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Reconciling Workless Measures at the Individual and Household Level: Theory and Evidence from the United States, Britain, Germany, Spain and Australia

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Abstract

Individual and household based aggregate measures of worklessness can, and do, offer conflicting signals about labour market performance. We outline a means of quantifying the extent of any disparity, (polarisation), in the signals stemming from individual and household-based measures of worklessness and apply this index to data from 5 countries over 25 years. Built around a comparison of the actual household workless rate with that which would occur if employment were randomly distributed over household occupants, we show that in all the countries we examine, there has been a growing disparity between the individual and household based workless measures. The polarisation count can be decomposed to identify which household groups are exposed to workless concentrations and can also be used to test which individual characteristics account for any excess worklessness among these household groups. We show that the incidence and magnitude of polarisation varies widely across countries, but that in all countries polarisation has increased. For each country most of the discrepancies between the individual and household workless counts stem from within-household factors, rather than from changing household composition.

Keywords: Workless households, Inequality, Distribution of work, Polarisation, Worklessness
JEL Classifications: C0, J0, J6

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"The past is a foreign country: they do things differently there."

L.P. Hartley, '*The Go-Between*,' (1953)

1. Introduction

The analysis and examination of most labour market data relies on information collected on individuals, which is then aggregated to cover a population of interest. Unemployment and non-employment rates are constructed in this way. Other social indicators however, such as poverty and inequality, are typically based on household level data. Gregg and Wadsworth (1996, 1998) first noted that workless signals based on individual compared to household levels of aggregation can be quite different and that the pattern of employment in certain OECD countries had become increasingly unevenly distributed across working age households. Since then, the UK government, (for example, Labour Market Trends 2003), the OECD, (OECD, 1998, 2002) and European Union, (European Commission, 2001, Eurostat, 2003) have all begun to include household based workless information among their key indicators of labour market performance and social exclusion.

The household circumstances of workless individuals are clearly important. Households lacking any wage income will be more likely to be dependent on welfare payments and more likely to be poor. This in turn has implications for the scale of government welfare finance for a given level of employment. OECD (2001) shows that workless household rates are far more highly correlated with non-pensioner poverty across countries than individual based unemployment or employment rates. Dickens and Ellwood (2002) show that household-level employment patterns help explain how Britain combines unemployment at just over 5 per cent, currently the lowest in any G7 country, with high levels of poverty and inequality amongst the working age population, especially among families with children, a point echoed by Nickell (2003). Jimeno et al. (2000), see rising

numbers of multi-earner households as a principal cause underlying recent rising inequality in the distribution of labour income across Spanish households.

Whilst the growth in the numbers of workless households in many countries is now undeniable, little is known about the extent of divergence between household and individual based workless measures and why this relationship may have changed over time. Over the last twenty years, the share of single adult households in many countries has risen and this will mean a greater likelihood of both fully employed and no work households at any given employment level, other things equal. This raises an important issue for policy-makers, since the solution to the growing problem of workless households will differ depending on the cause. If rising workless household rates stem largely from a move towards smaller households, then there is a need to understand the processes that underlie household formation and dissolution. Conversely, if there are trends toward a more unequal division of the work that exists within household types, then policy makers need to be aware of the reasons why jobs are going disproportionately to households already benefiting from earned income.

To address these issues, we derive and apply a simple set of indices to 5 OECD countries with differing levels of employment, family structure and welfare support over a twenty-five year period. The indices quantify the extent of any discrepancy between individual and household measures of worklessness and, importantly, can be decomposed so as to identify both the main sources of any changes in these indices over time and the individual characteristics that may account for any excess worklessness among these household groups. Built around a comparison of the actual household workless rate with a counterfactual rate that would occur if work were randomly distributed over the working age population, we show that there is a growing “polarisation” of work across households in each country. This means that work is increasingly unevenly distributed at any given employment

rate. The increase in polarisation is most marked in the UK, Spain and Australia and lowest in the US and the western part of Germany. This increased polarisation does not appear to be driven by changes in household composition. We then examine how much polarisation can be accounted for by allowing the counterfactual predictions conditional on gender, age, education and regional characteristics of individuals and their interaction within households.

Section 2 sets out the basic facts about individual and household based workless measures in the 5 OECD countries. Section 3 considers formally why such divergences can arise and defines a set of household based measures of worklessness and polarisation. Section 4 decomposes the change over time into the various components which offer insights into the nature of the observed polarisation. Section 5 outlines differences in institutional frameworks across countries that may help shed light on the results. Section 6 sets out some conclusions and discusses the policy implications of these findings.

2. Household Employment Patterns

We begin with a simple outline of the existing facts on household based measures of employment. Most national surveys designed to elicit information on individuals also contain household identifiers. This is true of the Spanish and UK Labour Force Surveys, (LFS), the USA Current Population Survey, (CPS), and the smaller Australian Survey of Income and Housing Costs (or earlier Income Distribution Surveys) (IDS)[1] and German Socio-Economic Panel, (GSOEP). The data can only cover the former West Germany over the full time period and so all references to Germany here apply only to the Lander of the old West Germany. We count the number of adults employed and non-employed according to ILO/OECD definitions in each household for each year and for each country. A workless household, in our definition, is observed when all the adult occupants of working age are out of work. Similarly, an "all-work" household occurs when all adult occupants are in work. We confine our estimates to the population of working age[2], exclude full-time students and all households

with a head above retirement age, to try and reduce the effects of any changes in educational participation and state legislated retirement on our results. Since we are interested primarily in the diverging signals emanating from the individual and household non-employment rates, we make no initial distinction between ILO unemployed and ILO inactive, though this is discussed in section 5 below.

Tables 1a-c and Figure 1 contrast the trends in non-employment based on household and individual units of aggregation from 1977 onward. To illustrate our central concern, note that the share of British and Spanish households where no adult works roughly doubles, to 17% and 13 % respectively, between 1977 and 2000, (Table 1a), whilst the individual based non-employment rates in the year 2000 are at or below the levels observed in the mid-seventies, (Table 1c). In Germany and Australia, the individual based non-employment rates fall during the eighties, but the household based rates rise. In the U.S.A., the 2000 workless household rate was similar to that observed in the late seventies, but the individual-based non-employment rate fell by six percentage points over the same period. It seems clear that household and individual based measures of worklessness emit very different signals about labour market performance.

Table 1b also documents a contemporary rise in the proportion of households where every one is in work. Households containing a mixture of working and non-working adults, (the omitted group), are in secular decline in every country we study. In all countries the share of mixed-work households has fallen sharply, typically by between fifteen and twenty points. In all countries except the US, the share of households where everyone works has risen alongside the share of workless households, whereas in the US however, the decline in the share of mixed work households has been accompanied only by a rise in the share of all-work households. Policy makers are likely to be non-neutral as to whether there are more workless or “all-work” households. Workless households are highly likely to be dependent on

welfare payments, to be living in poverty and have attendant social problems. In what follows we focus disproportionately on workless households for these reasons[3].

Household structure differs markedly across countries, (Table 2). Workless rates also vary considerably by household size. The more adults present, the lower the risk of worklessness. The relative workless differentials between household types however, differ across countries. Single adult households in Britain, Australia and Spain are relatively much more likely to be out of work than similar households in Germany and the U.S. The share of single adult households in Spain is noticeably much lower than elsewhere and Spain has more 3+ adult households than other countries. Single adult households are increasingly common in all countries, most of all in Britain and Germany. These patterns will be important for section 4 where we decompose the change in workless household rates over time.

3. Defining Polarisation

Given the above observations, we wish to measure the extent of divergence between the individual and household based workless rates and to decompose and assess the reasons for any discrepancy. Consider a simple world of 2 households each containing 2 adults and a non-employment rate in the population of 50%. The world in which one adult is out of work in each household is very different from the world in which both adults work in one household and no one works in the other. Yet the individual-based aggregate non-employment rate in the population is the same, and so is unable to distinguish between the two outcomes.

Gregg and Wadsworth (2003) propose the use of a counterfactual household benchmark, namely the workless household rate that would occur if jobs were randomly distributed in the population. Why use equally distributed employment probabilities as a benchmark? The notion of this as the line of pure equality has intuitive appeal, like the benchmark used in the Lorenz curve. The idea is also consistent with Atkinson's (1970)

equally distributed equivalent income and so fits within a (concave) Social Welfare function framework on which to base a benchmark. It also has parallels with the information theoretic entropy benchmark used in the Theil indices of inequality. In our case, "maximum entropy" is obtained by everyone having the same employment probability. Gregg and Wadsworth (2003) provide more discussion of the issues and the statistical properties of the measures presented here. Under this counterfactual mean-preserving spread, the aggregate individual non-employment rate would remain as observed but every individual would have the same probability of being out of work, which is simply the aggregate non-employment rate in the population at time t,

$$n_t \Leftrightarrow E[n_i / n, t] = n_t , \quad \forall i$$

Existing indices of inequality tend to ignore the link between individuals and households. In our case, given an individual counterfactual, it follows that the counterfactual workless rate, w_h, for every *household* h with i adults at time t is then given by: $E[w_h / i , n, t] = n_t^i$ (1)

Ignoring time subscripts, the aggregate counterfactual workless household rate is then the weighted average of these rates, where the weights are the shares of each household type, s_i, and type is, in this instance, defined by the number of resident adults – though type could refer to any readily identifiable household grouping in the population.

$$\hat{w} = \Sigma_i s_i n^i \qquad (2)$$

We define polarisation as the difference between the actual and predicted workless household rates[4]; the extent to which there are more (or fewer) workless households than would be predicted by a random distribution of employment across individuals.

$$P(w, s_i, n) = w - \hat{w} = \Sigma_i s_i w_i - \Sigma_i s_i n^i = \Sigma_i s_i (w_i - n^i) \qquad (3)$$

This gives a cardinal measure, in percentage points, of the diverging signals from household and individual-based workless statistics. If work is randomly distributed then the predicted

and actual workless household rates are identical and the polarisation rate will be zero. A positive value indicates that work is distributed either within or across household types such that there is an "excess" of workless households. The larger the value, the greater the extent of polarisation. A negative value indicates that work is distributed such that there are fewer workless households than merited by a random draw.

