On the identification of the "middle class"

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Abstract

The paper examines the identification of the "middle class" using data from LIS and LWS. It first considers definitions based purely on income, examining the rationale for different approaches and illustrating the implications for changes over time. It argues that the concept of "class" requires the examination of other dimensions beyond income. The paper considers the role of property and, drawing on the sociological literature, of occupations.

Keywords: class structure, income distribution
JEL classification: J31, D33.

Introduction

"There is no shortage of talk about the middle class (say, the middle 60 percent of income recipients)" – Robert Solow notes on the cover of Estache and Leipziger (2009). There is however a certain penumbra surrounding the definition of the "middle class". People use the term in many different ways: "In fact, being middle class has always been a slippery business. Having servants, renting a good property, owning a good property, owning a business, being employed in one of 'the professions', how you speak, how you use cutlery – at different times, all these have been regarded as essentials of middle-class life" (Beckett 2010). Interestingly, income does not feature among these characteristics, suggesting that the layman's perception may well differ from the neat, yet narrow, income-based definition favoured by economists, as exemplified by Solow's quotation.

In this paper, we consider various definitions of the middle class, and explore how far they can be implemented using data from the Luxembourg Income Study (LIS) and its twin Luxembourg Wealth Study (LWS). [2] We first examine definitions based purely on the

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[2] All estimates are computed from the database as of 10 May 2011 and are reported in the Appendix. Disposable money income is the sum of all cash incomes earned by the household, net of income taxes and social contributions. Net worth includes all real and financial assets except for business equity (unavailable in some

dimension of personal income, on which there has been a large economics literature. We then move on to consider the role of property and wealth, which is important in identifying the middle class in popular discourse, as just seen, but which may also be grounded in the economic analysis of household finances. We lastly investigate the importance of the occupational structure. Control over resources and position in the division of labour were at the root of class differences in classical economics, but receive less attention nowadays, prompting the sociologists' criticism that the over-emphasis on income leads economists to neglect the more fundamental social stratification embodied in labour market relations (e.g., Goldthorpe 2010). Our aim is to expound meanings and interrelationships of these different notions as well as to assess the extent of overlapping in the ensuing classifications. This will eventually lead us, in the final section, to argue for the re-integration of different approaches to the concept of middle class.

A fixed-size income middle class

In economics, interest in the middle class appears to stem in part from the perception that distributional studies have focused on the poor, at one end, and on the rich, at the other end, leaving out the middle. Solow's reference to the "middle 60 per cent" could be interpreted in this sense, being bracketed between the bottom 20 per cent (which includes the poor or those at risk of poverty) and the top 20 per cent (the well-off). The European Union (EU) uses as its main income inequality measure the ratio of the income share of the top 20 per cent to that of the bottom 20 per cent. Transfers away from the middle 60 per cent could, if made proportionately, leave the measured income inequality unchanged. They are the "forgotten" middle.

The analysis of the entire income distribution, and not only of either the bottom or the top, is indeed revealing. This can be illustrated by taking the income shares of the middle 60 per cent of the population, ranked by increasing (equivalised disposable) income, together with the shares of the bottom and top 20 per cent, in fifteen countries around 1985 and 2004. The countries are selected among those for which suitable data are available in the LIS

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countries), net of all liabilities. Income and wealth are divided by the square root of household size and then attributed to each household's member. Zero incomes are dropped and observations are bottom-coded at 1 per cent of the mean equivalent income and top-coded at 10 times the median unadjusted income.

database and cover a wide spectrum of political, institutional and economic arrangements,[3] while the two years span a period of almost two decades characterised by radical economic and political changes. The variations between these two years provide some information about long-run tendencies, although some caution is needed as the selected years may correspond to different business cycle conditions and need not coincide with the critical junctures that identify the relevant episodes in the evolution of income distribution.[4]

Ranking the fifteen countries by increasing size of the income share accruing to the middle 60 per cent yields a familiar pattern: in 2004 the Nordic nations have shares of above 55 percent, preceding the corporatist European countries; Canada, Taiwan, Poland and Italy come next, followed by the United States and the United Kingdom, with shares around 51 percent; Mexico is the country with the smallest middle income share at 44 percent. The difference is sizeable: the UK and US middle class receive a share of total income which is about a tenth less than that of their Nordic counterparts. There is clearly a strong correspondence between this country ranking and that based on the degree of inequality: the correlation coefficient between the income share of the middle 60 per cent and the Gini index is negative and well above 0.9 in both years. But it is the *change* in the middle class share that has received most attention, particularly among those worrying about the disappearing middle. Figure 1 shows that the share, defined in this way, has fallen in all countries but Denmark between the mid-1980s and 2004, and that this loss was consistently to the benefit of the richest fifth, except in France.

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[3] Countries and years are: Austria (1987, 2004), Canada (1987, 2004), Denmark (1987, 2004), Finland (1987, 2004), France (1984, 2005), the Federal Republic of Germany (1984, 2004; hence including eastern Länder in 2004 but not in 1984), Italy (1987, 2004), Luxembourg (1985, 2004), Mexico (1984, 2004), Norway (1986, 2004), Poland (1986, 2004), Sweden (1987, 2005), Taiwan (1986, 2005), the United Kingdom (1986, 2004) and the United States (1986, 2004).

