



Measuring (in)security in the event of unemployment: are we forgetting someone?

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Aim of the paper

- to propose **new measures** of economic (in)security related to employment risk to be used in aggregate indices of economic well-being (and in particular in the IEWB).
- These measures should account for **all persons** who are exposed to the event of unemployment (i.e. all households' members), and not only for the individuals who participate in the labour market.
- We propose **two ways** of doing this.

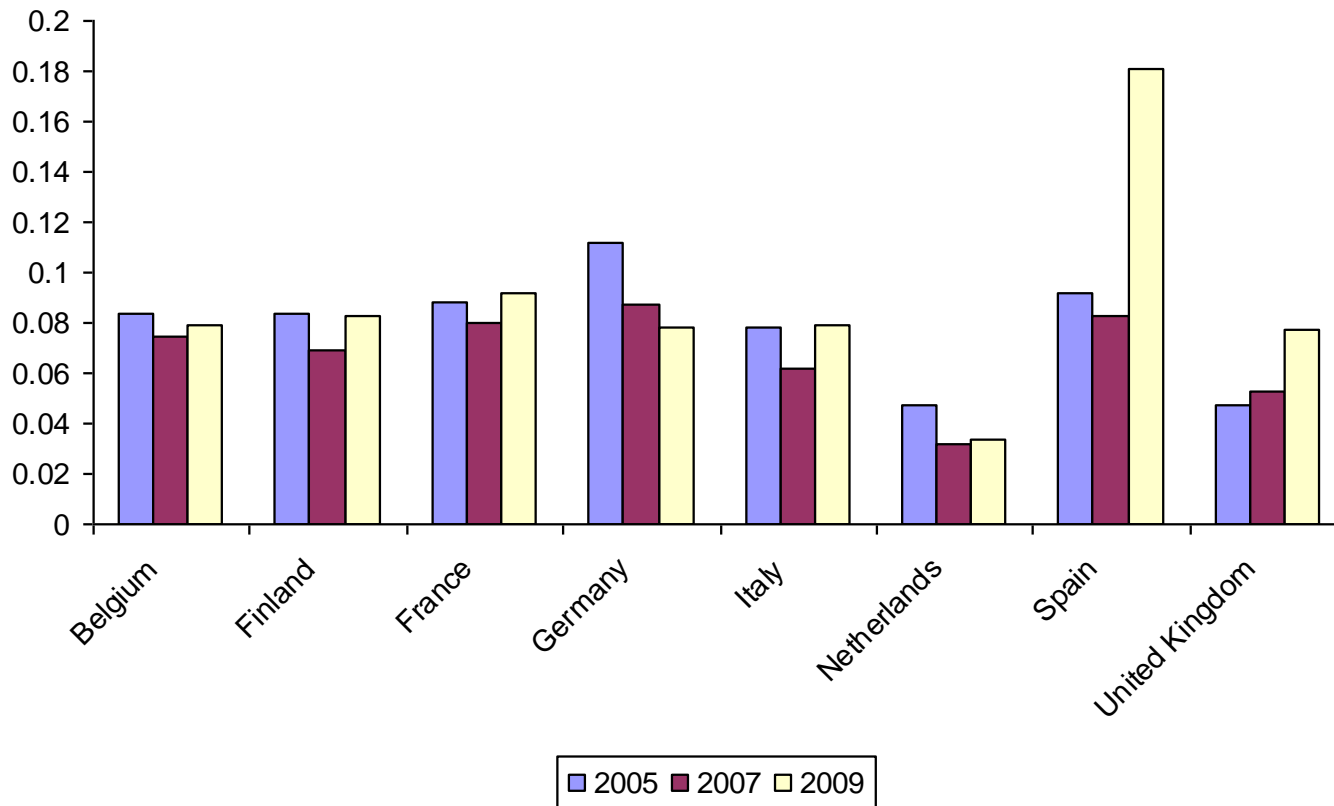
Background and motivation

- Economic security in the IEWB reflects four objective economic risks: unemployment, sickness, widowhood and old age.
- The measure of the former is a function (weighted sum or product) of:
 - unemployment rate (UR)
 - financial protection rate (RR).