We can also calculate a relative measure of polarisation using the ratio of the actual and predicted rates, $w/\hat{w}$. In this case, a value of one would indicate no polarisation, values above one give the proportionate excess deviation of the workless household rate above the norm, values below one give the proportionate deviation below the norm. We have no reason to favour the absolute or relative version, so in what follows we present estimates from both specifications. Normalising the polarisation measures to try and take account of variation in employment over the economic cycle, by dividing the absolute polarisation index by the non-employment rate, n, in each year, gives $(w-\hat{w})$/n. This measure is still centred around zero, but the normalisation now makes the measure scale invariant, which facilitates comparisons across times and across countries with different non-employment rates[5]. We compute standard errors for all these statistics using the bootstrap method[6].

Gregg and Wadsworth (2003) show that the individual and household non-employment rates need not move at the same rate or in the same direction over time. The workless household rate will rise if jobs are disproportionately lost in single rather than multiple adult households. Also, if job creation is skewed toward households with workers already present, then whilst the individual non-employment rate will fall, there may be little impact on the workless household rate. So changes in the polarisation index depend on how unevenly work is distributed among multi-adult households and on whether single adult households are losing work relative to multi-adult households[7].

Decomposition of Polarisation

In order to explore the source of any disturbance we need to decompose changes over time in both the actual workless household rate and the polarisation count. Using a shift-share breakdown, we decompose the change in polarisation between period 1 and 0 as[8]

$$\Delta(w-\hat{w}) = \Sigma_i \Delta s_i(w_i - n^i)$$

$$= \Sigma_i \Delta s_{i*}[0.5(w_i - n^i)^0 + 0.5(w_i - n^i)^1] + \Sigma_i \Delta(w_i - n^i)*[0.5\, s_i^0 + 0.5\, s_i^1] \quad (4)$$

where the first term is the between household type component, the second term measures the within household type component. Any change in polarisation is therefore due to shifts in household structure towards family types who tend to have lower employment probabilities, (term 1), or to employment opportunities worsening amongst all family types, (term 2). Term 2 can be decomposed further so as to identify the contribution of each household to the within household component. Since the actual rate equals the predicted plus residual polarisation a similar shift-share breakdown of the change in the workless household rate gives:

$$\Delta w = \Delta \hat{w} + \Delta(w - \hat{w}) = \Sigma_{i.} \Delta_i\, s_i\, n^i + \Sigma_i \Delta_{i.} s_i(w_i - n^i)$$

$$= \Sigma_i \Delta_{i.} s_{i*}[0.5\, n^{i\,0} + 0.5\, n^{i\,1}] + \Sigma_i \Delta_i\, n^i *[0.5\, s_i^0 + 0.5\, s_i^1]$$

$$+ \Sigma_i \Delta_{i.} s_{i*}[0.5(w_i - n^i)^0 + 0.5(w_i - n^i)^1] + \Sigma_i \Delta_{i.}(w_i - n^i)*[0.5\, s_i^0 + 0.5\, s_i^1] \quad (5)$$

The 1st term gives the contribution of the change in the predicted rate due to changing household shares, the 2nd the change in the predicted rate due to changing non-employment rates, the 3rd between group polarisation and the 4th term within group polarisation.

Cross-country counterfactuals

Given the above, we can also predict a country's workless household/polarisation rate given another country's a) household composition b) non-employment rate. This can be done by adapting the workless household identity used in (5), in one of four ways. For example,

$$\hat{W}_j^{k1} = \Sigma_{i.} s_{ij}\, n^{ik} + \Sigma_{i.} s_{ij}(w_{ij} - n^{ij}) \quad (6)$$

gives the predicted workless household rate in country j, using country k non-employment and the values for every other component of country j, (household shares and polarisation). The components taken from the alternative country can be varied singularly or cumulatively.

Decomposition by Individual Characteristics

It could be argued that household occupants may have common characteristics, such as lower levels of educational attainment, that could make them more likely to experience worklessness simultaneously and that this might help explain any observed polarisation. To address this issue, the counterfactual non-employment rate in equation (1) can be assigned instead by the mean non-employment rate of sub-groups disaggregated according to characteristics known to affect the probability of employment, $E(n_i /X) = n_x$, so that the counterfactual workless household rate now equals the product of the i individual probabilities for each household occupant, $E[w_h^X / i , n, X] = \Pi_{i=1}^{i} n_{Xi} = w_{xi,}$. This clarifies whether polarisation occurs because either (a) multi-adult household occupants have common characteristics which affect the chances of working or (b) single adult households have relatively more of the characteristics associated with low employment probabilities.

As the degree of disaggregation increases, then the predicted and actual rates will tend to converge. The extent of disaggregation is, of course, arbitrary so in what follows we choose the major factors over which employment is known to vary: gender, age, qualifications and region. This "conditional" polarisation measure now becomes:

$$P(w, s_i, n, X) = \Sigma_i s_i w_i - \Sigma_i s_i w_{xi} = \Sigma_i s_i (w_i - w_{xi}) \quad (7)$$

Any difference from the measure introduced in (3) is attributable to variation in employment between the sub-groups conditional on the observed X in (7). Any residual within-group polarisation would suggest that workless households occur because all members of certain households suffer reduced access to work relative to others with similar characteristics. The conditional non-employment probabilities can be estimated non-parametrically using cell-

based sample non-employment means or by parametric regression.

4. Results

We first measure polarisation in the 5 countries based on equation (3). In Table 3 we present results for the years 1977, 1984, 1990 and 2000, which cover the start and end of the data in each country. The bootstrapped standard errors suggest that changes in the (absolute) polarisation count of more than 0.2 percentage points are likely to be statistically significant in Britain, Spain and the U.S., whilst changes in the order of a half to one point are significant in the, smaller, Australian and German data. Figure 3 plots the estimates over the entire sample period. All countries, except Australia, exhibit negative polarisation at the start of the respective periods, although this is more marked in Spain than elsewhere. Negative polarisation of work is consistent with theories of the gender division of non-work and work time (see for example Danziger and Katz, 1996, Francois, 1998). Added worker theory suggests that the presence (absence) of an employed adult in a household would reduce (raise) the labour supply of other occupants, (see Cullen and Gruber 2000). This means higher employment among single adult households but also fewer fully employed households, other things equal, and again is consistent with a negative polarisation count.

Polarisation in Spain remains negative throughout the period, though the count increases significantly toward zero. However, in other countries the polarisation count becomes positive over time. Whilst all countries show increased polarisation against all the benchmarks shown, the largest rises in any of the absolute, standardised and relative measures occur in Britain, Spain and Australia. As a result, polarisation levels in 2000 are highest in the UK and Australia at 6.1 and 4.8 points respectively. On the relative measure these values equate to workless household rates in 2000 that were, respectively, 55% and 44% higher than the counterfactual prediction. All the measures confirm that the bulk of the change in polarisation had occurred by the late eighties, except in Germay where the rise has

been more recent. The US experienced a fall in polarisation in the late 1990s.

Figure 3 also tracks the measure of polarisation over time alongside the workless household rate. There is little evidence of any cyclicality in the estimates of polarisation over time, except in Britain. In Spain, polarisation rises during the 1990's despite a recovery in the workless household rate. The use of the absolute, normalised or relative polarisation measures makes little difference to the trends over time, but may have some impact on the turning points in the data, (see Figure A1). All subsequent results use the absolute measure, but the estimates are similar using the other measures[9].

Explaining Polarisation

Improvements in aggregate employment rates, observed to a greater or lesser extent in all countries between beginning and end sample points, should have led to less workless households, whilst the shifts in household structure toward more single adult households should have produced more workless households, other things equal. Table 4 decomposes the change in workless household rates over the sample period into that due to changes in household structure, the aggregate employment rate and the contribution of within and between household group polarisation using (5). Column 2 gives the actual percentage point increase in the workless household rate; column 3 is the predicted increase due to the combined effect of changes in employment rates and shifts in household composition, (these effects are then separated); column 6 reports the percentage point increase in polarisation, which is then decomposed between and within household types. The within-household component is then split into the contribution due to each household type.

Table 4 shows that the impact of changes in household structure over time is similar across countries, (column 4). The U.S. has the smallest predicted rise in workless households due to changes in household composition at 1.8 percentage points and Germany the highest at 3.3 points. However in each country, the polarisation measure is substantially larger than the

predicted component and specifically more polarisation *within* household types, (column 7), rather than from shifts toward household types who already suffer high polarisation, (the between household component of polarisation in column 6).

Except for Germany, changing household shares make a smaller contribution than (within group) polarisation, to the generalised growth in workless households for given employment levels. This suggests, to us, that explanations for these changes lie instead in the workings of the labour market and its interactions with given household structures.[10] Britain is different from the other countries in that polarisation there has risen most within single adult households. Only 30% of all polarisation in Britain is within 2 adult households, (columns 8 to 10). In all other countries, 2 adult households account for two thirds or more of the polarisation. Interestingly, the single adult share in Britain rises most after 1990, when polarisation for this group starts to fall. In the 1990's, polarisation becomes more of a problem amongst multiple adult households in Britain. Among two adult households, within group polarisation is highest for Spain at 3.7 points and then at similar levels across other countries. Although Australia's high polarisation rate is largely attributed to within 2 adult households, the "excess" of joblessness among single adult households is a shared attribute with Britain, which is absent in the other countries.

