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**Low Pay, In-Work Poverty and Economic
Vulnerability:**

A Comparative Analysis Using EU-SILC

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1. Introduction

While jobs were at the core of economic policy even before the economic crisis, there was growing concern that many of the jobs being created were “bad jobs”, insecure in nature and at relatively low levels of pay. At the same time, the issue of in-work poverty has come to the fore in policy debates at EU level and in many member states, as it becomes increasingly clear that employment does not always guarantee avoidance of poverty. The relationship between low pay and poverty is a complex one, with the overlap between them often modest (see for example Nolan and Marx, 2000, Gardiner and Millar 2006, Nolan, 2008, Marx and Verbist, 2008, Gießelmann and Lohman, 2008); the household circumstances of individual employees and the social protection and tax systems influence household-level disadvantage, but pay levels still clearly play a significant role. While the crisis inevitably means that levels of employment and unemployment will be the primary focus in the shorter term, the nature of that employment and the extent to which it allows households to avoid poverty in the absence of other supports remain key issues for the medium-term.

Contrasting the extent and nature of low pay across countries has allowed for insights into the economic forces and institutional settings that underpin it that go beyond what can be gleaned from analysis of a single country. Such comparative studies of low pay have relied on one of the following strategies in terms of data and thus country coverage:

- use low pay estimates for a wide range of countries drawn from national sources, brought together with some attempt at harmonisation in terms of definition and coverage, notably in the low pay and earnings dispersion database constructed by the OECD (see for example OECD 1996, 2008, Lucifora, 2000);
- use national micro-datasets to study a small number of countries, harmonising the measure of earnings and coverage of workers to the extent that those sources allow (see for example the recent in-depth studies of low pay in five advanced countries sponsored by the Russell Sage Foundation, published as Salverda, van Klaveren and van der Meer, (2008) on the Netherlands and companion volumes on Denmark, Germany, France, and the UK);

- use micro-datasets that are cross-country in nature, and thus have a (hopefully) high degree of harmonisation of concepts and measures built in (for example, studies using data from the European Community Household Panel (ECHP) such as Nolan, Salverda *et al* (2000), European Commission (2004) and Lohman and Marx (2008) and Lohman (2008).

The third approach has clear advantages, but is obviously constrained by the coverage of cross-country micro-datasets with information on individual earnings. The main aim of this paper is to exploit the availability of data recently produced from the EU data-gathering exercise that has replaced the ECHP, known as EU-SILC (“Statistics on Income and Living Conditions”), which covers the enlarged European Union of 27 countries plus Norway and Iceland, twice as many countries as were included in the ECHP. This has the significant further advantage that EU-SILC is the source of the indicators of household-level poverty and exclusion on which the EU now relies to monitor its social inclusion process, and so the relationship between low pay and those measures of household poverty can be studied directly.

We start by teasing out some significant issues that must be faced in using this source to analyse low pay. We then present estimates of the overall extent of low pay for the measure we regard as on balance most satisfactory, for the sub-set of countries for which that is available. We then look in turn at which (full-time full-year) employees this source shows to be low paid; how many of these low paid employees are living in households at risk of (relative income) poverty; and how this relates to a broader measure of economic vulnerability at household level. We conclude with some comments on how best to exploit this source in further research on low pay and in-work poverty.

2. Studying Earnings Using SILC

Unlike the ECHP, EU-SILC is not a harmonised survey with a common survey instrument co-ordinated by Eurostat; instead, a detailed set of “target variables” has been specified (in formal EU Regulations) which member states are required to provide to Eurostat, but these may be derived from a pre-existing source or set of sources nationally or a new survey. This has important implications for the nature of the dataset and the way it is to be approached. EU-SILC includes several measures of employee earnings, offering alternative approaches to the measurement of low pay,

but these turn out in practice to be less satisfactory than appears at first sight. A variable for current gross monthly earnings (labelled PY200G), together with usual hours of work, are included in the dataset and would in principle allow gross hourly earnings, widely used in the analysis of low pay, to be derived. However, this variable is compulsory only for member states which have no source other than EU-SILC to calculate the gender pay gap, so many countries did not in fact have to supply it to Eurostat, and thus it appears as “missing” for all cases in the dataset for those countries. For EU-SILC 2006, the year on which our analysis concentrates, this earnings measure is missing for all cases except for Austria, Spain, Greece, Hungary, Ireland, Iceland, Italy, Norway, Poland, Portugal, and the UK.¹

For those countries, a measure of low pay based on current gross hourly earnings and covering all those currently working as an employee can be derived, and the results using the conventional low pay threshold of two-thirds of the median are shown in Table 1. We see that the percentage low paid on this basis varies from about one in ten for Norway to about one-quarter for Hungary, Ireland, Poland and the UK. Full-time employees are of particular interest, and the extent of low pay for them, vis-à-vis a threshold derived from the median for full-timers only, is also shown in the table. The low pay rates for full-time employees display a similar pattern across countries to those for all employees, indeed they are generally close in value. (If instead we apply the threshold based on the median for all employees to full-timers, as is quite commonly done, they will generally be less prone to low pay than part-timers and thus than all employees on average; the procedure adopted here follows that employed by the OECD and has some advantages for present purposes, as will be seen).

¹ Note Belgium is not all missing in 2005, whereas Hungary, Iceland, Norway and Italy are all missing in 2005.