[4] Moreover, the LIS procedures are such to maximise cross-country comparability for the same wave of data (e.g., wave VI for data around 2004). This implies that the evidence tends to be less reliable for changes over time than for comparisons across nations, as data cannot be treated as continuous time series (Atkinson 2004). This is especially true for such a long period of time, during which the LIS procedures have been refined but have not always been brought backwards, most surveys have undergone revisions in methods and definitions, and the original surveys included in the database may have changed (which is the case in Austria, Canada and the United Kingdom).

Figure 1: Change in the income share of the bottom, middle and top income groups in selected LIS countries between around 1985 and around 2004 (percentage points)
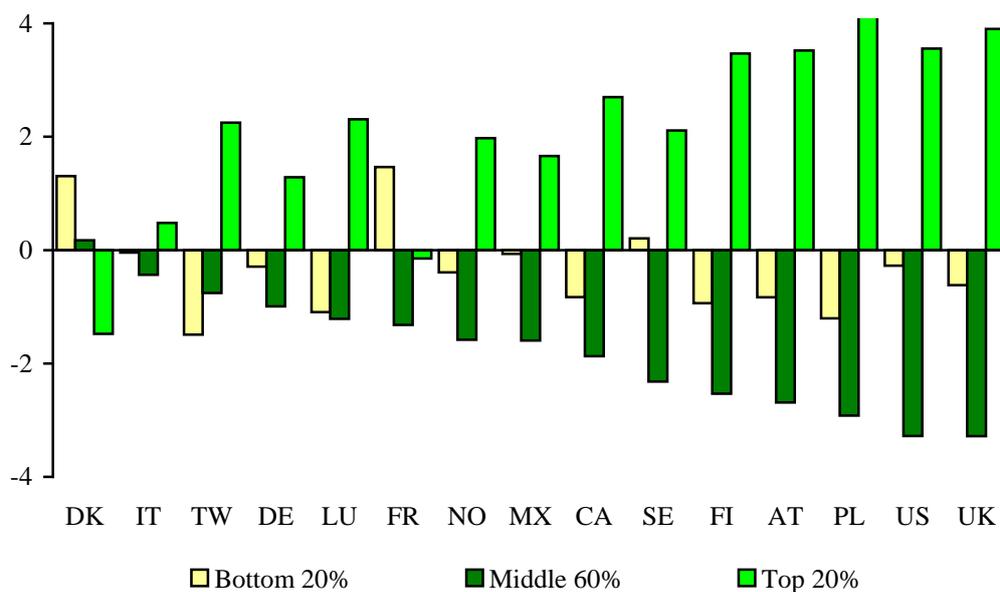
Source: Author's calculations from the LIS database, as of 10 May 2011.

The evidence of an impoverished middle class is another facet of the trends towards greater inequality prevailing in many countries since the 1980s. This is not, however, the only way in which the middle class can be defined.[5]


Fixing income boundaries for the middle class

The approach discussed so far treats the definition of middle class in terms of the cumulative distribution, *F*, or the "people space" in Foster and Wolfson's (2010) terminology. Figure 2 contains two graphical representations of the income distribution: in the right panel it is drawn the cumulative distribution function *F*, with *y* on the horizontal axis denoting (equivalised disposable) income expressed as a ratio to the median; in the left panel is graphed the Lorenz curve, rotated anticlockwise by 90 degrees, so that the horizontal axis measures, from right to left, the income share *s*(*F*) of the bottom fraction *F* of population ranked by increasing income. (Figure 2 is drawn using the Danish data for 2004.) The middle

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[5] Lawrence (1984), Bluestone and Harrison (1988) and Beach, Chaykowski and Slotsve (1997) define the middle class in terms of labour earnings rather than income. More recently, Autor, Katz and Kearney (2006), Goos and Manning (2007), and Goos, Manning and Salomons (2009) have examined "job polarisation", that is the rise of employment shares in the highest- and lowest-wage occupations at the expense of middle-wage jobs.

class are those between $F_1=0.2$ and $F_2=0.8$, and their income share is given by the difference $s(F_2)–s(F_1)=s(0.8)–s(0.2)$ in the left quadrant.

Figure 2: Income distribution curves and middle class identification
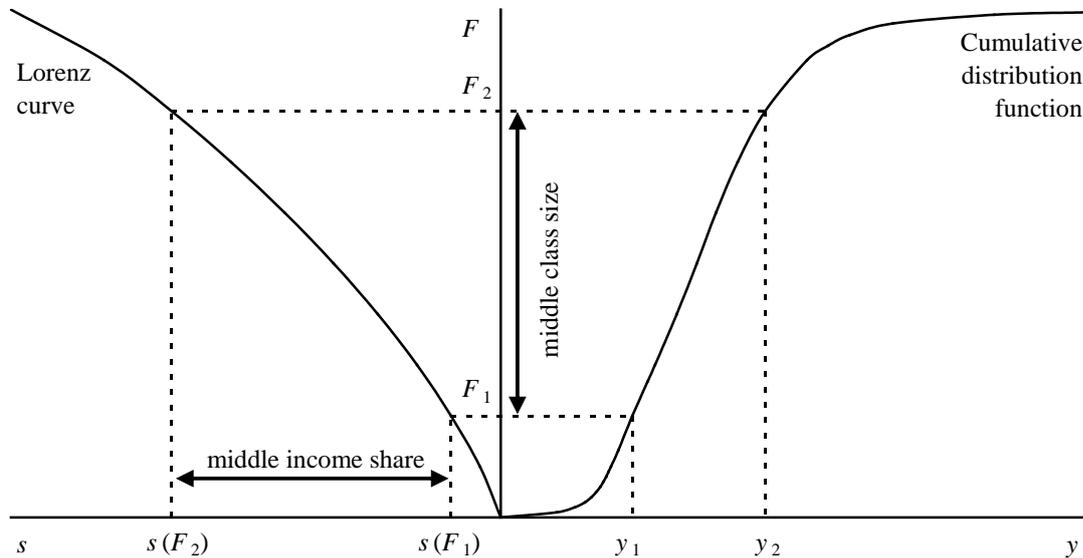
Source: Authors' elaboration.