Using other country household shares and non-employment rates, Table 5 gives counterfactual workless household rates, based on (6), for Britain, the country with the worst workless household rate and polarisation. The contributions of the donor country components are entered cumulatively in the table. We compare Britain with the US, as this is the country with the lowest workless household rate, and Spain since it differs most in household structure and employment levels. It is perhaps not surprising that when Spanish household shares are used, with correspondingly fewer single adult households, the predicted workless household rates for Britain are much smaller than the actual outturn. Higher Spanish non-

employment rates then more than offset this effect, (column 2). Perhaps less obviously, when US household shares or employment levels are used, the predicted rates are little changed. However, Spanish or US within group polarisation levels would substantially reduce the workless household rate in Britain, (column 4). If Britain had all US characteristics other than within household type polarisation, this would only move the UK 1.8 points toward removing the 6.3 point difference in workless households.

Conditional Polarisation

We next relax the assumption of a random distribution of work and predict household employment probabilities according to the characteristics of the individuals that comprise them using (7). Given the gender composition of the household, for example, we can assign the gender-specific non-employment rate to each member of the household and take the product to obtain a revised household workless probability. This allows us to assess how much the characteristics known to be associated with differential individual employment probabilities - gender, region, age and education – can account for polarisation of work across households. To facilitate cross-country comparisons we use 3 age groups, (16-24, 25-49, 50+), 3 education groups, (degree, intermediate and low qualifications) and divide each country into 10 regions[11]. Sample sizes limit the extent of non-parametric disaggregation. We use one characteristic at a time and then interact. This non-parametric estimate can be used as a benchmark for any parametric prediction using the same or additional variables, entered in a more disaggregated form.[12]

Table 6, (column 3), shows that allowing for changes in employment by gender does go some way toward explaining the change in polarisation in all countries, as this shifts the predicted rate closer to the actual household rate. This is particularly marked in Spain, where nearly all polarisation can be accounted for by changing patterns of employment across gender. In a world where nearly all men and few women work, conditioning on gender will

predict few workless households. Converging employment patterns by gender changes the predicted distribution of work, generating more households where both individuals work and others where no-one works. This strongly suggests a declining gender specific division of labour, at least as far as participation in the workforce, hours may still differ substantially.

Columns IV and V consider regional and age/education variation in non-employment in turn. Regional variations make little difference to the predicted workless household rates in any country[13]. The interaction of all four factors, (column VI) has some effect on the predicted workless rates in each country. Indeed this disaggregation explains all of the rise in polarisation in Germany. In Spain too, the bulk (75%) of the change in polarisation can be explained by these broad shifts in employment within the population. This is consistent with the notion that older, less educated men are losing work and prime-aged, better educated women are entering work. These groups live in different households and hence polarisation rises. Note though that, as noted by Juhn and Murphy (1997) for the US, this means that there is not an added worker effect whereby women are entering the labour market to compensate for their partners reduced employment. We note in passing that it seems unlikely that any increase in "assortative mating" along education lines can underlie much of the change in polarisation over this period[14]. It is also important to realise that using this method, there is still a notable degree of residual polarisation in Britain, Australia and in the U.S.A. For example, we can explain only around a third of the large rise in polarisation in Britain between 1977 and 2000[15].

Polarisation Within Household Types

Table 7 outlines changes in unconditional and conditional polarisation within each broad household type and gives the total within household type contribution. This enables us to see for which household types conditioning by characteristics reduces measured polarisation and where any remaining unexplained polarisation is concentrated. Over time,

unconditional polarisation has risen for single households in Britain and Australia but is static elsewhere. Conditioning on characteristics reduces the estimated polarisation counts but the basic relative patterns still hold, except in Spain where single adult households now have higher workless concentrations, conditional on characteristics. This appears to be because all the growth in female employment in Spain has been among two or multi-adult households. Shifts in the concentration of employment across age, gender, education and region explain much of the polarisation observed within two adult households. The remaining amount of conditional polarisation is then similar across countries. In sum then, single adult households have lost employment relative to similar people in multi-adult households in Australia, Britain and Spain and all countries have experienced some polarisation within couples.

Presence of Children

Any worklessness in households with children has implications for child poverty and child development[16]. In Britain, the number of children living in workless households is one of many measures of child deprivation published regularly by the Department of Work and Pension (DWP, 2003). Since the polarisation indices can be applied to any household disaggregation, in Table 8 we calculate workless household rates and polarisation conditional on the presence of children.

The country with by far the highest proportion of children living in workless households is Britain. Since 1984[17], the share of single parent families has grown across all countries, most of all in Britain and Australia. However, there are larger increases in the shares of single adult households without children in every country. Workless household rates are typically higher amongst single parent households, though Spain is an exception. Only in Britain and Australia is polarisation of employment amongst single parents substantially larger than for other household types. Over time, workless rates among single parents have fallen in all countries by considerable amounts, so polarisation has fallen too.

Polarisation and worklessness among single parent households in Britain and Australia remains high even when using the conditional benchmark. In the US, the dramatic fall in the workless household rate for single parent households has occurred mainly since the abolition of AFDC in 1996 (Ellwood, 2000, discusses this in detail). Britain and Australia are the only countries with positive polarisation amongst couples with children. In Spain and Germany, couples with children are less likely to be workless even after conditioning on characteristics of both parents and in the US polarisation for this group is close to zero. So Britain and Australia have far more families with children where no adult works than the other countries and this occurs both in lone parents and couples when compared with the continental European countries. There is also polarisation among single adult households without children in Britain and Australia, which is not observed in other countries. The trends and estimates for couples without children are less diverse across countries.

5. Relationship with Welfare Systems

The polarisation counts identify which household groups are exposed to workless concentrations and which individual characteristics help explain excess worklessness. The main features of polarisation appear to be a general rise in polarisation among couples and a higher degree of polarisation in Britain and Australia compared to other countries. The general rise in polarisation among couples largely reflects the equalisation in employment across gender allied to the fact that (prime age, better educated) women entering the labour market are not in households with workless (older, less educated) men. The unusually high degree of worklessness in Britain and Australia given their (high) levels of employment is focused on families with children and single adults without children. Policy responses to these observations may also depend on the self-defined status of the individuals who comprise a workless household. Table 9 suggests that the composition of workless households manifests itself in different forms across countries. Most workless households are

now economically inactive and the inactive share has risen over time along with the workless household stock. This was not so in the 1980s, when the modal group were the unemployed everywhere but in Germany and Australia. Only around one third of workless households in Germany and Spain now contain at least one unemployed occupant and only a fifth of households in Britain and the U.S. Around 40% of workless households in Germany and Spain are over the age of 55 and economically inactive. This is the modal group in both countries. According to estimates not shown here, most individuals in these households consider themselves retired, despite being below official retirement age. In contrast, less than 10% of British adults in workless households consider themselves as retired. More than twice as many individuals in the US and Britain classify themselves as sick, who make up much of the large "other" category, though we cannot define sickness consistently across countries. The share of lone parents among workless households is much higher in Britain than elsewhere.

Table A3 in the appendix outlines the main characteristics of the wage distribution and welfare systems across the countries. A number of features fit the patterns of polarisation observed above, though our measures make no causal inference. The most generous component of Germany's unemployment system lasts much longer for older workers, allied to the provision of an early retirement package for the over 60s. This is consistent with the high share of German older workers in Table 9 and the importance of age in explaining conditional polarisation in Table 6. Welfare requirements mean that lone parents in Spain, and more recently the US, are generally not exempt from job search. Lone parents have negative polarisation and contribute less to the workless household rate in these countries.

Of more concern is Britain and Australia, which combine employment rates close to the US level with workless household rates higher than in mainland European, particularly among families with children. Britain and Australia share three features in their welfare

systems that might lie behind this. First, whilst welfare payments are not generous, they provide weak incentives to take jobs at the lower end of the wage distribution, a problem exacerbated by a level of wage inequality close to that of the US, which generates low wage offers in many jobs. Second, a minimal insurance-based safety net, relying much more on flat rate based means-tested social assistance packages. All child support is paid under means tested social assistance. Hence workless individuals therefore face radically different work incentives dependent on the presence of children and whether their partner has a job. In Spain and Germany, the longer duration and greater generosity of the insurance element creates a different incentive structure, as benefits are rarely means tested against partner's income. Third, there are no earnings related benefit payments but benefits do vary according to family type. This again creates variation in incentives across family types, such that the presence of children in a workless household reduces the incentive to take a low wage job substantially. In mainland Europe, the long period of earnings-related benefit payments, (unlimited in Germany), means that work incentives vary only according to differences between previous earnings, and potential wage offers are unlikely to vary across family circumstances.

Governments are becoming aware of these issues and there is evidence that policy is starting to be shaped accordingly. Early retirement packages are being phased out in Germany. In Britain the government has introduced a range of welfare reforms to reduce welfare dependency, especially among families with children since 1997 (see Walker and Wiseman, (2001), for a discussion of these reforms). In Australia, the ongoing welfare reform process has addressed many issues raised here, to varying degrees of success. The Jobs, Education, Training (JET) programme, introduced in 1989 to assist lone parents into re-entering the labour force, is thought to have significantly raised levels of training, employment and earnings among the population of lone parents on income support (Social Justice Commission, 1994). Welfare payments for partners of the unemployed were partially

individualised in 1994 with the Working Nation reforms. More recently, financial incentives for families with children, especially with child-care costs and a wider focus on motivating and helping all welfare recipients to find work are likely to reduce joblessness amongst families with children. And indeed polarisation levels for families with children have declined between the mid 90s and 2000/01. It is too soon to determine whether this is a direct effect of the various policy changes or due to other macroeconomic factors.

6. Conclusions

In Britain, Australia, the US, Spain and Germany, individual workless rates have fallen over the past twenty years but household-based workless rates have not. A simple focus on individual-based workless statistics can, and does, therefore obscure major labour market developments that can have important welfare, budgetary and efficiency consequences. The simple set of indices used in this paper can be used to assess the size of the disparity between individual and household-based measures of access to work and to isolate the source of any difference.