Table 1: Population aged 18 to 65 and having current gross monthly earning for employee

	<i>% Employees with gross hourly earnings below 2/3 of median for all employees</i>	<i>% Full-time employees (>30 hours) with gross hourly earnings below 2/3 of median for full-time employees</i>
Austria	15.6	14.2
Spain	16.4	16.9
Greece	19.6	16.7
Hungary	26.6	30.3
Ireland	23.5	23.2
Iceland	21.3	21.3
Italy	13.0	12.3
Norway	9.6	7.6
Poland	27.5	26.8
Portugal	14.8	14.7
UK	25.0	24.8

Since these figures will not be the focus of the present paper, before moving on we simply present in Table 2 some low pay estimates for these countries from other sources, also using current gross earnings, with which they may be compared. The first column shows estimates for all employees, again based on gross hourly earnings, derived from ECHP data for around 1995 (see Appendix Table 1). The figures in Table 1 from EU-SILC are broadly similar to those ECHP-based estimates in the case of Austria, Ireland and Portugal, higher in the case of Greece, Italy and the UK, and lower for Spain – but of course the mid-2000’s might not be expected to look exactly the same as the mid-1990s. The EU-SILC figures for full-time employees can also be compared with figures from the OECD low pay database for three countries, which also relate to current gross (weekly or monthly rather than hourly) earnings (While the OECD database covers many more countries, as explained in more detail below the earnings concept employed is more often annual earnings – see Appendix Table 2.) We see that the OECD figure for Ireland is similar to the SILC-based one, while those for Poland and the UK are lower.

Table 2: Percentage of Employees with Current Gross Earnings Below Two-thirds of the Median, ECHP and OECD

	<i>% low paid, ECHP, mid-1990s, all employees</i>	<i>% low paid, OECD, around 2006, full-time employees only</i>
Austria	13.2	
Spain	22.2	
Greece	15.5	
Hungary		
Ireland	24.7	21.2
Iceland		
Italy	9.0	
Norway		
Poland		23.5
Portugal	16.6	
UK	20.0	21.0

Source: See Appendix Tables 1 and 2.

These figures from SILC are clearly of interest, and it will be important to investigate them in detail in future work, but the country coverage with this earnings measure is a serious constraint. The alternative approach with SILC is to use information on total non-cash employee income for the previous year (SILC variable PY010G), which most of the countries have provided. The difficulty in this case is that in order to be able to distinguish those who have worked only part of the year from those in employment all year, one wants to use the calendar of activities each month from January to December that year (variables PL210A to PL210L), but for some of the countries this calendar of activities has not been filled out in the database released to the research community. (Some in-work poverty indicators are produced by Eurostat as part of the set used in monitoring the social inclusion process, including one distinguishing those who worked all year and those who worked less than the full year – see Appendix Table 3 below - but these appear to rely on responses to a single question about the number of months of full-time work in the year (SILC variable PL070) rather than the full activity calendar). Since low annual earnings arising from a limited period in work during the year is a very different phenomenon from low weekly or hourly pay, this is again a serious data limitation. If we want to focus on those whose activity status is reported as employee in each of the last 12 months, the data required are available for only fourteen countries in the current analysis.

Low pay estimates based on annual earnings for such full-year employees are presented in Table 3. These range from about 15% in Belgium and France up to one-quarter or more in Lithuania, Luxembourg, and the UK. (Comparison with Table 1 shows that for the four countries where both current and annual are available the annual earnings low pay estimates are more often higher.)

Table 3 : Low Pay by for All Full-year Employees, Annual Income

	<i>% below 2/3 median earnings</i>
Austria	21.3
Belgium	14.9
Cyprus	23.6
Czech Republic	19.4
Estonia	23.2
Spain	20.0
France	16.2
Lithuania	27.8
Luxembourg	28.4
Netherlands	23.4
Poland	24.0
Slovenia	19.3
Slovakia	17.6
UK	25.9

Once again this low pay measure will repay intensive investigation, but inclusion of part-time as well as full-time employees means that low pay may reflect limited hours of work rather than (or as well as) low rates of pay. Table 4 shows that the percentage of full-time workers among all full-year employees, measured as those who report their main activity status as having been a full-time employee in each of the last 12 months, varies across these countries from 98% down to 60%. To focus on those with low annual earnings purely because of low pay rates, we can concentrate on these full-time full-year workers in the rest of this paper..

Table 4: Percentage Full-time Among Full-Year Employees

	<i>% full-time</i>
Austria	83.8
Belgium	79.3
Cyprus	95.9
Czech Republic	96.5
Estonia	96.8
Spain	90.2
France	84.6
Lithuania	94.6
Luxembourg	82.0
Netherlands	59.4
Poland	93.9
Slovenia	99.0
Slovakia	97.5
UK	79.9

3. Low Pay in EU-SILC Among Full-Time Full-Year Employees

When measuring low pay among full-time full-year employees we follow the OECD in deriving the two-thirds threshold from the median calculated over those employees only rather than over all employees. Table 5 shows the extent of low pay on this basis for the countries for which it can be derived. This ranges from a low of 10% in Belgium to a high of 30% in Luxembourg. If one thinks in terms of the conventional categorisation into welfare regimes, corporatist counties such as Belgium, France and the Netherlands have relatively low levels of 10-14%, though Austria is higher at 19% and Luxembourg (implausibly?) highest. The UK, sole representative of the Anglo-Saxon regime, and Spain, the only one of the Southern “old” member states covered are in the 17-19% range, as are Slovakia, Slovenia and the Czech Republic, among the more affluent post-socialist countries; Poland and Estonia are higher at 23%, similar to Cyprus, with Lithuania a good deal higher at 27%.