The left hand part of Figure 2 is that on which the income distribution literature tends to concentrate; the right hand part is more familiar to labour economists, and tells us *who* belongs to the middle class. Reading the correspondents of F_1 and F_2 on the cumulative distribution function, the middle class are those with income lying between the 20th and the 80th percentiles, that is y_1 and y_2 in the right quadrant. The absolute distance between y_2 and y_1 measures how further apart the two extremes of the middle class are. In the more egalitarian countries of North and Central Europe the richest person in the middle class has an income that is around 1.4 times the median, twice the income of the lowest middle class person (Figure 3). This ratio increases in countries with more unequal distributions, as both boundaries shifts outwards: in Mexico the top middle class income is four times the bottom middle class income. Changes between the mid-1980s and 2004 are relatively small in comparison to cross-country differences. In the United Kingdom, for instance, the middle 60 per cent of the population has an income comprised between 62 and 158 per cent of the median in 1986, but spans the interval 61 to 164 per cent in 2004.

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Figure 3: Income range of middle 60 per cent of population in selected countries around 1985 and 2004 (per cent)
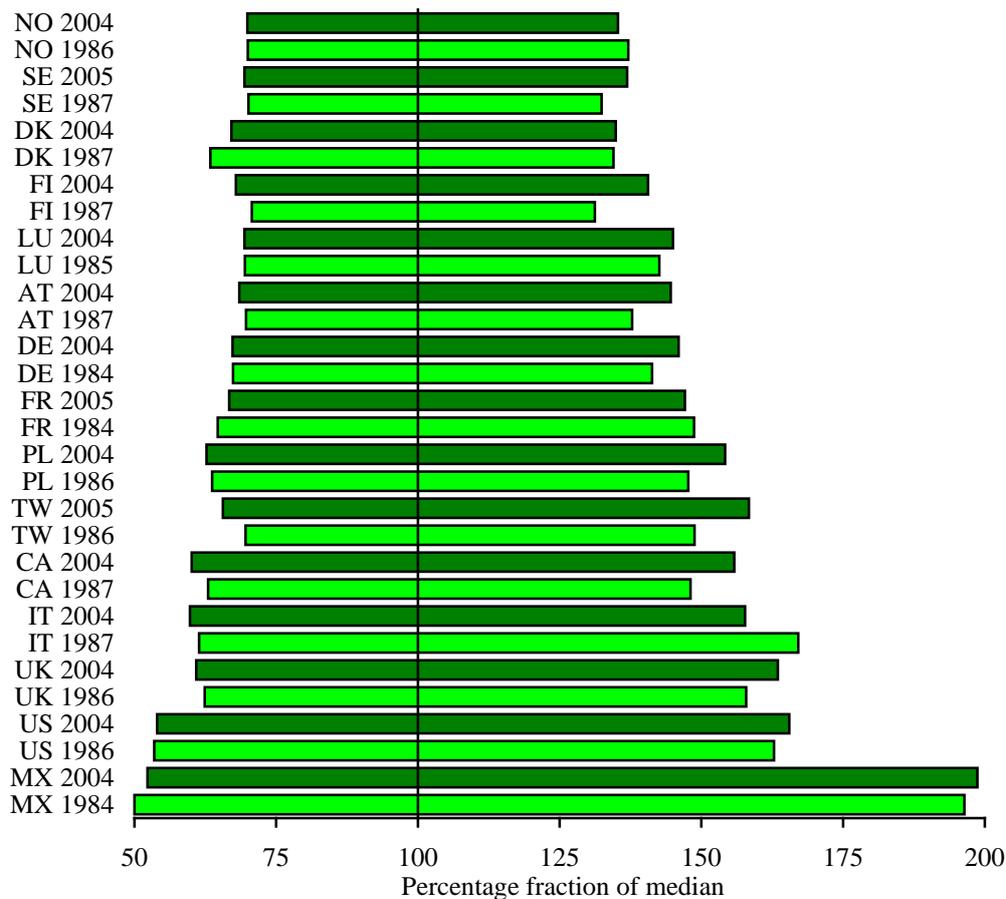
Source: Author's calculations from the LIS database, as of 10 May 2011.