We find that shifts in household composition toward more single adult households contribute little to the growing numbers of workless households. However, there have been dramatic changes in the distribution of work across households in Britain, Australia and Spain over the last 25 years and more modest changes in the US and Germany. This polarisation occurs within all household types. Polarisation can be accounted for partially by changing concentrations of employment across readily identifiable socio-economic groups. Indeed this approach can account for most of the rise in workless households in Germany. Strong employment performance in the US should be producing fewer workless households than we observe. A common rise in polarisation of work among couples is mainly because net new jobs seem to be going to women living in households with an existing earner rather than reducing the numbers of workless households, especially in Spain. Non-employment in

Britain and Australia is more concentrated on single adults and families with children, than in other countries. The greatest discrepancy between individual and household based measures of worklessness is in Britain.

Many of these features would not have been revealed by a focus solely on individual based workless measures as indicators of labour market performance. Household based measures of worklessness can give important additional insights into the workings of the labour market. The indices used in this paper are able to link the two levels of aggregation. The issues and methods raised in this paper suggest how complementary analysis could proceed.

Footnotes

[1] The Australian data used are the 1982, 1986 and 1990 Income Distribution Surveys and the Income and Housing Costs Surveys from 1994/95 to 2000/01. The survey was not run in 1998/99 and the unit record data for 1999/2000 has not yet been released.

[2] The retirement age in Spain, Germany and the United States is 65 for men and women. In Britain men retire at 65 and women at 60. Australia has no formal retirement age but the retirement pension over most of this period was available for men at 65 and women at 60.

[3] See Gregg and Wadsworth (2002) and Gregg, Dawkins and Scutella (2002a) for more discussion of the link with all-work household rates in the UK and Australia respectively.

[4] Note that this is not the same polarisation as envisaged by Esteban and Ray (1994) who define it as a shift in the distribution from the centre to the two lateral masses. Our measure differs from those favoured by these authors since we focus on a discrete outcome (work) are not concerned with the absolute value of the variable under consideration (in their case income).

[5] In a 2 person to each household world, the three measures can be thought of as capturing the following:

$$\text{Polar1} = \Pr(\text{Non}_1 = 1 \;\&\; \text{Non}_2 = 1) - \Pr(\text{Non}_1 = 1)*\Pr(\text{Non}_2 = 1)$$
$$\text{Polar2} = \Pr(\text{Non}_1 = 1 \;\&\; \text{Non}_2 = 1) / \Pr(\text{Non}_1 = 1)*\Pr(\text{Non}_2 = 1)$$
$$\text{Polar3} = \Pr(\text{Non}_2 = 1 / \text{Non}_1 = 1) - \Pr(\text{Non}_2 = 1) = \text{Polar1}/ \Pr(\text{Non}_1 = 1)$$

[6] We use 200 replications to generate the standard errors in the tables.

[7] For example, net job loss amongst single adult households and net job creation amongst multiple adult households against a background of net employment growth in the economy could be sufficient to generate a differential effect direction of the change in the workless household and non-employment rates.

[8] We use the absolute polarisation index, but the decomposition also goes through on the relative measure.

[9] Available from the authors on request.

[10] Table A1 shows the cyclical variation in the within and between household group decomposition.

[11] Australia is actually split into 12 regions: the 5 mainland States are separated by capital city/rest of state with Tasmania a single category and the Territories (ACT and NT) combined into 1 category

[12] A logit/probit regression using the interaction of all the variables will, of course, give the same prediction as unconditional interactions.

[13] This does not rule out the possibility that a finer area disaggregation may have a role to play.

[14] We leave the issue of the role of assortative mating to future work, but note that for this explanation to work changes in characteristics must dominate changes in coefficients in the predicted probabilities over time. Using a parametric version of the predicted workless probability we find that in all of our five countries changes in coefficients dominate the decomposition of the change in predicted workless probabilities for 2 adult households.

[15] Using a parametric specification that adds 9 age and 18-20 regional shift dummies to the full set of interaction terms, we can explain another one point (20%) of the change in British polarisation, but little more of the changes in other countries.

[16] See Clark-Kauffman et al., 2003, for a summary of US experimental evidence on the impact of work and income on child development.

[17] The British data only record the presence of children from 1983 onward.

References

Atkinson, A. B. (1970), ”On The Measurement of Inequality,” Journal of Economic Theory, vol 2, 244–263.

Clark-Kauffman, E. Duncan, G. and Morris, P. (2203) ‘How Welfare Policies Affect Child and Adolescent Achievement’, American Economic Review, vol. 93, no. 2, pp. 299-303

Cullen, J. and Gruber, J., (2000), ‘Does Unemployment Insurance Crowd Out Spousal Labor Supply?’, Journal of Labor Economics, Vol. 18, No. 3, pp. 546-572.

Danziger, L. And Katz, E. (1996) A Theory of Sex Discrimination, Journal of Economic Behavior and Organisation, vol. 31 no. 1.

Dawkins P., Gregg, P. and Scutella, R. (2002), ‘Employment Polarisation in Australia’ Melbourne Institute of Applied Economic and Social Research, Working Paper No. 9/02, The University of Melbourne.

Dennis, I. And Guio, A. (2003) ‘Poverty and Social Exclusion in the EU after Laeken – Part 2’ Statistics in Focus, Theme 3 – 9/2003, Eurostat.

Depart for Work and Pensions (2003) ‘Opportunity for All: Fifth Annual Report’, HMSO CM 5956

Dickens, R and D. T. Ellwood (2002) “Whither Poverty in Britain and the US? The Determinants of Changing Poverty and Whether Work Will Work” in R. Blundell, D. Card and R.Freeman (eds) Seeking a Premier League Economy, University of Chicago Press.

Ellwood, D, (2000), ‘The impact of the Earned Income Tax Credit and Social Policy Reforms on Work, Marriage and Living Arrangements’, National Tax Journal, forthcoming

Esteban, M. and Ray, D., (1994), ‘On the Measurement of Polarisation’, Econometrica, July , pp. 819-851.

European Commission (2001) ‘Draft Joint Report on Social Inclusion’ Communication from the Commission, COM(2001) 565 final.

Eurostat (2003), ‘Poverty and social exclusion in the EU after Laeken . part 2’, Theme 3 . 9/2003, European Community.

Francois, P. (1998) A Theory of Gender Discrimination Based on the Household, Journal of Public Economics, vol. 68 no. 1

Gregg, P. Harkness, S. and Machin, S. (1999), ‘Poor Kids: Trends in Child Poverty in Britain, 1968-96, Fiscal Studies, vol. 20, no. 2

Gregg, P. and Wadsworth, J., (1996), "More Work in Fewer Households?" in New Inequalities ed J. Hills, C.U.P., 1996

Gregg, P. and Wadsworth, J., (1998), "It Takes Two. Employment Polarisation in the OECD", Centre for Economic Performance Discussion Paper 304

Gregg, P. and Wadsworth, J., (2001), "Everything You Wanted to Know About Workless Households But Were Afraid To Ask', Oxford Bulletin of Economics and Statistics, Volume 63, pp. 777-806.

Gregg, P. and Wadsworth, J., (2003), 'Two Sides to Every Story: Measuring Worklessness and Polarisation at Household Level', Centre for Economic Performance Working Paper 1099

Jimeno, J., O. Canto, A. Cardoso, M. Izquierdo, C. Rodrigues, (2000),'Integration and Inequality: Lessons from the Accession of Portugal and Spain to the EU', FEDEA Working Paper 2000-10, March.

Juhn, C. and Murphy, K. (1997) Wage Inequality and Family Labor Supply, Journal of Labour Economics, vol. 15, 72-97

Nickell, S. (2003) 'Poverty and Worklessness in Britain' Royal Economic Society Presidential Address 2003, forthcoming Economic Journal

OECD (1998), OECD Employment Outlook 1998, OECD, Paris

OECD (2001), OECD Employment Outlook 2001, OECD, Paris

OECD (2002), OECD Society at a Glance 2002, OECD, Paris

Social Justice Commission, IPPR (1994) Social Justice: Strategies for renewal, London: Vintage.

Walker, R and Wiseman, M. (2002) The Welfare We Want? The British Challenge for American Reform, Policy Press, forthcoming.

Figure 1. Individual & Household Non-Employment Rates in Britain, the U.S. , Australia, Germany and Spain