Table 5: Low Pay for Full Time Full-Year Employees

<i>% with annual earnings below 2/3 median</i>	
Austria	19.0
Belgium	10.0
Cyprus	22.0
Czech Republic	17.5
Estonia	22.7
Spain	17.4
France	11.0
Lithuania	26.7
Luxembourg	29.7
Netherlands	14.2
Poland	22.7
Slovenia	18.8
Slovakia	16.0
UK	19.4

Once again it is useful to compare these with the widely-used OECD low pay estimates drawn from national sources. Table 6 has the latest OECD figures for the four countries which are covered both here and in the OECD database, and for which the latter employs annual earnings relating to full-time, full-year employees. (See Appendix Table 2 for a full listing of the countries currently in the OECD database and the earnings concept and coverage on which each is based.) The figures for Poland the UK are similar in the two sources, while the OECD figure for Austria is lower but for France considerably higher than the ones presented here from EU-SILC.

Table 6: Low Pay by for Full Time Full-Year Employees, OECD

<i>% with annual earnings below 2/3 median</i>	
Austria	15.8
France	16.2
Poland	23.5
UK	21.0

We now look at the characteristics of the low paid, via comparison of rates of low pay across genders, age groups and social classes. First, Table 7 shows that low pay rates are substantially higher for women than for men in all the countries covered; rates for

women are often about twice those for men, and the gap is even greater in Cyprus, the Czech Republic.

Table 7: Low Pay by Sex, Full Time Employees

	<i>Men</i>	<i>Women</i>
	<i>%</i>	<i>%</i>
Austria	13.0	29.9
Belgium	7.3	15.4
Cyprus	9.2	38.9
Czech Republic	8.9	28.4
Estonia	12.4	32.8
Spain	11.7	28.0
France	8.5	14.7
Lithuania	25.3	39.2
Luxembourg	21.5	32.2
Netherlands	11.2	24.9
Poland	18.9	27.3
Slovenia	15.7	22.5
Slovakia	9.9	22.8
UK	12.7	29.5

Table 8 shows that the percentage low paid is much higher for those aged under 30 than older workers in most countries. However, this is not the case in the Czech Republic or Lithuania, and in Estonia the percentage low paid is actually considerably higher for workers aged 30 or over.

Table 8: Low Pay by Age Group, Full Time Employees

	<i>18-29</i>	<i>30-44</i>	<i>45-64</i>
	<i>%</i>	<i>%</i>	<i>%</i>
Austria	31.2	15.3	15.0
Belgium	21.0	7.7	4.7
Cyprus	36.2	18.4	16.5
Czech Republic	18.1	15.8	20.1
Estonia	16.0	20.4	32.1
Spain	29.7	14.0	13.2
France	21.3	8.8	7.5
Lithuania	25.5	26.8	27.6
Luxembourg	58.0	24.6	10.5
Netherlands	40.3	8.8	5.2
Poland	36.6	18.7	16.9
Slovenia	28.1	17.1	16.5
Slovakia	18.4	15.8	14.2
UK	32.0	14.7	18.9

Table 9 shows that when three high-level social class groupings are distinguished, workers in the lower service and routine occupations have the highest percentage low paid, and those in the professional and managerial class the lowest, in all countries.

Table 9: Low Pay by Social Class, Full Time Employees

	<i>Professional & Managerial %</i>	<i>Intermediate & Lower Technical %</i>	<i>Lower Service & Routine Occupations %</i>
Austria	7.8	11.5	31.7
Belgium	2.9	8.9	20.2
Cyprus	5.5	11.9	38.6
Czech Republic	4.1	15.1	28.7
Estonia	7.6	19.9	33.7
Spain	4.6	11.1	26.3
France	3.7	9.9	19.3
Lithuania	8.3	22.3	40.5
Luxembourg	8.2	32.2	58.7
Netherlands	5.4	13.2	27.8
Poland	7.0	18.2	36.5
Slovenia	5.8	17.7	28.2
Slovakia	6.7	11.4	24.5
UK	5.9	22.1	38.5

We now employ logistic regression to examine more formally the characteristics associated with low pay and how this varies across countries. We regress the low paid/not dichotomy on sex, age group and social class, and the results are shown in Table 10 in the form of estimated odds ratios. We see that for all countries the odds of being low paid are higher for women than men. For the Northern European countries this is of the order of 2 or 3, rising to above 4 for the UK and Spain. There is considerable variation among the post-socialist countries, ranging from 3 for Poland and Lithuania up to 7.5 for the Czech Republic. Cyprus represents an extreme case with an odds ratio of 10.

For both the Northern and Southern European countries, we see that low pay rates are substantially higher for the 18-29 age group than for older workers, but that gap varies a great deal. The Netherlands and Luxembourg are distinctive with odds ratios of 11-12, whereas for the other countries this ranges between 2.5 and 4.2. Differentials are less sharp for the UK and for a number of the post-socialist countries – rising above 2

only for Poland – while for the Czech Republic and Slovakia age differentials are not significant, and for Estonia low pay is more common among older workers.