But:

- these individuals do not live in isolation:
“a middle aged worker with ... dependent children and no other source of family income is likely to feel far more anxiety than an older worker with ... grown up children ... and an employed spouse” Osberg (1998); these children and spouses are exposed to this anxiety.

Unemployment rate

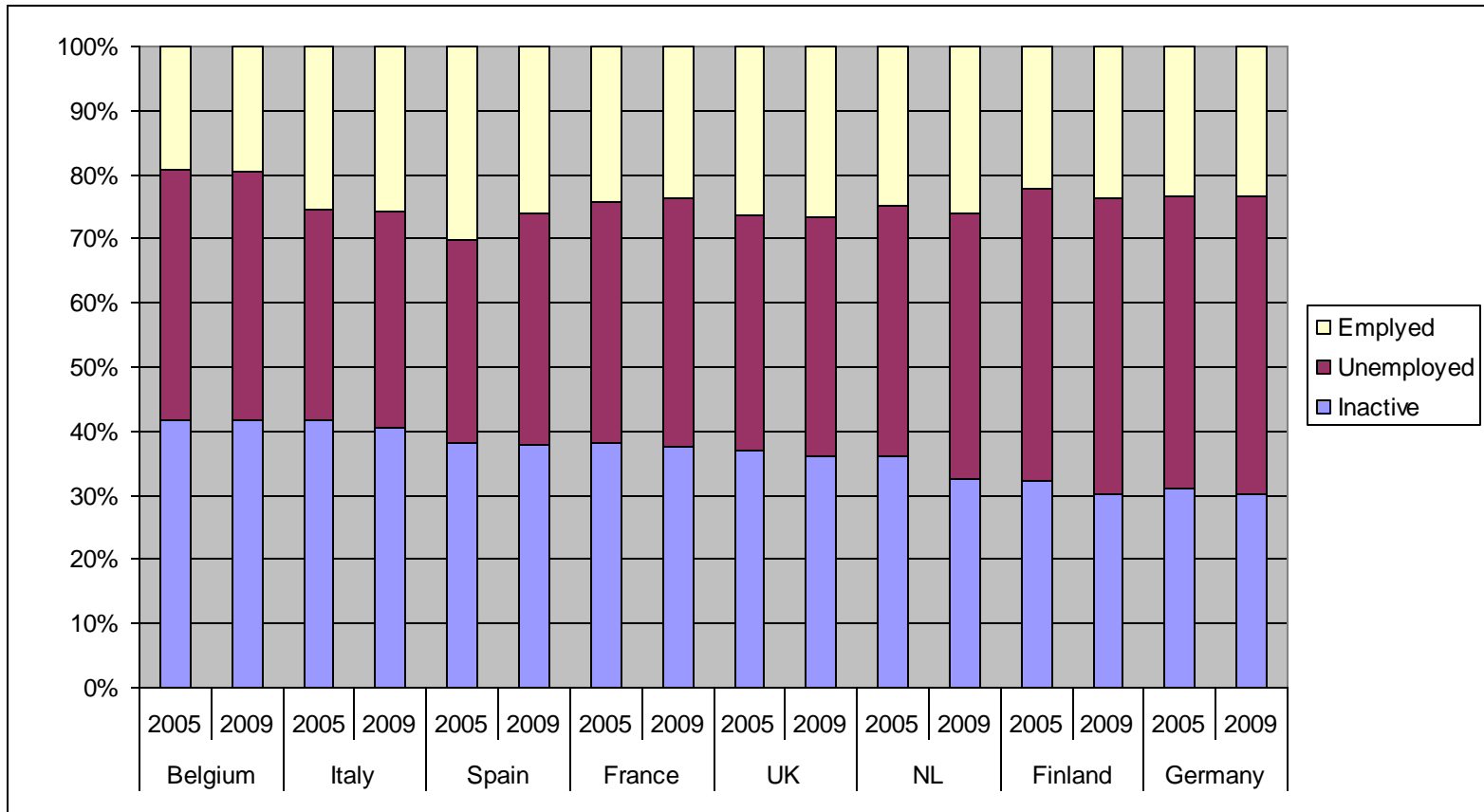




Indiv. living in households with at least one unemployed person
(over the total number of individuals living in “active” households)