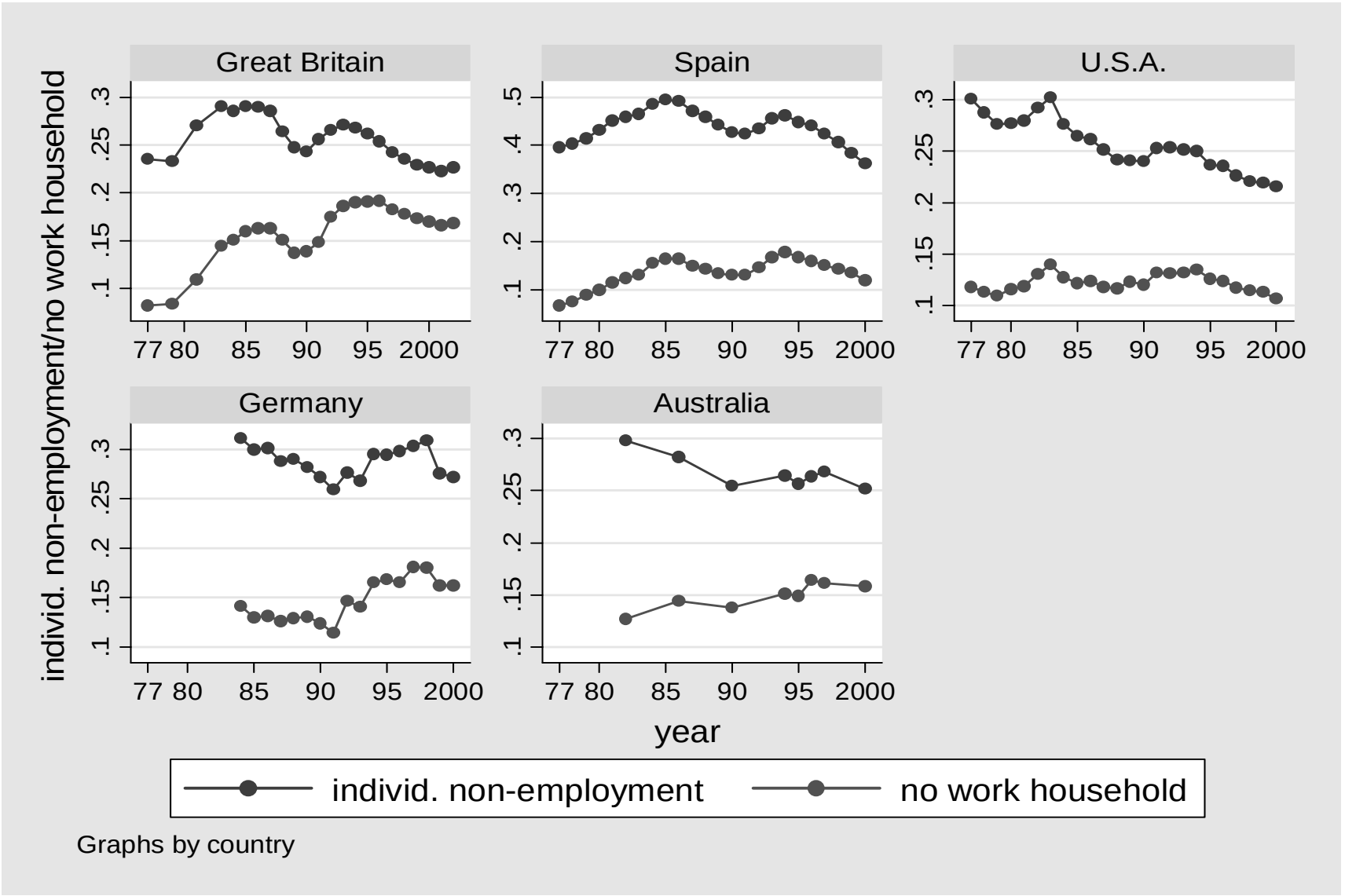


Figure 2. Polarisation Indices in Australia, Britain, Spain, Germany and the U.S.

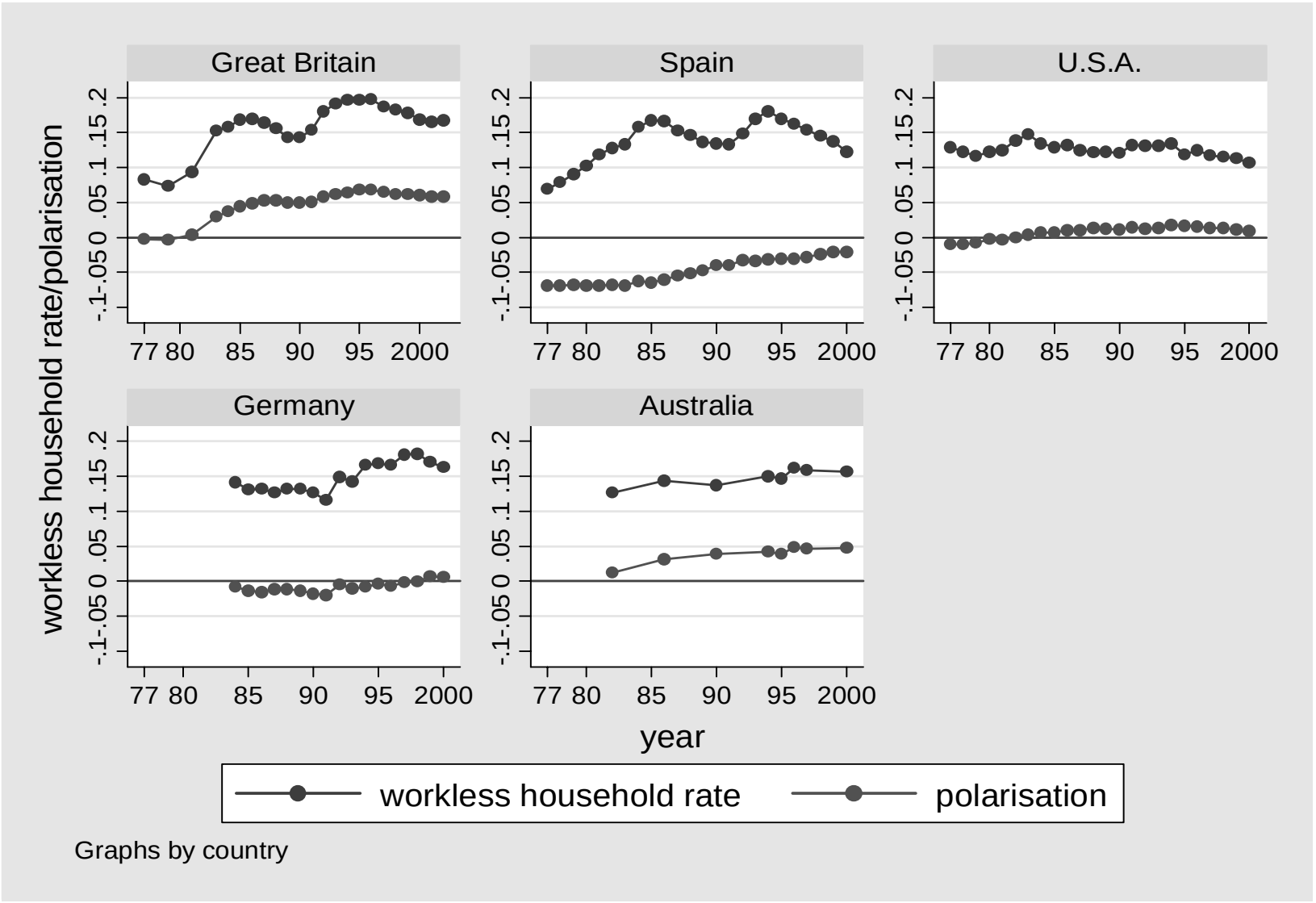
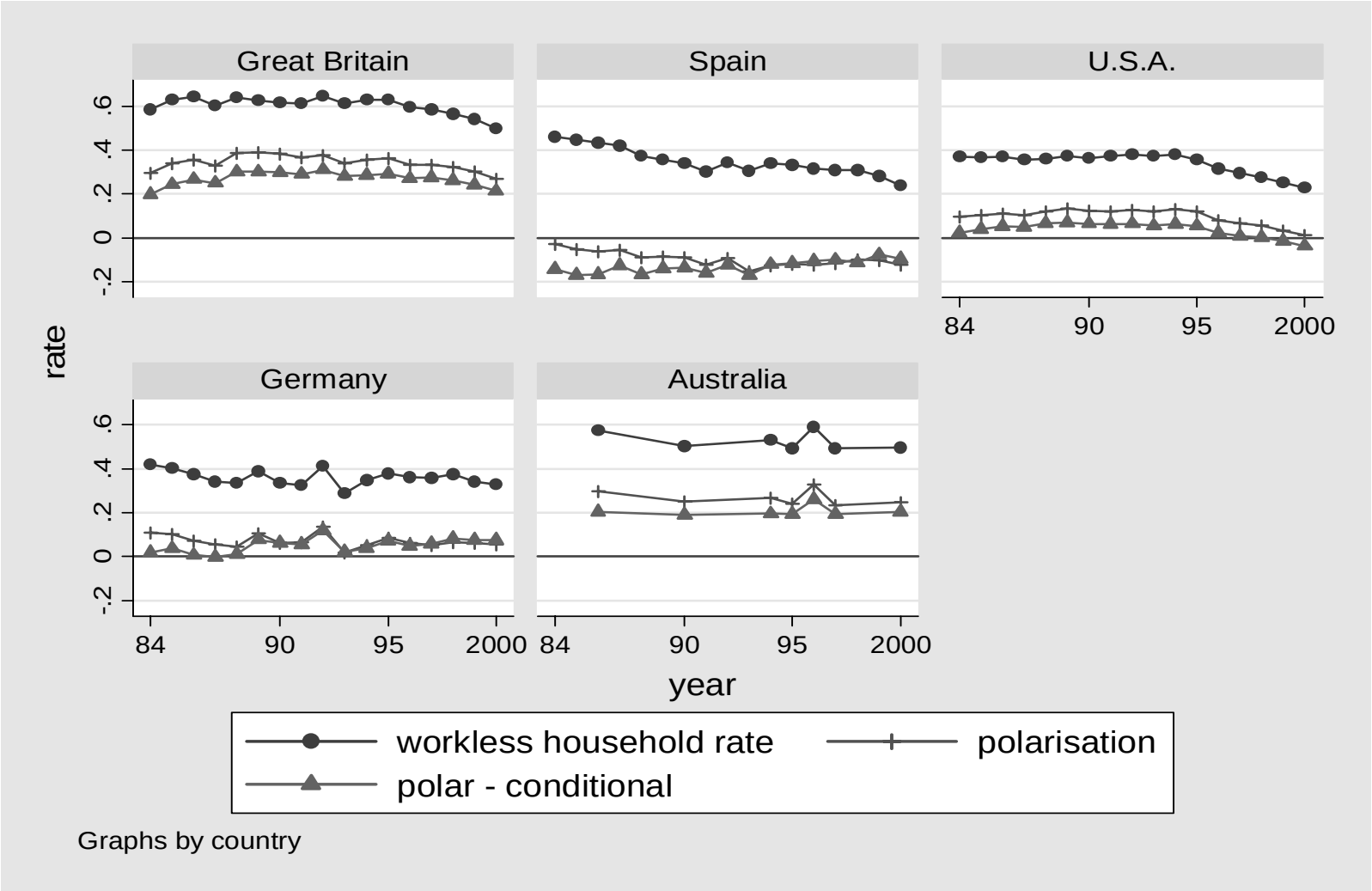