Turning to social class, odds ratios (compared with the omitted reference professional and managerial class) are consistently highest for the routine manual class, but these vary widely in scale from 6 to 18. The countries where manual workers are in the worst position, relatively speaking, include Luxembourg, Cyprus, the UK, and the Czech Republic, whereas those where the difference between them and the professional and managerial class are least include Austria, France, and the Netherlands. For the intermediate and lower technical and service class, the odds of being low paid are again consistently higher than for the professional and managerial class, but the scale is much more modest, from about 2 in Austria and France up to 4 in the UK and Cyprus.

Table 10: Logistic Regression of Low Pay on Sex, Age Group and Social Class

	Austria	Belgium	Cyprus	Czech Republic	Estonia	Spain	France	Lithuania	Luxembourg	Netherlands	Poland	Slovakia	Slovenia	UK
	<i>Odds ratio</i>	<i>Odds ratio</i>	<i>odds ratio</i>	<i>odds ratio</i>	<i>odds ratio</i>	<i>odds ratio</i>	<i>odds ratio</i>							
Women	3.225	2.922	10.014	7.599	5.485	4.147	2.172	3.016	2.322	2.162	2.995	4.649	2.667	4.268
18-29	2.526	4.188	3.301	0.914	0.380	2.650	3.273	0.886	10.667	12.047	2.981	1.278	1.648	1.916
30-49	1.137	1.504	1.146	0.702	0.519	1.136	1.250	0.997	2.549	1.8588	1.101	1.010	0.887	0.792
50-63 (ref)														
Professional & Managerial (ref)														
Intermediate & lower technical	1.675	3.524	4.177	2.225	2.545	3.259	2.310	2.540	3.037	2.942	3.051	1.504	2.439	4.413
Lower service & routine occupations	5.680	10.033	17.879	14.836	10.308	9.558	6.1689	10.524	17.766	8.057	10.878	6.734	7.486	13.521
Nagelkerke R	0.209	0.212	0.403	440.1	0.284	0.231	0.151	0.232	0.427	0.173	0.163	0.184	0.302	0.189
Reduction on log likelihood ratio	553.5	359.4	1,083.1	0.170	1.176.2	1,445.4	495.0	684.8	1,160.8	422.9	1.901.6	583.4	1,273.8	1,273.88

4. Low Pay and Income Poverty

Having analysed how many employees, and which ones, are most affected by low pay, we deal in the remainder of the paper with the relationship between low pay for those individuals and economic disadvantage for their households. We focus in this section on relative income poverty risk, which is widely used as a measure of household economic disadvantage, before turning in the next section to a broader concept of economic vulnerability which we have operationalised using data available in EU-SILC. The measure of relative income poverty we employ corresponds to the “risk of poverty” indicator at the core of the EU’s so-called Laeken indicators of social inclusion/exclusion. It is based on annual household income from all sources, equivalised using the “modified OECD” scale to adjust for household size and composition; the threshold below which the household (and all those living in it) is taken to be “at risk of poverty” is the most widely-used one of 60% of median income in the country in question.² The measure of low pay we are concentrating on here is also based on annual earnings, so while this has some disadvantages compared with “current” earnings it has the advantage in the current context that the income concept being used to measure poverty is aligned temporally with the earnings measure being used to capture low pay.

Table 11 shows the overall levels of income poverty for full-time full-year employees, distinguishing those who are low paid (that is, once again, below two-thirds of median annual earnings among full-time full-year workers) and those who are not. We see first that poverty risk for all full-time full-year employees ranges from under 2-3% in Belgium, France, the Netherlands, Slovenia and the UK up to 5-6% in Cyprus, Estonia, Spain, Lithuania and Poland, with Luxembourg an outlier at almost 10%. So in most countries it is quite rare for such employees to be in households below this poverty threshold. Of course, full-time full-year employees are distinctive among all employees, and one would expect their poverty rates to be lower than those employed part-time all year or those in and out of employment during the year. For this reason, the indicators of in-work poverty employed as part of the broader set of Social Inclusion indicators by the EU includes separately the at risk of poverty rate for full-

² Alternative thresholds set at 40%, 50% and 70% of the median are also employed in the EU’s indicators, as are alternative equivalence scales.

time and part-time workers, and for those employed all year as opposed to only part of the year (see Appendix Table 3 below). While part-time workers and those in and out of work during the year face particular challenges, the situation of full-time full-year workers is also of particular interest: if even working full-time for the whole year does not allow them to avoid poverty, it is critical to understand why.

Table 11: Levels of Income Poverty Risk by Low Pay Status, Full Time Employees

	Not Low Paid	Low Paid	All Full-time Full-year Employees
	% at risk of poverty		
Austria	1.6	17.5	4.6
Belgium	0.8	6.9	1.4
Cyprus	3.5	15.1	6.0
Czech Republic	1.6	9.0	2.9
Estonia	1.3	17.3	5.6
Spain	3.7	15.1	5.6
France	1.9	12.7	3.1
Lithuania	1.5	18.2	6.0
Luxembourg	2.4	27.2	9.7
Netherlands	1.1	6.9	1.9
Poland	2.8	16.5	5.9
Slovenia	1.2	8.6	2.6
Slovakia	2.4	14.3	3.9
UK	1.3	9.4	2.8

So how much difference does it make whether the individual earner him or herself is low paid (in terms of annual earnings)? We see from the table that for those who are not low paid, income poverty is a rare phenomenon – the poverty rate for such employees is generally only 1-2%, with only Estonia and Cyprus having rates of about 3.5%. The low paid in each country face a much higher poverty risk - ranging from 7% in Belgium and the Netherlands up to 17-18% in Austria, Estonia and Lithuania, with Luxembourg once again an outlier at 27%. Table 12 shows how these differences translate into relativities in terms of odds ratios. We see that the greatest disparities are found in Austria, Lithuania and Estonia, where the odds of being poor for someone who is low paid are 13-16 times greater than for someone who is not low paid, while for the other countries this figure runs from about 5 to 9.