	2005	2006	2007	2008	2009	2010
Belgium	12.0%	11.8%	10.9%	10.1%	11.3%	12.1%
Finland	10.9%	10.0%	8.8%	8.2%	10.6%	11.1%
France	14.1%	13.9%	12.8%	11.8%	14.4%	14.1%
Germany	16.2%	14.5%	12.4%	10.9%	11.0%	10.3%
Italy	12.4%	11.0%	9.9%	10.9%	12.3%	13.2%
Netherlands	6.9%	6.0%	4.6%	4.0%	5.1%	5.9%
Spain	16.1%	15.2%	14.5%	19.4%	28.6%	31.3%
United Kingdom	7.8%	9.3%	9.1%	9.5%	12.3%	12.2%

Composition of the previous proportion



Our proposals

Two different ways in which one can take into account the number of individuals who are affected by the risk of unemployment:

- *per-earner* actuarially-fair insurance premium that would cover the overall *adult-equivalent* expected loss in the country. This approach recognizes that:
 - the same financial loss has different welfare effects for households with different composition,
 - an increase in the proportion of households with higher expected losses implies an increase in the overall level of insecurity (and vice-versa).
- *inactive-unemployed dependency rate*:
 - it accounts for household members who are exposed to the event of unemployment,
 - recognizes that the effect of this event may be different if there are other employed individuals in the household.

Methodology (1): the inactive-unemployed dependency rate

The IUDR is a measure of the “average” number of inactive individuals that “depend” on the unemployed ones:

$$IUDR_c = \frac{\sum_{h=1}^{H_c} n_i^h \frac{n_u^h}{n_a^h}}{\sum_{h=1}^{H_c} n_u^h}$$

This index captures:

- the larger number of people affected by unemployment
- part of the psychological burden of the unemployed, because worries for the consequences of losing the job on other family members are a large component of it.



This index can be included in the IEWB in two ways:

- use an “adjusted unemployment rate”: $AUR = UR * (1 + IUDR)$
(it becomes a weighted average of households’ components – in hhds with at least one unemp. – for each active individual)
- add it as a separate component beside UR and RR
(weights: 0.6 UR, 0.2 IUDR, 0.2 RR)

We prefer (and illustrate) the second solution.



Data

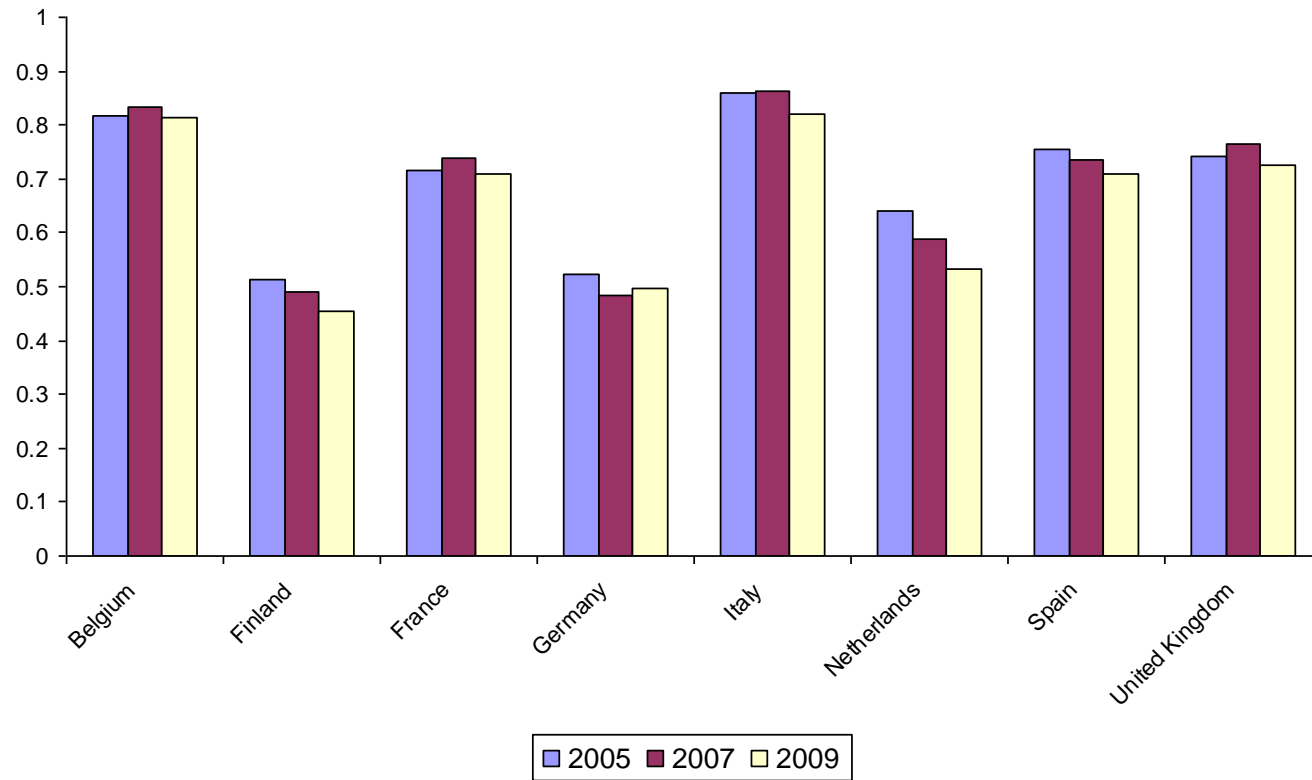
Eurostat, LFS: number of households in each country according to the number of employed, unemployed and inactive individuals (variables are top-coded at 3).