Figure 3. Workless Rates and Polarisation Among Single Adult Households

a) Single Parents



b) single adult – without children

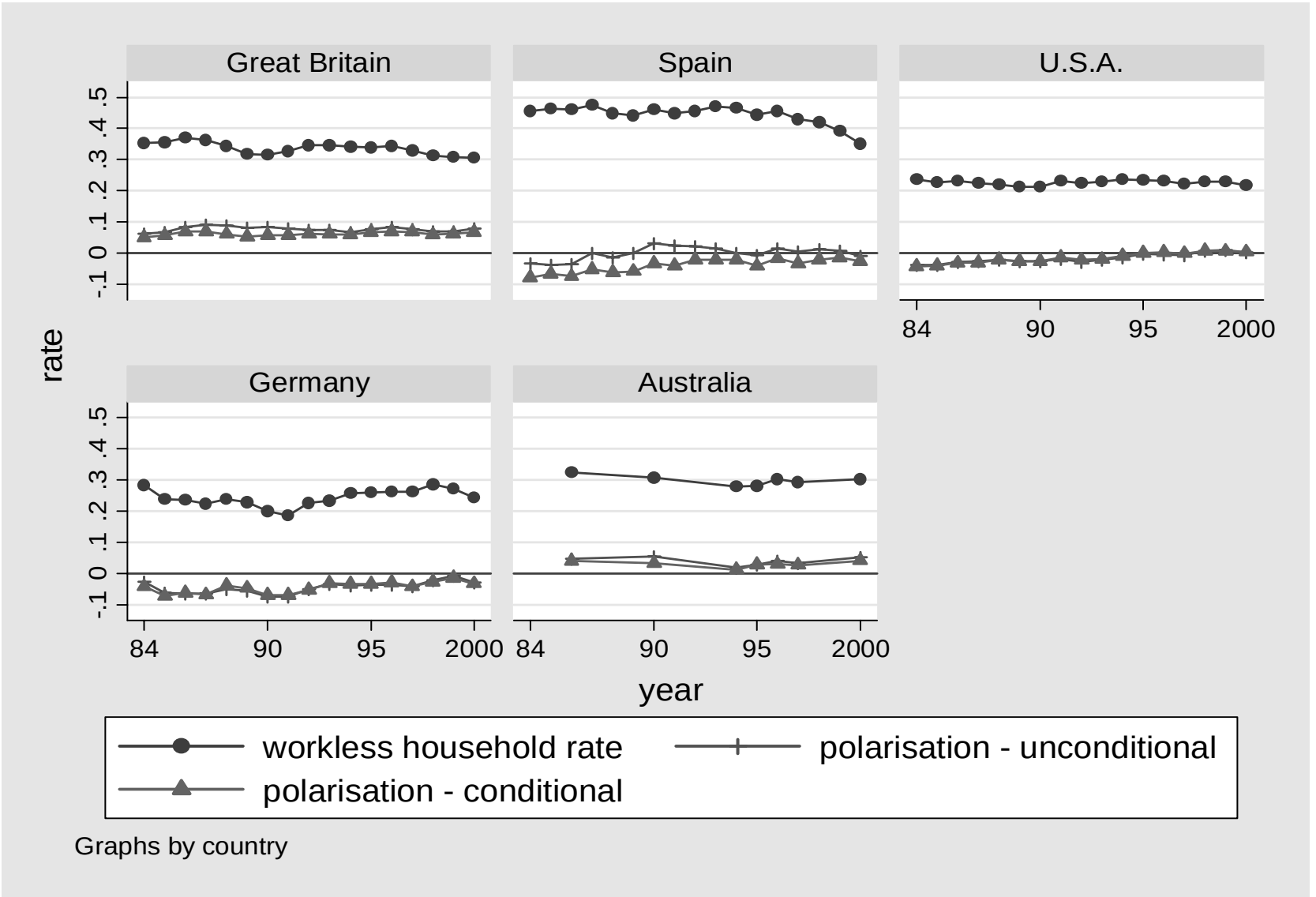


Table 1a. Workless Households Rates in Australia, Britain, Spain, the US, Germany

	G.B.	USA	Spain	Germany	Australia
1977	8.3	11.6	7.1	--	--
1984	15.1	11.6	14.6	14.5	12.7
	(0.2)	(0.2)	(0.2)	(0.4)	(0.3)
1990	14.1	12.0	13.0	12.6	13.8
2000	16.9	10.7	12.6	16.3	15.9

Table 1b. All Work Households in Australia, Britain, Spain, the US, Germany

	GB	USA	Spain	Germany	Australia
1977	57.6	49.2	21.0	--	--
1984	52.2	59.9	20.9	49.8	49.5
1990	60.9	61.9	26.1	58.7	59.3
2000	65.5	66.0	38.9	62.4	61.7

Table 1c. Non-Employment Rates in Australia, Britain, Spain, the US, Germany

	GB	USA	Spain	Germany	Australia
1977	24.0	27.9	39.6	--	--
1984	29.1	24.9	47.2	31.4	29.8
1990	23.2	24.0	42.7	27.5	25.4
2000	23.0	21.6	36.3	27.3	25.2

Source: LFS, SLFS, GSOEP, CPS. Notes. Data are all weighted. Population of working age in each country. Start date for Australia refers to 1982 rather than 1984 due to data limitations Australian data for 1994 onwards is collected over the financial year, thus for 1994/5, 1995/6, 1996/7, 1997/8 and 2000/1. Standard errors of household proportions in brackets for 1984, other years are similar apart from Australia with a standard error of around 0.5 in 2000 due to a smaller sample in the survey data from 1994/95 onwards.

Table 2. Household Type Shares and Workless Rates in Australia, Britain, Spain, the US and Germany

	1 Adult Households					2 Adult Households					3 Adult Households				
	G.B.	Sp.	De.	USA	Aus.	G.B.	Sp.	De.	USA	Aus.	G.B.	Sp.	De.	USA	Aus.
Household Share															
1977	20.8	7.0	--	24.2	--	62.2	58.1	--	62.4	--	17.0	34.8	--	13.4	--
1984	21.1	8.4	30.1	27.4	19.2	60.0	58.0	52.0	59.2	62.1	19.2	33.6	18.0	13.3	18.6
	(0.2)	(0.1)	(0.6)	(0.2)	(0.4)	(0.3)	(0.2)	(0.7)	(0.2)	(0.5)	(0.2)	(0.2)	(0.6)	(0.2)	(0.4)
1990	25.1	9.5	37.7	28.8	23.3	58.1	59.6	49.2	60.0	61.2	16.8	30.4	13.0	11.2	15.5
2000	36.8	15.5	44.4	30.7	29.5	53.7	58.0	46.7	59.0	56.9	9.5	26.5	8.9	10.4	13.7
					(0.7)					(0.7)					(0.4)
Workless Household Rate															
1977	26.9	40.4	--	25.9	--	4.2	7.7	--	6.7	--	1.2	3.1	--	2.6	--
1984	42.0	45.9	23.4	26.0	35.2	10.4	13.4	9.8	7.2	8.4	3.6	9.0	1.0	3.2	3.7
	(0.6)	(0.9)	(1.4)	(0.4)	(1.0)	(0.2)	(0.2)	(0.5)	(0.2)	(0.3)	(0.2)	(0.3)	(0.4)	(0.3)	(0.4)
1990	37.7	43.3	21.2	25.4	35.3	7.0	11.6	8.5	7.1	8.3	2.7	6.3	1.3	4.1	3.4
2000	36.1	32.5	27.1	22.0	35.1	7.7	10.0	11.4	6.0	9.0	3.4	4.6	3.1	3.5	2.6
					(1.2)					(0.5)					(0.7)

Source: LFS, SLFS, GSOEP, CPS . Standard errors of proportions in brackets

Table 3. Polarisation by country, 1977-2000

	Workless Household (1)	Counterfactual Prediction (2)	Polarisation (1)-(2)	Standardised Polarisation	Relative Polarisation (1)/(2)
Britain					
1977	8.3 (0.06)	8.5 (0.07)	-0.2 (0.07)	-1.4 (0.27)	0.98 (0.01)
1984	16.9 (0.10)	11.7 (0.10)	5.3 (0.10)	19.8 (0.42)	1.49 (0.02)
1990	14.3 (0.09)	9.3 (0.10)	5.0 (0.10)	21.7 (0.50)	1.56 (0.02)
2000	16.9 (0.10)	10.8 (0.11)	6.1 (0.10)	25.9 (0.51)	1.55 (0.02)
Change 1977-2000	8.6	2.3	6.3	27.3	.66
Spain					
1977	7.0 (0.08)	13.8 (0.10)	-6.8 (0.12)	-17.5 (0.3)	.50 (.005)
1984	15.8 (0.08)	22.0 (0.13)	-6.2 (0.13)	-12.7 (0.2)	.72 (.005)
1990	13.5 (0.07)	17.4 (0.10)	-3.9 (0.12)	-9.2 (0.3)	.77 (.006)
2000	12.3 (0.10)	14.4 (0.11)	-2.1 (0.12)	-5.7 (0.3)	.86 (.008)
Change 1977-2000	5.3	0.6	4.7	11.8	.36
U.S.A.					
1977	11.7 (0.1)	12.8 (0.1)	-1.1 (0.1)	-3.8 (0.3)	.91 (.01)
1984	13.4 (0.1)	12.8 (0.1)	0.6 (0.1)	2.4 (0.3)	1.05 (.01)
1990	12.0 (0.1)	10.9 (0.1)	1.1 (0.1)	4.5 (0.5)	1.10 (.02)
2000	10.7 (0.1)	9.7 (0.1)	1.0 (0.1)	4.1 (0.5)	1.09 (.02)
Change 1977-2000	-1.0	-3.1	2.1	7.9	.18
Germany					
1984	14.5 (0.5)	15.5 (0.4)	-1.0 (0.5)	-3.2 (1.5)	.93 (.03)
1990	11.6 (0.5)	13.7 (0.4)	-2.1 (0.5)	-8.0 (1.9)	.85 (.05)
2000	16.3 (0.4)	15.9 (0.3)	0.4 (0.4)	1.7 (1.6)	1.03 (.03)
Change 1984-2000	1.8	0.7	1.5	4.9	.10
Australia					
1982	12.7 (0.2)	11.5 (0.2)	1.2 (0.2)	4.2 (0.72)	1.11 (0.03)
1990	13.7 (0.2)	9.9 (0.2)	3.9 (0.2)	15.3 (0.7)	1.39 (0.03)
2000	15.6 (0.3)	10.8 (0.3)	4.8 (0.3)	19.3 (1.3)	1.44 (0.05)
Change 1982-2000	2.9	-0.6	3.6	15.1	0.33

Note: Standard errors in brackets are bootstrapped with 200 replications.