It is not obvious, however, why we should take *F* as the primitive concept. Indeed, such an identification rules out any discussion of the size of the middle class. The middle class cannot "shrink" or "expand". Looking at Figure 2, we can see that an obvious alternative is to treat *y* as the primitive concept: people are in the middle class whose income lies between y_1 and y_2, so that the size of the middle class is given by the difference $F_2 - F_1$ (the income share can be read on the horizontal axis of the left quadrant). What are the income limits that define the middle class? The economics literature is said to be "converging" (Ravallion 2010, 446) on the definition of these income limits *relatively*:[6] as 75 per cent and 125 per cent of the median. These cut-offs typically demarcate a different range

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[6] Absolute income limits are more common in analyses of the middle class in developing countries or at the global level (Milanovic and Yitzhaki 2002; Banerjee and Duflo 2008; Ravallion 2010), but were also used in earlier studies for the United States (Bradbury 1986; Horrigan and Haugen 1988).

than those for the middle 60 per cent just observed in Figure 3 and, unlike them, are located symmetrically around the median.

This implies that the two approaches may lead to different results. Is there any rationale for these limits? The lower cut-off has a natural linkage with the poverty threshold. Indeed, the Census of Population conducted in Sweden in 1810 contained the following instructions for officials about how to define social classes:

> "In order to determine the various statuses of society of households, those who could be called *rich* are those who have a surplus of about 500 rix-dollars in excess of their annual expenditure; the *moderately rich* are those who have less, also those who for their sustenance do not need to incur debts; the *poor* are those who manage not without difficulty: they also include property owners who are in debt in excess of their assets; the *destitute* are those who have to be sustained by gifts and contributions from others" (cited by Soltow 1989, 47).

This may lead us either to accept "…the premise that middle class living standards begin when poverty ends", as put by Ravallion (2010, 446), or to take instead a more conservative approach and fix a level so as "…to ensure that the lower endpoint of the middle class represents an income *significantly above the poverty level*", as suggested by Horrigan and Haugen (1988, 5). In the EU, the former criterion would bring us to identify the lower bound with the at-risk-of-poverty line, set at 60 per cent of the median, whereas the second criterion would rationalise the 75 per cent cut-off as defining the "margins" of poverty as plus a quarter of the at-risk-of-poverty line. The middle class can then be said to be those "comfortably" clear of being at-risk-of-poverty.

In contrast, use of 125 per cent of the median as an upper demarcation has little evident rationale apart from that of symmetry. The middle class range is in fact relatively short in proportionate terms: 125 is 5/3 times 75. If the lower group had the same proportionate range, then it would extend from 45 per cent to 75 per cent of the median. Yet we know that there are a significant number of people with incomes below 45 per cent of the median. At the other extreme, it seems unrealistic to suppose that a third or more of the population falls in the "upper class", as found by Pressman (2007, 187, Table 2) by applying the 125 per cent cut-off to LIS data. By analogy with the rationale just discussed for the bottom cut-off, which implies that there exists a "lower middle class" made of people whose income is in the range 60 to 75 per cent of the median and who are neither poor nor in the middle class, we could postulate that there is an "upper middle class" between the middle

class and the rich: by taking the 125 per cent cut-off to be a quarter less than the income level that identifies the rich, then the implicit "richness line" would be equal to 167 per cent of the median. (This would amount to partitioning the population into five rather than three income groups.)

By using the 75 and 125 per cent cut-offs we find that the middle class would include at most half of the population in the fifteen countries considered here around 2004; it would be as small as one fourth of the population in Mexico, and less than a third in the United Kingdom and the United States. As a consequence, the upper income group would account for a population share ranging between 27 per cent, in Denmark, Norway and Sweden, and 39 per cent, in Mexico. Even splitting this group and setting the richness line at 167 per cent of the median as above, the rich would still comprise almost 20 per cent of the population in the United Kingdom and the United States, and well above it in Mexico.

If the middle class is to be distinguished from the "rich", a much higher cut-off than 125 per cent seems to be required. The results of Grabka and Frick (2008, 22, Figure 4) for Germany in 2006 show that one has to go above 150 per cent of the median to enter the top 20 per cent: indeed, they choose this income level as the upper limit of the middle class (and 70 per cent of the median as the lower limit). Peichl, Schaefer and Scheicher (2010, 608) further raise the richness line to twice the median, describing it as "arbitrary but common practice", whereas Brzezinski (2010) also considers lines equal to three and four times the median. Danziger, Gottschalk and Smolensky (1989) define the rich as families with incomes more than nine times the poverty line; Rank and Hirschl (2001) raise this multiplier to ten. With a US poverty line approximately one third of the median disposable household income (Smeeding 2006, 71), these values imply a cut-off around 300 per cent of median income.