Countries: Belgium, Finland, France, Germany, Italy, NL, Spain and UK

Years: 2005-2009

Results

Inactive-Unemployed Dependency Rate, various years.



Differences in the index of employment **security** with and without the IUDR

	2005	2006	2007	2008	2009
Belgium	-0.085	-0.100	-0.103	-0.097	-0.089
Finland	0.038	0.043	0.031	0.032	0.060
France	-0.040	-0.039	-0.058	-0.059	-0.033
Germany	0.065	0.068	0.053	0.030	0.038
Italy	-0.109	-0.120	-0.128	-0.123	-0.092
Netherlands	-0.053	-0.057	-0.049	-0.049	-0.025
Spain	-0.052	-0.045	-0.054	-0.006	0.064
UK	-0.095	-0.087	-0.098	-0.095	-0.055

Ranking of countries from less to more secure

2005		2009	
without IUDR	with IUDR	without IUDR	with IUDR
Germany	Germany	Spain	Spain
Spain	Italy	UK	UK
Finland	Spain	Germany	Italy
France	UK	France	France
Italy	Belgium	Finland	Belgium
UK	France	Italy	Germany
Belgium	Finland	Belgium	Finland
Netherlands	Netherlands	Netherlands	Netherlands

Methodology (2): The insurance approach

- Define the expected income loss for household h :

- Household with m active members,
- no correlation between the unemployment probabilities of the different members:

$$EL^h = \prod_{i=1}^m p_i^h \left(\sum_{i=1}^m \Delta y_i^h \right) + (1 - p_m^h) \prod_{i=1}^{m-1} p_i^h \left(\sum_{i=1}^{m-1} \Delta y_i^h \right) + \dots + \prod_{i=1}^{m-1} (1 - p_i^h) p_m^h (\Delta y_m^h)$$

- Transform this EL into an adult-equivalent expected loss by using the equivalence scale for household h (s_h).

$$EL_e^h = \frac{EL^h}{s_h}$$

- Assign this adult-equivalent EL to each component of the family and compute the aggregate expected loss for the country:

$$EL^c = \sum_{h=1}^H n_{ih} EL_e^h$$

- Calculate the *per-earner* actuarially fair premium as:

$$\pi_e^c = \frac{EL^c}{\sum_{h=1}^H n_{eh}}$$

- Take the ratio between this premium and the average wage and then construct the index using the linear scaling technique.

Data

For per-earner premium:

- OECD tax-benefit model: UB for six types of households (single, one-earner couple, two-earner couple; each type with/without children), and AW (deflated using HCPI, euros 2005)
- Eurostat n. of households (for the above types); this excludes households with
 - solely students or inactive individuals aged 65 and over (20%);
 - more than two adults (from 40% for Spain to 10% for Finland).

Same countries and years as above.

