 0.75$	$x > 0.90$
EE	4	1	1	1	1	1
SE	12	3	2	2	2	3
LU	1	2	3	3	5	6
DK	25	5	4	7	8	9
LV	3	4	5	6	6	5
NL	10	8	6	10	13	14
IS	16	12	7	5	3	2
NO	8	9	8	9	9	8
FI	13	11	9	8	7	7
FR	2	6	10	11	12	12
DE	6	7	11	14	16	13
SI	23	15	12	4	4	4
BE	5	10	13	12	15	15
SK	7	13	14	15	10	11
UK	9	14	15	18	18	17
HU	14	17	16	16	11	10
LT	18	19	17	13	14	16
AT	15	16	18	17	17	18
ES	11	18	19	19	22	24
PL	21	20	20	20	20	21
IE	20	22	21	21	21	19
CZ	17	21	22	22	24	22
PT	19	23	23	24	23	23
CY	22	24	24	23	19	20
IT	24	25	25	25	25	25
GR	26	26	26	26	26	26

 significant increase in rank in going to next threshold

 significant decrease in rank in going to next threshold

(Rank 1 means the lowest and rank 26 the highest proportion receiving self-employment income)

Table 6 provides yet another form of presentation. It shows the rank of each country according to the proportion with self-employment income greater than certain specified fraction (X) of the total household income (a higher rank corresponds to a higher proportion). It is instructive to note the points between which a country's rank changes most, and whether this ranking goes up and down. We see several systematic patterns, as marked out in Table 6. It is important to identify how for these different patterns may have arisen from methodological differences among the surveys. This challenge can be met primarily only through direct deliberations between the national teams conducting EU-SILC surveys on the basis of their published and unpublished experience.

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