How can these choices of the upper demarcation level be justified? [7] Use of a relative measure is common. Over a century ago, Watkins argued that the definition of "rich" is essentially relative: "the rich of former days would not even be 'respectably poor' in New York City to-day" (1907, 3–4). So the upper cut-off could be taken as rising with the median (or mean). But what percentage of the median should be taken? One criterion considered here

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[7] Medeiros (2006) defines the richness line as that level of income such that the sum of all incomes above it exactly matches the aggregate poverty gap. The problem with this definition is that the affluence score would fall whenever a government reduces poverty: but countries that do well on this account may still have a rich upper class.

is the capacity to employ full-time another person (for personal services, child care, etc.), while allocating a relatively small proportion of the household budget. If the person employed receive a net wage equal to the poverty line, the gross cost would be 60 per cent of the median times $(1+\tau)$, where τ is additional employment cost. The second parameter is the proportion of total income spent on such personal services, denoted by θ, which has however to be small enough to distinguish the well-off from the middle class. The upper threshold is then $(1+\tau)/\theta$ times 60 per cent of the median. So that values of τ and θ equal to 25 per cent imply a cut-off of three times the median. Lower values for τ (for example where the outlay is tax deductible) imply a lower cut-off; lower values of θ imply a higher cut-off. So $\tau=0$ and $\theta=0.20$ imply that the cut-off would again be 300 per cent of the median, but $\tau=0.10$ and $\theta=0.33$ would give a cut-off of 200 per cent of the median.

As we raise the upper cut-off to 200 per cent of the median, the size of the middle class increases considerably: it reaches 71 per cent in Scandinavian countries, and exceeds half of the population even in countries where incomes are distributed more unequally like Italy, the United Kingdom, and the United States. The share of the well-off would still be above 10 per cent in these three nations; it would fall to 3-4 per cent only as the upper cut-off is raised to three times the median.

The ranking of the fifteen countries is little affected by fixing the upper demarcation line alternatively at 125, 167, 200 or 300 per cent of the median, and the resulting sizes of the middle class are highly correlated. However, it does not follow that the *changes* in the size of the middle class are the same for all cut-offs. In Italy, for instance, the size of the middle class is unchanged with the 125 per cent cut-off, but increases with the 200 per cent cut-off and declines with the 300 per cent cut-off; in Norway, it rises with a 125 per cent cut-off but falls with a 200 or 300 per cent cut-off (Figure 4, lower panel). Even where the changes are in the same direction, the extent of the variation depends noticeably on the cut-off definition, suggesting different patterns of change of the underlying distribution. The shrinkage varies in size across nations, but the fact that it is positive in the majority of countries may reinforce the concerns of those who fear that the middle class is (gradually) disappearing. Is this worry well-founded? To some extent, the answer depends on the simultaneous changes in the proportions of the poor and of the rich. Regardless of the level of the upper cut-off, in all ten countries where the middle class indisputably shrunk both proportions increased, indicating that income distribution polarised. Yet, the top panel of Figure 4 shows that, with few exceptions, the population share of the rich went up more than that of the poor, so that the

overall net change was towards higher rather than lower income ranges. Italy stands out as the only country where there was a shift from the top to the middle together with a (more moderate) shift from the middle to the bottom.

Figure 4: Change in population shares for different income cut-offs in selected LIS countries between around 1985 and around 2004 (percentage points)

Middle class boundaries: ☐ 75%-125% ■ 75%-167% ■ 75%-200% ☐ 75%-300%
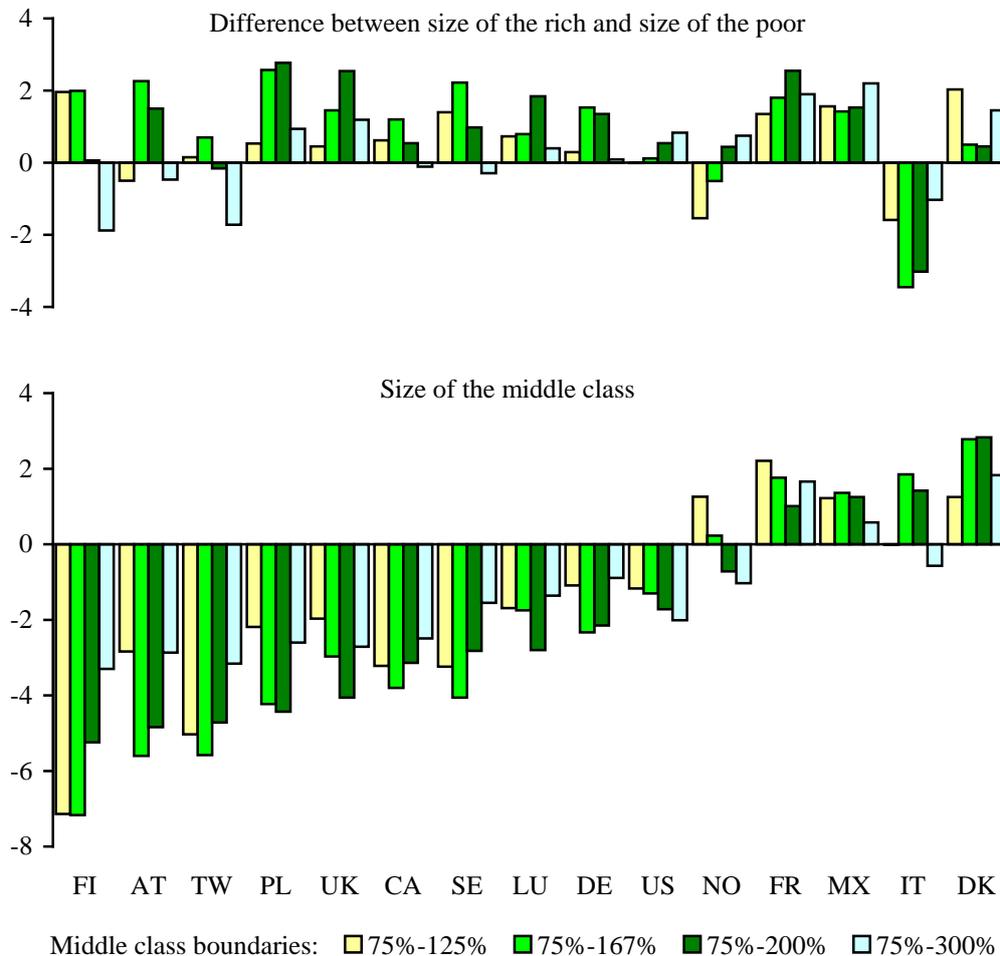
Source: Author's calculations from the LIS database, as of 10 May 2011.