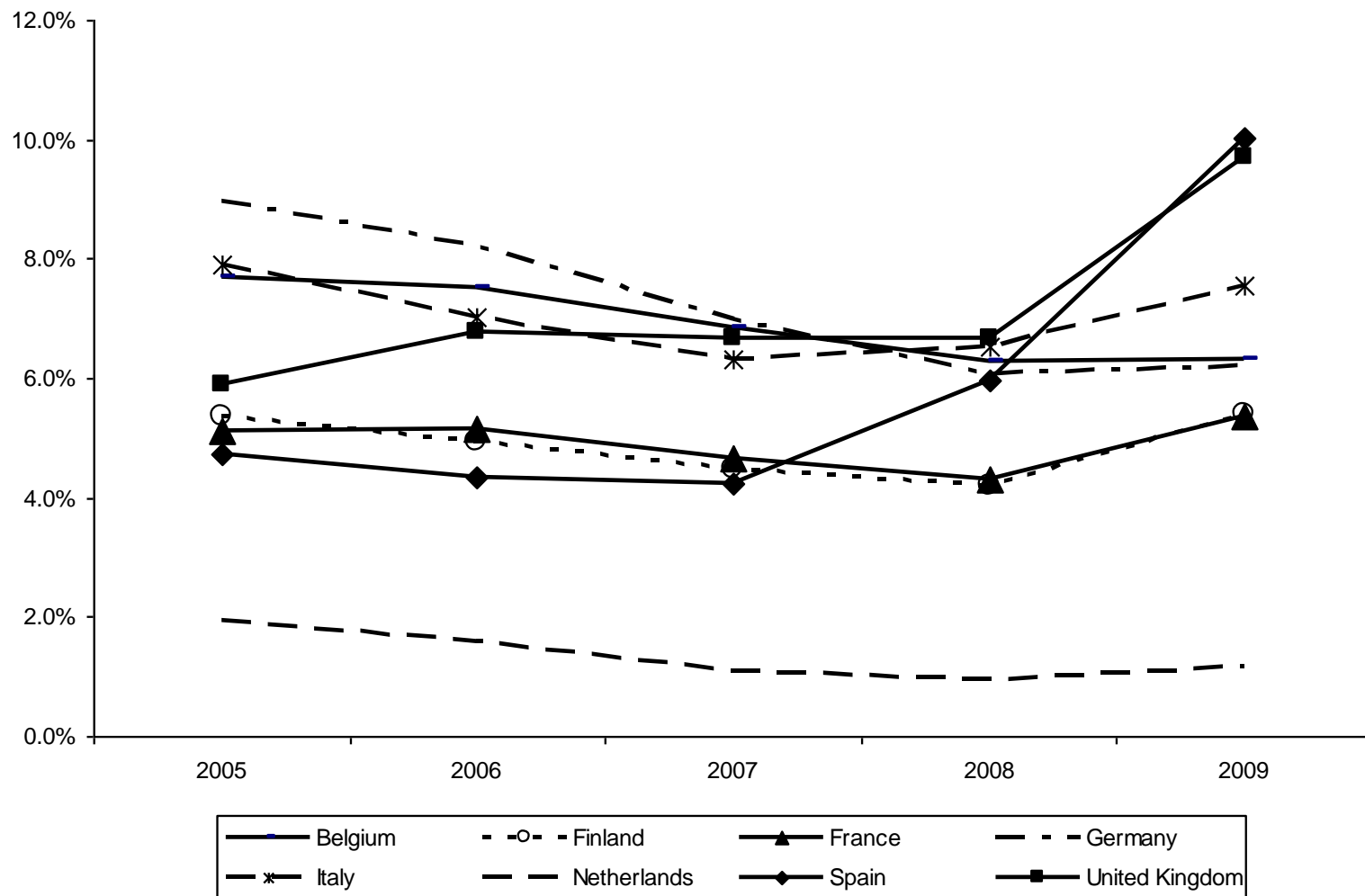


Results based on the insurance approach

Table 3: Family equivalent expected income loss as percentage of household income.