While this differential is clearly important, at the same time it must be emphasised that most low paid individuals are not in income poverty. In most of the countries

covered, fewer than one in six low paid employees are in poor households. So to explore what distinguishes the minority who are, we look at the way poverty rates vary by gender age and social class for low-paid and other employees.

Table 12: Odds Ratios for Income Poverty Comparing Low Paid with Others, Full Time Employees

	<i>Income Poverty Odds Ratio</i>
Austria	13.3
Belgium	9.3
Cyprus	4.9
Czech Republic	6.1
Estonia	15.6
Spain	4.7
France	7.4
Lithuania	14.2
Luxembourg	15.5
Netherlands	6.7
Poland	6.8
Slovenia	7.4
Slovakia	5.8
UK	8.7

Table 13 shows that, among the low paid, income poverty rates are generally higher for men than women, though in some post-socialist counties there is little difference.

Table 13: Income Poverty By Low Pay by Sex

	<i>Men</i>		<i>Women</i>	
	<i>Not Low Paid</i>	<i>Low Paid</i>	<i>Not Low Paid</i>	<i>Low Paid</i>
	%	%	%	%
Austria	2.1	23.3	0.4	12.8
Belgium	0.9	9.0	0.5	4.9
Cyprus	4.6	18.6	1.3	13.9
Czech Republic	1.9	10.9	1.0	8.2
Estonia	1.2	15.3	1.4	17.7
Spain	4.8	22.1	1.0	9.6
France	2.5	18.7	0.9	7.4
Lithuania	1.2	7.5	0.5	5.3
Luxembourg	1.9	23.0	1.1	14.8
Netherlands	2.6	32.3	1.6	20.3
Poland	3.7	22.1	1.7	11.7
Slovenia	1.5	10.0	0.9	7.3
Slovakia	2.4	14.9	2.3	11.1
UK	1.5	15.1	0.7	5.7

In Table 14 we see that poverty risk for the low paid is generally highest in the 30-49 age group, and lowest in the 18-29 one, though there is some variation.

Table 14: Income Poverty by Low Pay by Age Group

	18-29		30-49		50-64	
	<i>Not Low Paid</i>	<i>Low Paid</i>	<i>Not Low Paid</i>	<i>Low Paid</i>	<i>Not Low Paid</i>	<i>Low Paid</i>
	%	%	%	%	%	%
Austria	0.8	10.7	1.6	19.9	2.1	27.0
Belgium	0.5	3.8	0.9	9.2	0.9	13.3
Cyprus	2.3	13.1	4.2	17.5	2.6	12.2
Czech Republic	0.5	6.6	2.7	12.9	0.3	5.1
Estonia	0.7	12.6	1.5	22.2	1.4	12.9
Spain	2.2	9.9	4.6	19.5	2.0	14.5
France	1.9	11.0	1.9	12.1	2.0	18.4
Lithuania	0.9	17.7	2.0	22.5	2.0	18.4
Luxembourg	0.6	19.0	2.7	33.1	2.4	38.7
Netherlands	1.1	6.8	1.4	5.3	0.0	13.0
Poland	2.6	11.0	3.1	21.9	1.9	12.5
Slovenia	1.2	6.0	1.2	9.8	1.4	8.0
Slovakia	1.0	7.1	3.0	16.5	2.2	7,2
UK	0.8	8.0	1.4	11.1	1.1	8.7

Finally, Table 15 shows that the class pattern is broadly as one would expect, with the highest poverty risk for low paid employees from the lower services and routine manual occupations, and lowest poverty risk for professionals and managers – though the latter face high poverty rates in Austria and Luxembourg. (Going beyond such individual characteristics, household composition, the presence or absence of other earners, and the tax and benefit systems are known to play a key role in in-work poverty but are beyond the scope of the present paper.)

Table 15: Income Poverty by Low Pay by Social Class

	Professional & Managerial		Intermediate & Lower Technical		Lower Service & Routine occupations	
	<i>Not Low Paid</i>	<i>Low Paid</i>	<i>Not Low Paid</i>	<i>Low Paid</i>	<i>Not Low Paid</i>	<i>Low Paid</i>
	%	%	%	%	%	%
Austria	0.4	25.2	2.0	12.7	3.3	18.4
Belgium	0.4	2.4	1.0	0.0	1.9	11.2
Cyprus	0.7	2.9	3.6	7.9	9.0	20.5
Czech Republic	0.4	4.2	0.7	8.2	3.0	10.2
Estonia	0.8	7.6	0.9	17.9	1.9	18.0
Spain	0.6	10.8	3.9	23.8	6.6	16.1
France	0.8	11.0	1.9	11.8	3.4	14.1
Lithuania	0.3	4.3	1.1	3.7	2.6	21.1
Luxembourg	0.5	17.9	6.0	26.1	6.8	30.0
Netherlands	1.0	4.6	1.3	0.0	1.4	8.5
Poland	0.4	7.6	4.6	14.4	5.9	19.0
Slovenia	0.4	3.4	4.6	14.4	5.9	19.0
Slovakia	1.0	10.5	4.3	15.8	3.8	12.3
UK	0.4	11.7	4.1	8.0	2.0	11.1