The shrinking middle and polarisation

In his study of the shrinking middle class hypothesis in the United Kingdom during the 1980s, Jenkins (1995, 410) argues that considering the entire income distribution by means of kernel density estimates may reveal information that would be missed by using a specific middle class definition, such as the fact that "… the shift away from the middle was asymmetric, with the increase in density within the higher income ranges much greater than

the increase at the lowest income ranges". This idea is further developed by Burkhauser et al. (1999) who use kernel density estimation to compare the income distributions of the United Kingdom and the United States. The comparison of the frequency density functions for 1979 and 1989 enable them to identify two intersections, and to show that during the decade the middle mass shifted towards both the left and right tails, but disproportionately more towards the latter in both countries. These intersections are located at 33 and 130 per cent of the UK median income, and at 24 and 158 per cent of the US median income in 1989. There is no reason to assume that these income levels are those delimiting the middle class: in particular, the lower intersections are well below any standard poverty threshold. However, they tell us that, in those specific episodes, any other pair of cut-offs would yield a lower absolute reduction of the size of the middle class. More interestingly, if both lower and upper cut-offs are set sufficiently higher than these income levels, one may find that the size of the middle class rises rather than declines.

This example illustrates that the arbitrariness of any delimitation of the middle class may lead to contradictory results, as we have seen for the cases of Norway and Italy, where the variation in the share of the middle class changes of sign as the upper cut-offs is raised, even in a non-monotonic fashion in Italy. The search for the conditions under which an unambiguous judgement can be reached stimulated Foster and Wolfson's (2010; but originally circulated in 1992) analysis of "polarisation", a concept which tries to capture the spreading away from the median that underlies the phenomenon of the vanishing middle class.[8] In addition to exploring partial orderings generated by polarisation curves, Foster and Wolfson also proposed an index based on these curves, which represents an inverse measure of the size of the middle class.[9] Figure 5 reports the change in this index, in the version used by Wolfson (1994), between the mid-1980s and the mid-2000s for the fifteen countries of our

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[8] In a different approach, Esteban and Ray (1994) and later Duclos, Esteban and Ray (2004, 1747) characterise polarisation as "… the interplay of two forces: identification with one's own group and alienation vis-à-vis others"; social classes are endogenously defined but not explicitly identified.

[9] Foster and Wolfson's polarisation index is equal to $(T-G)\mu/m$, where μ and m are the mean and median incomes, G is the Gini coefficient, and T is the ratio to the mean of the average income distance between those above the median and those below the median. Since the term $(T-G)$ is equal to the Gini coefficient between the upper and lower halves of the distribution minus the weighted inequality within these two subgroups, "more inequality between the upper and lower halves of the distribution will tend to raise both inequality and polarization; a greater level of within-group inequality raises overall inequality, but lowers polarization" (Foster and Wolfson 2010, 266). Wolfson (1994) rewrites the index as $2(1-2S_{0.50}-G)\mu/m$, where $S_{0.50}$ denotes the income share of the bottom half of the population.

sample as well as the changes in the overall income inequality as measured by the Gini index. The evidence of this Figure is in line with that of Figure 4: income distribution polarised and the size of the middle class declined in most countries, but not in Mexico, Norway, Denmark, Italy and France. The results in Figure 4 also show that inequality and polarisation are interconnected, but distinct phenomena, as their variations differed in size, and even moved in opposite directions in three countries.

Figure 5: Changes in the Wolfson polarisation index and the Gini concentration index in selected LIS countries between around 1985 and around 2004 (percentage points)
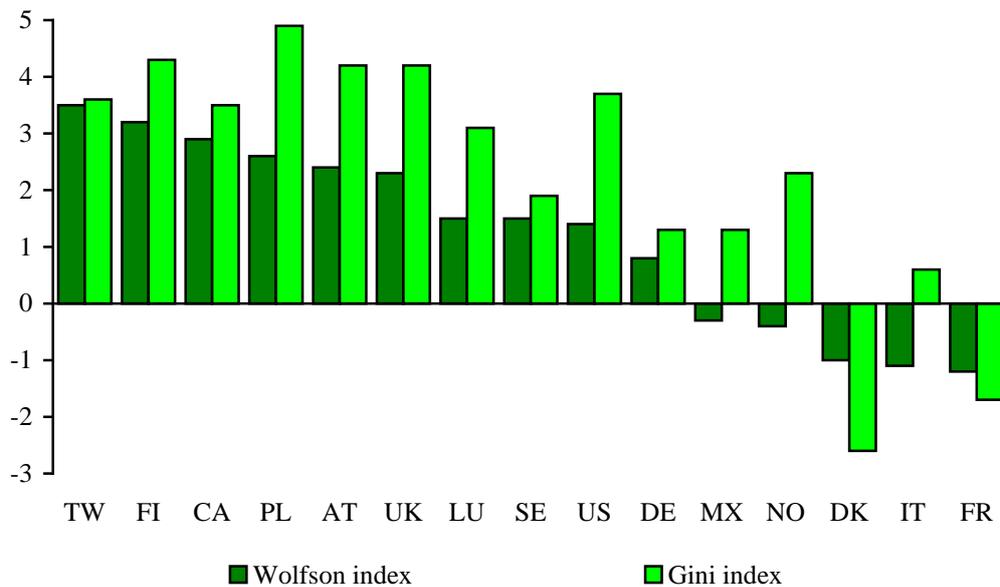
Source: Author's calculations from the LIS database, as of 10 May 2011.