Table 4. Decomposition of Change in Workless Household Rate

	Actual Change	Predicted Change (unconditional)			Polarisation				
Country		Total	due to Δ non-employment	due to Δ household shares	Total	Between household	Within household		
						Total	Total	1 Adult	2 Adult	3 Adult
Britain: 1977-2000	8.6	2.3	*-0.3*	*2.6*	6.3	0.8	5.5	*3.3*	*1.9*	*0.3*
						(13%)	(87%)	*(52%)*	*(30%)*	*(5%)*
Spain:1977-2000	5.1	0.5	*-2.2*	*2.7*	4.6	0.1	4.5	*-0.5*	*3.7*	*1.3*
						(2%)	(98%)	*(-11%)*	*(80%)*	*(28%)*
U.S.A.:1977-2000	-1.0	-3.0	*-4.8*	*1.8*	2.0	-0.1	2.1	*-0.1*	*1.8*	*0.3*
						(-5%)	(105%)	*(-5%)*	*(90%)*	*(15%)*
Ger.:1984-2000	1.9	0.4	*-2.9*	*3.3*	1.5	-0.3	1.8	*-0.2*	*1.6*	*0.3*
						(-14%)	(114%)	*(-13%)*	*(106%)*	*(20%)*
Aus: 1982-2000	2.9	-0.6	*-2.8*	*2.2*	3.5	0.6	2.9	*1.1*	*1.9*	*-0.1*
						(18%)	(82%)	*(38%)*	*(64%)*	*(-2%)*

Table 5. Cross-Country Counterfactual Workless Household Predictions

		Cumulative Effect Of Other Country Components				
	Own country rates	h'hold shares on predicted $\Sigma_{i.} s_{ik} n^{ij}$ (1)	Non-employment on predicted $\Sigma_{i.} s_{ik} n^{ik}$ (2)	h'hold shares on polarisation $\Sigma_i s_{ik}(w_i - n^{ij})$ (3)	Other country polarisation $\Sigma_i s_{ik}(w_{ik} - n^{ik})$ (4)	Other country rate
Great Britain		Using Spanish data				
1977	8.2	5.1	13.8	13.6	6.8	6.8
1984	15.1	11.5	25.2	24.0	15.7	15.7
1994	19.1	14.3	27.4	25.4	17.9	17.9
2000	16.9	12.7	20.6	18.5	12.1	12.1
		Using USA data				
1977	8.2	9.1	13.0	13.1	11.8	11.8
1984	15.1	16.5	15.9	16.5	12.7	12.7
1994	19.1	18.7	17.6	17.4	13.4	13.4
2000	16.9	16.0	15.5	15.1	10.7	10.7

Notes: j = own country; k = other country. Decomposition based on equation (6) in text. Counterfactuals are based on cumulative effect of other country components.

Table 6. Accounting for Polarisation through Changing Employment Patterns

	Observed	Predicted (unconditional)	Prediction (conditional on characteristics)			
			Sex	Region	Age, education	Region, sex, age, education.
	I	II	III	IV	V	VI
Britain						
1977	8.3	8.5	7.0	8.5	8.6	7.1
1990	14.3	9.3	8.9	9.4	10.1	10.0
2000	16.9	10.8	10.7	11.0	11.4	11.6
77-2000	8.6	2.3	3.7	2.5	2.8	4.5
Spain						
1977	7.0	13.9	9.0	14.0	14.9	9.0
1990	13.5	17.4	14.7	17.6	18.2	14.6
2000	12.3	14.4	12.9	14.5	14.8	13.1
77-2000	5.3	0.5	3.9	0.5	0.1	4.1
U.S.A.						
1977	11.7	12.8	12.1	12.8	13.1	12.3
1990	12.0	10.9	10.9	11.0	11.0	11.0
2000	10.7	9.7	9.8	9.7	9.9	9.9
77-2000	-1.0	-3.1	-2.3	-3.1	-3.2	-2.4
Germany						
1984	14.5	15.5	14.6	15.6	16.3	15.3
1990	12.6	14.5	13.8	14.4	15.3	14.2
2000	16.3	15.9	15.9	15.9	17.1	17.2
84-2000	1.8	0.2	1.3	0.3	0.8	1.9
Australia						
1982	12.7	11.5	10.0	11.5	12.1	10.4
1990	13.7	9.9	9.4	9.9	10.6	10.1
2000/01	15.6	10.9	10.6	11.0	11.6	11.4
82-2000	2.9	-0.6	0.6	-0.5	-0.5	1.0

Note: values in columns 1&2 may differ from numbers reported in Table 3 because of missing regional, gender, age or qualifications data.

Table 7. Change in Absolute Polarisation Count Within Household Type

	All	1 Adult	2 Adult	3 Adult
Britain 1977-2000				
Unconditional	5.5	3.3	1.9	0.3
Conditional	3.1	2.2	0.7	0.2
Spain 1977-2000				
Unconditional	4.5	-0.5	3.7	1.3
Conditional	3.2	2.4	0.7	0.2
U.S.A. 1977-2000				
Unconditional	2.1	-0.1	1.8	0.3
Conditional	0.7	-0.1	0.7	0.1
Germany 1984-2000				
Unconditional	1.8	-0.2	1.6	0.3
Conditional	0.4	-0.2	0.5	0.1
Austrl. 1982-2000				
Unconditional	3.6	4.6	3.1	- 0.4
Conditional	2.0	4.5	1.1	- 1.0

Table 8. Workless Household Rate and Polarisation by Presence of Children and No. of Adults

	1 Adult		2 Adult		3 Adult +	
	child	no child	child	no child	child	No child
Britain						
Household share – 1984	4.4	18.1	34.6	25.3	7.0	10.8
– 2000	9.6	27.3	27.2	26.5	2.4	7.1
Workless Household Rate						
1984	58.6	35.4	10.4	9.8	4.7	3.2
2000	49.7	30.6	6.1	9.3	4.4	2.7
Polarisation Rate						
– (unadjusted)						
1984	29.5	6.3	1.9	1.3	2.2	0.7
2000	27.0	7.9	1.0	4.2	3.3	1.6
– (conditional)						
1984	19.8	5.1	4.9	0.8	2.3	0.4
2000	21.4	6.8	2.3	2.7	3.0	1.2
U.S.						
Household share – 1984	7.9	19.7	34.2	25.2	6.5	6.5
– 2000	8.1	22.6	32.1	26.9	5.0	5.3
Workless Household Rate						
1984	37.1	23.6	7.1	11.5	5.5	2.8
2000	22.7	21.7	3.7	8.8	3.3	3.6
Polarisation Rate						
– unadjusted						
1984	9.0	-4.5	-0.9	3.5	3.3	0.6
2000	0.7	-0.3	-1.2	3.9	2.3	2.6
– conditional						
1984	2.3	-4.6	1.5	2.7	2.6	2.8
2000	-3.9	-0.1	0.1	3.0	1.5	2.2

Table 8 (continued). Workless Household Rate and Polarisation by Presence of Children and No. of Adults

	1 Adult		2 Adult		3 Adult +	
	child	no child	child	no child	child	no child
Spain						
Household share – 1984	1.4	7.1	40.2	17.8	16.2	17.4
– 2000	3.6	11.9	33.5	24.5	6.7	19.8
Workless Household Rate						
1984	46.2	45.6	10.4	23.3	10.3	10.7
2000	23.9	35.2	5.0	16.8	4.6	5.1
Polarisation Level						
- unadjusted						
1984	-2.8	-3.4	-13.6	-0.7	-1.5	-1.1
2000	-12.1	-0.9	-8.0	3.8	-0.1	0.1
- conditional						
1984	-14.2	-7.8	-3.4	0.1	0.2	-0.6
2000	- 9.5	-2.6	-1.7	1.5	-0.1	-0.1
Germany						
Population share – 1984	3.3	27.6	27.2	26.6	5.6	9.7
– 2000	6.6	38.8	21.7	25.1	2.6	5.8
Workless Household Rate						
1984	41.9	28.7	4.2	14.5	0.9	1.2
2000	32.6	24.2	3.1	15.9	5.8	1.7
Polarisation Level						
- unadjusted						
1984	9.0	-4.5	-0.9	3.5	3.3	0.6
2000	10.5	-2.7	-5.6	4.7	-2.1	-1.9
– conditional						
1984	2.5	-4.1	0.1	1.6	-0.5	-1.3
2000	7.1	-3.4	-1.4	1.2	3.3	-1.9
Australia						
Household share – 1982	3.7	15.7	39.5	23.0	8.6	9.7
– 2000/01	8.7	22.8	31.0	26.1	3.9	7.4
Workless Household Rate						
1982	58.4	30.0	6.5	11.7	5.1	2.5
2000/01	49.6	30.1	6.5	11.9	1.4	3.3
Polarisation Level – (unadjusted)						
1982	28.9	0.5	-2.2	3.0	3.2	0.5
2000/01	24.7	5.3	0.3	5.7	0.2	2.1
– (conditional)						
1982	15.8	1.1	1.6	2.2	3.8	0.8
2000/01	20.4	4.1	1.9	4.1	0.2	1.7

Note: Information on children not available in British LFS before 1983.