5. Low Pay and Economic Vulnerability

We now turn to a more encompassing measure of household-level economic disadvantage, which we term “economic vulnerability”. A number of related debates have focused attention on the limitations of relative poverty measures based solely on a national income. These relate to the extent to which such unidimensional approaches can capture the multidimensional nature of social exclusion (Nolan and Whelan, 2007), and to the relevance of applying purely country-specific standards of reference across countries at very different levels of average income (highlighted by the much wider variation in income per head across the EU post-Enlargement, see e.g. Fahey, 2007.). Vulnerability is a concept which is now being employed in a variety of settings, for example by the World Bank and other multilateral organisations, and has some appeal in this context. Following Chambers (1989), vulnerability can be defined as not necessarily involving current deprivation but rather insecurity and exposure to risk and shock. It can be seen as implicitly involving a multidimensional and dynamic perspective that is consistent with the notion of social exclusion as a process rather than simply an outcome. As Moisio (2004) notes, implicit in the notion of multi-dimensional measurement of exclusion is the assumption that there is no one ‘true’

indicator of the underlying concept. Instead one has a sample of indicators that tap different aspects of a complex phenomenon. A multidimensional approach to the operationalisation this concept using latent class analysis has been developed and implemented in earlier work (for example Whelan and Maître, 2005a and b), and is employed here.

In applying latent class analysis, each of a set of indicators is taken as an imperfect measure of the underlying latent variable economic vulnerability. Here we use as indicators

- 1) whether the household is below a relative income poverty threshold,
- 2) whether it scores above a threshold (of three or more out of 7 items) on a deprivation index of everyday consumption items, and
- 3) whether it reports that it would not be able to cope with unanticipated expenses.

The objective is to identify groups who are vulnerable in the sense of distinctive in the risk of falling below a critical resource level, being exposed to consumption deprivation and experiencing subjective economic stress. While the income aspect of this vulnerability measure is relative in the sense of being framed vis-à-vis the median for the country in question, the same deprivation items and threshold are used in all the countries. Thus it can be seen as “quasi-relative”, incorporating both differences in absolute living standards and in within-country relativities, which may be an advantage in capturing the complexity of poverty and exclusion in the enlarged EU.

Table 16: Levels of Economic Vulnerability by Low Pay Status for Full Time Employees

	<i>Economically Vulnerable</i>		<i>All Employees</i>
	<i>Not Low Paid</i>	<i>Low Paid</i> %	
Austria	5.4	14.0	7.0
Belgium	3.3	10.1	4.0
Cyprus	23.4	45.2	28.2
Czech Republic	9.6	26.0	12.5
Estonia	3.3	22.9	7.8
Spain	7.7	20.2	9.9
France	5.9	15.9	7.0
Lithuania	11.7	37.0	18.5
Luxembourg	0.6	10.4	3.5
Netherlands	2.7	5.8	3.2
Poland	22.0	48.8	28.1
Slovenia	6.9	19.6	9.3
Slovakia	16.5	36.8	19.8
UK	4.2	13.3	6.0

We see that the overall level of economic vulnerability for all (full-time full-year) employees run from 3-4% in Belgium, Luxembourg and the Netherland all the way up to 28% in Cyprus and Poland. Levels of economic vulnerability are higher than income poverty (except in Luxembourg), but the divergence is much greater in some countries than in others – with the percentage vulnerable being 1.5 or 2 times the poverty rate in countries such as Austria, Estonia, Spain, the Netherlands and UK, but as much as 4 times in Cyprus, Czech Republic, Poland, Slovenia and Slovakia.

Focusing now on the distinction between low paid and other employees, we see that the former are more likely to be in economically vulnerable households in all countries. However, the impact of being low paid on vulnerability is both considerably weaker and more uniform across countries than was the case for income poverty (as comparison with Table 10 above brings out). The low paid in the new member states of the EU generally face much higher rates of economic vulnerability than those in the more affluent countries, with more than two-thirds of the low paid in Lithuania and Slovakia, and almost half those in Poland, in vulnerable households.

Table 17: Odds Ratios for Economic Vulnerability by Low Pay, Full Time Employees

	<i>Economic Vulnerability Odds Ratio</i>
Austria	2.9
Belgium	3.3
Cyprus	2.7
Czech Republic	3.3
Estonia	8.6
Spain	3.0
France	3.0
Lithuania	4.4
Luxembourg	18.1
Netherlands	2.2
Poland	3.4
Slovenia	3.3
Slovakia	2.9
UK	3.5

It is still the case that in most countries only a minority of the low paid are in vulnerable households, so once again we want to know what characteristics are associated with a higher or lower probability of being in that situation. Table 18 shows that the proportion vulnerable is generally higher for men than women, as was true of income poverty, but the differences now are mostly modest.