Property and the middle class

The instructions for the Swedish Census of 1810 were based on the ability to make ends meet, taking as a reference the necessary expenditure. Nothing in those instructions implies that income should be the only variable used in the class definition. Rather, the reference to debts seems to suggest a broader concept of economic resources, incorporating income and wealth and the possibility to access credit. Two centuries later, the official report prepared for the Office of the Vice President of the United States Middle Class Task Force states that "… middle class families … have certain common aspirations for themselves and their children. They strive for economic stability and therefore desire to own a home and to save for retirement. They want economic opportunities for their children and therefore want

to provide them with a college education … ” (US Department of Commerce 2010, 1). Income alone may not suffice to identify the middle class.

In fact, income is a good proxy of living standards, but fails to represent the full amount of resources on which individuals rely to cope with the needs of everyday life and to face unexpected events. Individuals may have earnings below the poverty threshold and still reach a decent standard of living thanks to their past savings. A sudden income drop need not result in lower living conditions if they can decrease accumulated wealth, or if they can borrow. On the other hand, income can be above the poverty threshold, yet individuals can feel vulnerable because they have no savings to face an adverse income shock. Assets and liabilities are fundamental to smoothing out consumption when income is volatile, playing an insurance role intertwined with that of private or public formal insurance mechanisms. More fundamentally, the possession of tangible and intangible assets is a major determinant of personal longer-term prospects. The chances in one's life depend on the set of opportunities open to an individual, which are, in turn, a function of her or his intellectual and material endowments. In the presence of capital market imperfections, individuals with low endowments may be stuck in a poverty trap. Conversely, a minimum endowment may reinforce the sense of responsibility of individuals and their attitude to pursue more efficient behaviours (Bowles and Gintis 1998).

These considerations suggest that the middle class status may be closely linked to the possession of real and financial assets. On one side, the value of wealth holdings may help to define the upper limit of the middle class. As suggested by Atkinson (2008) and Eisenhauer (2008, 2011), the wealthy can be identified with "people who do not need to work", that is individuals whose net worth is large enough to enable them to live off the interest while avoiding paid employment. Atkinson treats as rich those people whose wealth exceeds 30 times mean income, on the basis of an assumed real after-tax flow of interest of 3⅓ per cent and taking the average standard of living as a reference. Eisenhauer's wealthy can earn on their net worth enough to be above the poverty threshold: with a poverty line set at 60 per cent of the median income and a risk-free net real interest rate of 2 per cent, their net worth must exceed 30 (=0.6/0.02) times the median income. On the other side, the middle class condition of being comfortably clear of the risk of poverty hinges on the buffer stocks that would prevent people from falling into poverty should something go wrong. While "income-poverty" refers to a static condition where income is insufficient to maintain the minimally acceptable living standard, "asset-poverty" captures the exposure to the risk that this standard

cannot be secured, for some period of time, if income suddenly falls (Haveman and Wolff 2004; Brandolini, Magri and Smeeding 2010). The asset-poverty line may then be taken to coincide with a fraction of the standard income-poverty line: one half means that wealth holdings must be sufficient to maintain the individual at the poverty line for at least six months. The sense of difficulty in coping with negative events associated with asset-poverty is at odds with the economic security that is seen as an attribute of the middle class. We may want to exclude all asset-poor individuals from the middle class, although their incomes are well above the poverty line.

We examine the importance of these issues by means of the LWS database which contains household-level data on both income and wealth for ten rich countries. Given data availability, we have selected five countries: the Federal Republic of Germany (2001), Italy (2004), Norway (2002), Sweden (2002) and the United States (2000). Data for the United States come the Panel Study of Income Dynamics, a different survey from the one included in the LIS database, while those for the remaining countries are drawn from the same original sources, although for a slightly earlier year (except for Italy). In spite of these differences, results for the size of the middle class with income cut-offs at 75 and 200 per cent of the median are reasonably close to those presented in the previous sections: the larger share of the middle class is observed in the two Scandinavian countries (around 70 per cent), followed by Germany (64 per cent), then Italy (58 per cent), and finally the United States (54 per cent).