	0ch					2ch				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
single										
Belgium	5.6%	5.5%	5.0%	4.7%	4.8%	10.5%	10.3%	9.4%	8.8%	9.1%
Finland	4.4%	4.1%	3.7%	3.5%	4.5%	7.5%	6.9%	6.4%	6.0%	7.6%
France	3.7%	3.7%	3.4%	3.2%	3.9%	7.0%	7.0%	6.4%	5.9%	7.3%
Germany	7.3%	6.7%	5.7%	5.0%	5.1%	12.8%	11.7%	10.0%	8.8%	8.9%
Italy	5.5%	4.9%	4.5%	4.7%	5.5%	10.4%	9.3%	8.4%	8.8%	10.2%
Netherlands	1.4%	1.2%	0.8%	0.7%	0.9%	2.6%	2.2%	1.5%	1.3%	1.6%
Spain	4.1%	3.8%	3.7%	5.2%	8.4%	5.2%	4.8%	4.7%	6.4%	10.6%
UK	4.5%	5.1%	5.1%	5.1%	7.3%	8.4%	9.6%	9.5%	9.5%	13.7%
1 earner										
Belgium	7.4%	7.3%	6.7%	6.2%	6.5%	10.6%	10.4%	9.5%	8.9%	9.2%
Finland	5.9%	5.4%	5.0%	4.7%	6.0%	7.6%	7.0%	6.5%	6.1%	7.7%
France	5.0%	5.0%	4.5%	4.2%	5.2%	7.1%	7.1%	6.5%	6.0%	7.5%
Germany	8.9%	8.2%	7.0%	6.1%	6.2%	11.7%	10.7%	9.2%	8.0%	8.1%
Italy	7.4%	6.6%	5.9%	6.3%	7.3%	10.6%	9.4%	8.5%	9.0%	10.4%
Netherlands	1.9%	1.6%	1.1%	0.9%	1.1%	2.7%	2.2%	1.5%	1.3%	1.6%
Spain	5.4%	5.0%	4.9%	6.9%	11.2%	5.3%	4.9%	4.7%	6.5%	10.8%
UK	5.8%	6.7%	6.6%	6.5%	9.5%	8.3%	9.5%	9.4%	9.3%	13.5%
2 earners										
Belgium	7.0%	6.9%	6.3%	5.8%	5.6%	10.1%	9.9%	9.0%	8.2%	8.1%
Finland	5.5%	5.1%	4.6%	4.3%	5.5%	6.9%	6.4%	5.9%	5.5%	7.0%
France	4.9%	5.0%	4.5%	4.2%	5.2%	7.0%	7.1%	6.4%	5.9%	7.4%
Germany	9.5%	8.8%	7.5%	6.5%	6.7%	12.7%	11.7%	10.0%	8.8%	8.9%
Italy	7.4%	6.6%	5.9%	6.0%	7.0%	10.5%	9.4%	8.4%	8.6%	10.0%
Netherlands	1.9%	1.6%	1.1%	0.9%	1.1%	2.7%	2.2%	1.5%	1.3%	1.6%
Spain	4.7%	4.4%	4.3%	6.0%	9.6%	5.3%	4.9%	4.7%	6.5%	10.6%
UK	5.9%	6.8%	6.7%	6.7%	9.7%	8.4%	9.7%	9.5%	9.5%	13.8%

Insurance premium as a percentage of the AW.



Ranking of countries from less to more secure

2005		2009	
IEWB	Insurance premium	IEWB	Insurance premium
Germany	Germany	Spain	Spain
Spain	Italy	UK	UK
Finland	Belgium	Germany	Italy
France	UK	France	Belgium
Italy	Finland	Finland	Germany
UK	France	Italy	Finland
Belgium	Spain	Belgium	France
Netherlands	Netherlands	Netherlands	Netherlands

Summary and conclusions

In this paper we investigated two ways in which one can take into account the consequences of unemployment for all household members: a *per-earner* insurance premium and the *inactive-unemployed dependency rate*.

- Both have a simple interpretation but the second requires less data.
- **Over time**, the increase in single and in households without children reduce overall economic insecurity.
- **Across countries**: large differences in the level of the IUDR. Effect of IUDR on overall economic security: negative for Italy, Belgium, France, the NL and the UK, positive for Finland and Germany. For Spain the effect changes its sign from negative to positive in the last year (when the decrease in the IUDR mitigates the huge increase in the UR).