Table 18: Economic Vulnerability By Low Pay by Sex

	<i>Men</i>		<i>Women</i>	
	<i>Not Low Paid</i> %	<i>Low Paid</i> %	<i>Not Low Paid</i> %	<i>Low Paid</i> %
Austria	5.4	14.9	5.4	13.4
Belgium	3.1	13.9	3.8	6.6
Cyprus	26.7	55.9	17.9	41.9
Czech Republic	11.0	28.2	7.3	25.1
Estonia	2.8	20.6	4.0	23.7
Spain	9.3	25.8	4.2	15.7
France	6.4	16.2	5.5	15.4
Lithuania	11.2	38.9	12.4	35.7
Luxembourg	0.7	11.8	0.7	8.4
Netherlands	2.9	8.1	2.5	2.3
Poland	24.5	53.9	18.7	44.4
Slovenia	8.2	19.5	5.3	19.6
Slovakia	17.9	39.2	14.8	35.7
UK	14.8	35.7	3.9	16.7

Table 19 looks at variation across age groups, and we see that economic vulnerability is most often highest for the 30-49 age category, but the variation across age groups is once again rather more limited than it was in the case of income poverty.

Table 19: Economic Vulnerability by Low Pay by Age Group

	18-29		30-49		50-64	
	<i>Not Low Paid</i>	<i>Low Paid</i>	<i>Not Low Paid</i>	<i>Low Paid</i>	<i>Not Low Paid</i>	<i>Low Paid</i>
	%	%	%	%	%	%
Austria	7.3	12.5	5.1	15.6	4.3	13.2
Belgium	3.4	5.7	3.2	14.7	3.6	10.3
Cyprus	32.4	47.2	22.1	44.4	19.6	43.1
Czech Republic	11.1	19.8	10.8	32.2	5.7	21.5
Estonia	3.2	21.6	3.6	26.0	3.0	19.7
Spain	7.3	22.1	8.2	19.6	6.8	16.8
France	7.3	22.1	5.7	18.5	5.3	14.9
Lithuania	15.4	45.5	11.1	35.5	9.8	34.4
Luxembourg	1.3	7.5	0.4	12.6	1.0	14.5
Netherlands	1.4	2.7	2.8	6.1	3.6	30.4
Poland	22.3	45.4	21.7	50.7	23.1	51.8
Slovenia	8.6	16.5	6.8	20.7	6.1	20.2
Slovakia	21.1	34.9	15.8	37.5	14.1	37.3
UK	7.3	17.8	4.2	11.7	2.2	9.8

Finally, Table 20 focuses on social class. As one would expect, low paid employees from the lower service and routine manual occupations are more likely to be in vulnerable households than those from other social classes, though the differences are sometimes rather modest.

Table 20: Economic Vulnerability by Low Pay by Social Class

	<i>Professional & Managerial</i>		<i>Intermediate & Lower Technical</i>		<i>Lower Service & Routine occupations</i>	
	<i>Not Low Paid</i>	<i>Low Paid</i>	<i>Not Low Paid</i>	<i>Low Paid</i>	<i>Not Low Paid</i>	<i>Low Paid</i>
	%	%	%	%	%	%
Austria	2.0	7.3	3.7	7.8	11.5	16.6
Belgium	1.4	0.0	2.6	4.8	7.8	15.6
Cyprus	9.1	30.0	20.8	40.1	48.6	50.0
Czech Republic	3.6	19.4	7.5	18.8	15.9	27.8
Estonia	2.4	15.9	3.7	16.3	4.1	25.2
Spain	2.1	12.0	5.8	14.2	12.9	23.2
France	2.3	10.9	5.6	15.1	10.4	16.1
Lithuania	5.4	24.1	12.8	14.3	17.6	41.1
Luxembourg	0.3	6.7	0.0	9.0	2.7	11.4
Netherlands	1.8	4.6	2.0	5.7	6.1	6.8
Poland	9.6	26.7	20.2	36.1	37.3	54.9
Slovenia	2.5	5.7	7.4	15.3	12.6	24.7
Slovakia	8.3	25.7	13.5	30.1	24.7	40.5
UK	2.7	11.1	4.5	9.4	7.8	16.0

6. Conclusions

This paper has sought to exploit the availability of data recently produced from the EU-SILC data-gathering exercise, which covers the enlarged European Union of 27 countries plus Norway and Iceland. As well as its potentially much broader coverage of countries than was previously available, this source allows that the relationship between low pay and the measures of household poverty used in monitoring the EU's social inclusion process can be studied directly. However, the earnings data available at present was found to have serious limitations: current hourly earnings was only obtained for a minority of the member states, while at present annual earnings can only be linked to labour force activity status throughout the year for about half.

The paper then concentrated on a measure of low annual earnings for those who were full-time employees throughout the year, for the fourteen countries for which this could be constructed. While excluding part-time workers and those in and out of work during the year, who are more likely to experience poverty, if even working full-time for the whole year does not allow some people to avoid poverty, it is critical to understand why. We found that the percentage of these employees low paid – using the conventional two-thirds of median threshold - varied from 10% up to 30%. In

terms of the welfare regimes, corporatist countries such as Belgium, France and the Netherlands had relatively low levels of 10-14%, though Austria and Luxembourg were higher. The UK, from the Anglo-Saxon regime, and Spain, from the Southern one, were in the 17-19% range, as were some of the more affluent post-socialist countries, while Poland, Estonia and Lithuania, as well as Cyprus, were higher.