Table 9. Composition of Workless Households (Share of households in each category)

	1 Adult	2 Adult	3+ Adult	Total
Unemployed				
1984				
Australia (82)	0.15	0.45	0.85	0.31
G.B.	0.26	0.66	0.89	0.44
U.S.	0.21	0.37	0.73	0.29
Spain	0.14	0.55	0.87	0.52
Germany	0.24	0.35	0.75	0.30
2000				
Australia	0.23	0.36	0.32	0.27
G.B.	0.19	0.28	0.58	0.22
U.S.	0.16	0.21	0.50	0.19
Spain	0.23	0.38	0.81	0.36
Germany	0.30	0.40	0.67	0.35
Lone Parent				
1984				
Australia (82)	0.28			0.15
G.B.	0.24			0.13
U.S.	0.27			0.18
Spain	0.15			0.04
Germany	0.19			0.11
2000				
Australia	0.27			0.18
G.B.	0.31			0.23
U.S.	0.20			0.15
Spain	0.11			0.04
Germany	0.18			0.11
Inactive Age 55+				
1984				
Australia (82)	0.42	0.32	0.09	0.36
G.B.	0.39	0.13	0.08	0.28
U.S.	0.32	0.28	0.21	0.29
Spain	0.56	0.25	0.01	0.27
Germany	0.41	0.49	0.00	0.43
2000				
Australia	0.28	0.37	0.48	0.32
G.B.	0.28	0.24	0.01	0.27
U.S.	0.35	0.32	0.04	0.33
Spain	0.48	0.38	0.01	0.38
Germany	0.35	0.48	0.00	0.38
Other				
1984				
Australia (82)	0.15	0.23	0.07	0.18
G.B.	0.11	0.21	0.10	0.15
U.S.	0.19	0.34	0.27	0.25
Spain	0.15	0.19	0.12	0.17
Germany	0.16	0.17	0.25	0.16
2000				
Australia	0.22	0.27	0.20	0.23
G.B.	0.22	0.48	0.42	0.29
U.S.	0.29	0.47	0.46	0.34
Spain	0.18	0.24	0.18	0.21
Germany	0.16	0.12	0.33	0.15

Notes: GSOEP data for Germany refer to "officially unemployed" (self-assessed). Numbers are proportion of households with at least 1 (self-assessed) unemployed occupant, lone parent not unemployed, all occupants aged 55 and over excluding previous 2 categories. Other category is the residual.

Figure A1. Alternative Polarisation Indices

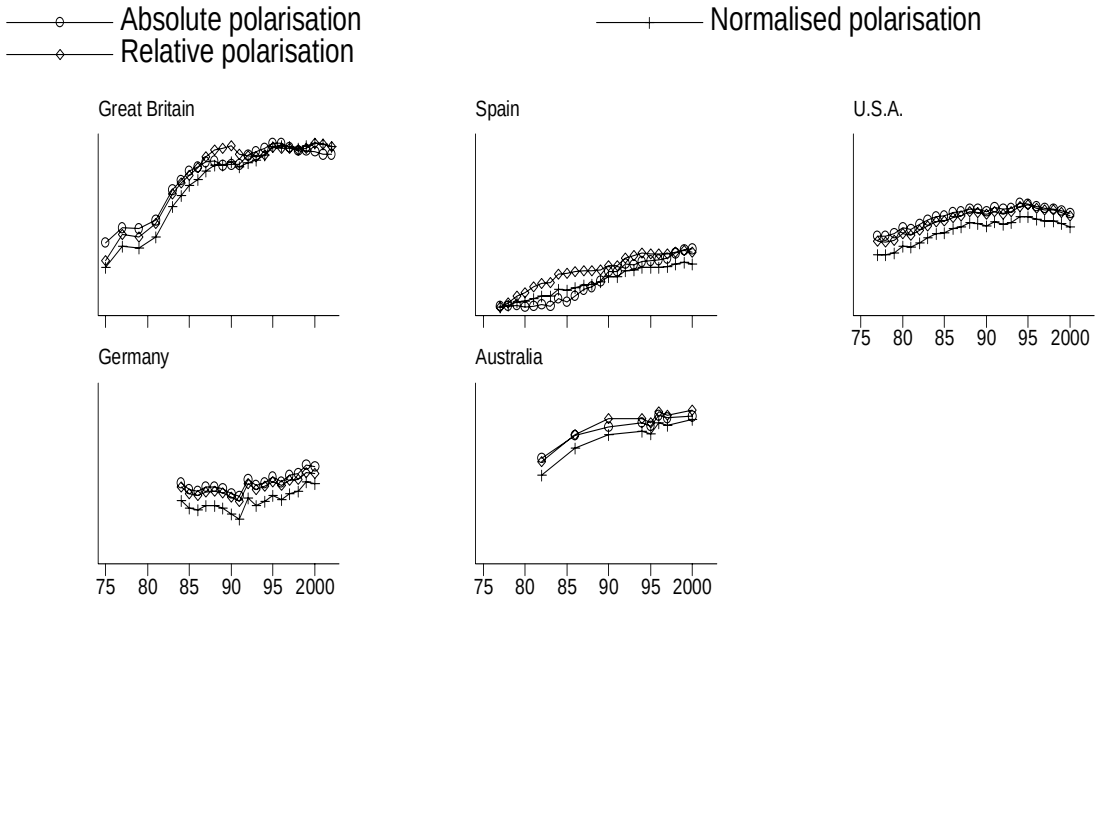


Table A1. Decomposition of polarisation in workless household rate 1977-2000 over the cycle

	Δ polarisation (I)	Within Household types (II)	Between Household (III)
Britain			
77-2000	6.3	5.5	0.8
Spain			
77-2000	4.4	4.6	-0.2
United States			
77-2000	2.1	2.2	-0.1
Germany			
84-2000	1.2	1.5	-0.1
Australia			
82-00/01	3.6	2.9	0.6

Table A2. Relative Polarisation by Household Type

	1 Adult		2 Adult		3 Adult	
Britain	*1977*	*2000*	*1977*	*2000*	*1977*	*2000*
Raw	1.06 (0.03)	1.58 (0.02)	0.84 (0.01)	1.47 (0.02)	0.87 (0.03)	2.83 (0.07)
Conditional	1.05	1.43	1.40	1.49	1.42	2.16
Spain						
Raw	0.95 (0.02)	0.90 (0.02)	0.38 (0.01)	0.77 (0.01)	0.37 (0.01)	1.07 (0.02)
Conditional	0.73	0.89	0.77	0.97	0.72	0.94
United States						
Raw	1.00 (0.01)	1.00 (0.02)	0.78 (0.01)	1.23 (0.02)	1.08 (0.04)	3.25 (0.10)
Conditional	0.88	0.95	1.06	1.31	1.24	2.16
Germany	*1984*	*2000*	*1984*	*2000*	*1984*	*2000*
Raw	0.96 (0.05)	0.93 (0.04)	0.95 (0.04)	1.35 (0.04)	0.36 (0.03)	1.49 (0.08)
Conditional	0.90	0.93	1.10	1.00	0.53	0.90
Australia	*1982*	*2000/01*	*1982*	*2000/01*	*1982*	*2000/01*
Raw	1.19	1.42	0.96	1.46	1.92	2.10
Conditional	1.12	1.31	1.27	1.48	2.39	1.83

Note: Bootstrapped standard errors in brackets.

Table A3. Welfare Systems and Wage Inequality across countries in 2000

Country	Germany	Spain	UK	US	Australia
Wage Inequality 50/10 1995	1.44	1.66	1.81	1.95	1.65
Unemployment Insurance – Duration	Varies with age and contributions. For those aged < 42 the max. is 312 days (not Sundays). Rises to 832 days for over 54s.	24 months on fraction of previous wage and up to 30 months in total	26 weeks (52 weeks prior to 1996)	26 weeks but can be extended to 39 weeks in some states.	No UI system
Unemployment Insurance – Ratio of Earnings	60% of previous net earnings for childless and 67% for those with children up to a ceiling.	70% of previous gross wage for 6 months 60% up to 24 months Then multiple of minimum wage based on family size	Not earnings related but flat rate for singles or couples if with a non-working partner. Child support comes under social assistance below.	50% of reference gross salary up to a maximum value..	Not applicable.
Unemployment Insurance - Eligibility	360 days of work in last 3 years	12 months contributions in last 6 years. More contributions means benefits last longer.	25 weeks in one of previous two tax years.	6 months employment above a minimum earnings level.	Not applicable
Unemployment Assistance	Eligibility is as for UI but rates are for 53% of previous net earnings and 57% with children. Benefit is indefinite.	Families with Children for 30 months and those aged 45+ 1 year after UI exhausted for 6 months. Value is 75% of minimum wage	See SA below	None	Eligible to all actively seeking work and able to begin full-time work. Not related to previous earnings but subject to means testing. Benefit is indefinite.
Social Assistance -	Regional based minimum income based on family size. Lone parents receive extra help. No job search required.	Regional based minimum income based on family size. Value is low. Job search required.	Minimum income for the unemployed and lone parents (who are not required to find work). Benefits indefinite. Value based on family size and renters can get extra Housing Benefit.	Food stamps are available to any family unit with job seekers. Lone parent families or those with a disabled member could claim AFDC. Some state variation. Replaced from 1997 by TANF.	Assistance available to lone parents and other groups not actively seeking work such as those with a disability, and carers. Additional assistance available to renters and families with children.
OECD Standard Replacement Ratio for married couple with two kids against wage of 2/3 average production wage	73% on UA scheme including housing support.	67% on 60% of previous wage UI scheme	76% on SA over 52 weeks including renters housing support	51% on SA if eligible.	86%

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