Cross-tabulations and logistic regression showed that in most cases the likelihood of being low paid was higher for women than men, for the 18-29 age group than for older workers, and for the routine manual class. However, there was considerable variation across countries in the size of the gap between genders, age groups and social classes.

Looking at the relationship between low pay and household poverty using the most widely-employed relative income poverty threshold, we found that for employees who are not low paid, income poverty is a rare phenomenon – with their at risk of poverty rates generally of the order of 1-2%. The low paid in each country face a much higher poverty risk - ranging from 7% in Belgium and the Netherlands up to 17-18% in Austria, Estonia and Lithuania, with Luxembourg an outlier at 27%. The greatest difference between the low paid versus other employees in this respect were for Austria, Lithuania and Estonia, but even for the remaining countries the low paid were between 5 and 9 times as likely to be in households below the income threshold. Despite that, most low paid individuals were not in income poverty, and this was seen to be linked to gender, age and social class. Factors at household level, to do with household composition and the presence or absence of other earners, are known to play a key role in in-work poverty but were not the focus of the present paper.

Finally, the relationship between low pay and the broader concept of economic vulnerability was analysed, and usefully complemented the conventional income-based poverty measure in assessing household circumstances. While in most countries only a minority of low paid individuals were in vulnerable households, this minority was considerably larger than the proportion at risk of poverty, especially in the new EU member states; the structuring of vulnerability was also seen to be associated with gender, age and social class, though these relationships appeared more attenuated than was the case for income poverty risk.

In developing the comparative analysis of low pay and in-work poverty in Europe data from EU-SILC will clearly play a central role. This will require, in the first instance, that the data issues highlighted here are addressed, so that the full span of countries can be included. One approach to be explored to distinguish full-time full-year employees, where the full activity calendar is not available, is to rely on responses on the number of months of full-time work in the year - though this includes both time spent as an employee and self-employed. If annual earnings are to be the central focus, one will also want to incorporate into the analysis of part-time workers and, with more difficulty, of those who are in work for only part of the year - entailing in-depth analysis of “low pay-no pay” processes and how they impact on individual and family income. Finally, household-level factors such as number of dependants, the presence or absence of other earners, and social protection and taxes/social insurance contributions will have to be integrated into the analysis using this source.

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Appendix Table 1: Percentage of Employees with Hourly Earnings Below Two-thirds of the Median, ECHP, mid-1990s

<i>ECHP All Employees</i>	
	%
Austria	13.2
Belgium	11.2
Denmark	11.0
Finland	9.0
France	15.7
Greece	15.5
Ireland	24.7
Italy	9.0
Luxembourg	21.5
Portugal	16.6
Spain	22.2
United Kingdom	20.0

Source: Nolan et al (2000), Table 16.

Appendix Table 2: Percentage of Employees with Earnings Below Two-thirds of the Median, OECD, 2004-06

	<i>% Low Paid</i>	<i>Year</i>	<i>Earnings Concept and Employee Coverage</i>
Australia	15.23	2006	Gross weekly earnings in main job (all jobs prior to 1988) of full-time employees
Austria	15.79	2006	Yearly gross income (excluding casual payments) for full-year employees working full-time
Canada	22.17	2006	Gross weekly earnings distribution for full-time workers.
Czech Republic	..		Gross monthly earnings of full-time, full-year employees
Denmark	11.89	2006	Gross hourly earnings of all workers.
Finland	6.91	2005	Gross annual earnings of full-time, full-year workers.
France	..		Net annual earnings of full-time, full-year workers
Germany	17.54	2005	Gross monthly earnings of full-time workers
Hungary	23.11	2006	Gross monthly earnings of full-time employees
Ireland	21.2	2006	Gross weekly earnings of full-time employees.
Japan	16.07	2006	Scheduled gross, monthly earnings of regular, full-time employees
Korea	24.46	2006	Gross monthly cash earnings, including overtime and bonuses of full-time regular workers
Netherlands	..		Gross annual earnings of full-time, full-year equivalent workers
New Zealand	14.51	2006	Gross weekly earnings of full-time employees.
Norway	..		Gross monthly earnings for full-time workers
Poland	23.5	2004	Gross monthly earnings of full-time employees
Spain	16.2	2002	Gross annual earnings of full-time employees
Sweden	6.4	2004	Gross annual earnings of full-year, full-time workers.
Switzerland	1.47	2006	Net monthly earnings of full-time workers
United Kingdom	21.0	2006	Gross weekly earnings of all full-time workers on adult rates of pay
USA	24.22	2006	Gross usual weekly earnings of full-time workers aged 16 +.

Source: OECD STAT, June 2009

Appendix Table 3: Percentage of Employees with Annual Earnings Below Two-thirds of the Median, EU-SILC, 2006

	Worked Full Year	Worked Less than Full Year
	% at risk of poverty	
Austria	6	11
Belgium	4	12
Bulgaria	5	13
Cyprus	7	13
Czech Republic	3	8
Germany	5	10
Denmark	4	7
Estonia	7	18
Spain	10	13
Finland	4	9
France	6	11
Greece	14	19
Hungary	6	19
Ireland	5	12
Italy	9	18
Lithuania	9	22
Luxembourg	9	28
Latvia	11	20
Malta	4	6
Netherlands	4	10
Poland	12	20
Portugal	11	14
Romania	18*	27*
Sweden	7	20
Slovenia	4	13
Slovakia	6	12
UK	7	26

Source: Eurostat website data on income and living conditions

* 2007