Household-level information on wealth is generally reputed to be of lower quality than that on income; moreover, the degree of standardisation of definitions and collection procedures is low. Therefore, cross-country comparability is far from perfect, despite the ex post harmonization carried out at LWS. In particular, it has to be noted that total wealth is understated in Norway and Sweden, owing to the valuation of real property on a taxable rather than market basis, and much less seriously in Germany, where certain items are only recorded for values exceeding a minimum level. Yet, the LWS data provide some useful insights on the role of wealth in delimiting the middle class.

Fixing the upper cut-off at 30 times the median income, in 2004 a couple with two young children would be classified as middle class when its net worth is below 950,000 dollars in Italy, 1.2 million in Germany and Sweden, and 1.8 million in Norway and the United States. These values imply that the shares of the well-off goes from 3.6 per cent in the United States to 6.6 in Germany and 10.6 in Italy: in all three countries they own two fifths or more of total wealth. (Norway and Sweden are not considered due to the mentioned

undervaluation of real assets and, hence, net worth.) The upper income limits of the middle class that correspond to these population proportions are approximately located at twice the median in Italy and Germany and at three and half times the median in the United States. This evidence would provide some support for raising the upper limit of the middle class at least to 200 per cent of the median.

At the other extreme, to define asset-poverty we consider both financial assets alone, which include assets that can be easily monetized, and net worth, which includes all marketable assets net of all debts (excluding the value of business equity, because unavailable in some countries): the former can be seen as an indicator of "emergency fund availability", while the latter is an indicator of "the long-run economic security of families" (Haveman and Wolff 2004, 151). Coherently with this interpretation, to measure asset-poverty we take a shorter reference period for financial assets than for net worth: three and six months, which correspond to asset-poverty thresholds equal to one fourth and one half of the income poverty-line, respectively. Our estimates show that a considerable proportion of middle class individuals are asset-poor. When the cut-offs are set at 75 and 200 per cent of the median, about half of middle-class Germans and Americans do not have enough liquid assets to sustain their standard of living at the poverty line for at least three months, and the size of the middle class shrinks to 31 per cent or less; the proportion of asset-poor falls to 30 per cent or less when the focus is on net worth. Financial asset-poverty concerns 35-40 per cent of the Swedish and Norwegian middle class individuals. Far less middle class Italians are financially vulnerable, 23 per cent using financial assets and 13 per cent considering net worth: it reflects the pervasiveness of home ownership and relatively high housing prices, but also the segmentation and low generosity of public income-support schemes that induce people to accumulate precautionary savings.[10]

In brief, accounting for wealth helps to qualify purely income-based definitions of the middle class. We have focused on the role of assets either in allowing people to avoid paid employment without jeopardising their standard of living, or in protecting people's standard of living from a sudden drop of their earnings, but other aspects may be relevant, such as the role that wealth plays in sustaining upward mobility. In all five countries examined, the size

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[10] The balance between private wealth and public insurance is closely linked to the "encompassing" nature of welfare state institutions as discussed by Korpi and Palme (1998).

of the middle class would be significantly cut should we exclude asset-poor individuals, to an extent that varies considerably across countries and depends on the wealth measure.

Class and occupation

The link between income and employment position is undoubtedly close, and both variables can contribute to draw the class distinctions. Yet, their conceptual primacy varies across disciplines. Economists tend to start from income or expenditure. In their study covering thirteen developing countries around the world, Banerjee and Duflo (2008) define the middle class as comprising all households with a daily per capita expenditure lying between 2 and 10 dollars at purchasing power parities, and then proceed to compare their consumption, investment, educational and occupational patterns with those of the poor and the well-off. The conclusion is pertinent to our discussion, and worth quoting at length:

> "Nothing seems more middle class than the fact of having a steady well-paying job. While there are many petty entrepreneurs among the middle class, most of them do not seem to be capitalists in waiting. They run businesses, but for the most part only because they are still relatively poor and every little bit helps. If they could only find the right salaried job, they might be quite content to shut their business down. If the middle class matters for growth, it is probably not because of its entrepreneurial spirit" (Banerjee and Duflo 2008, 26).

Most sociologists would approach the issue the other way round, and focus on the positions in the labour market to fix the demarcation lines across classes. Social differentiation may be specified in terms of occupational prestige and status within a "social-hierarchy approach", or in terms of the employment relations entailed by the position of individuals in the productive process within a "class-structure approach" (Erikson and Goldthorpe 1992, 28–35). Goldthorpe and McKnight (2006) adopt this second approach and show how the employment-based class position impinges on individuals' economic security, economic stability and economic prospects. Wright (1997, 2009) distinguishes from this Weberian perspective, which defines classes on the basis of access to and exclusion from certain economic opportunities, the Marxist tradition, which "… conceives of classes as being structured by mechanisms of domination and exploitation, in which economic positions accord some people power over the lives and activities of others" (Wright 2009, 102). This conceptual distinction aside, Wright (1997, 37) observes that the empirical categories used to

estimate the class structure do not dramatically differ between the two perspectives, being largely based on individuals' occupations and employment relations.

Since Wave V, the LIS database contains a much improved coverage of labour market variables. However, original sources were not all designed to provide a careful description of labour market status, not even for the main respondent. Indeed, Mandel and Shalev (2009, 1882-1883) observes that "because the occupational coding schemes utilized in LIS datasets are nationally idiosyncratic, carrying out a comprehensive and reliable study of class effects requires utilizing 'income classes' – in the present case, quintiles of hourly earnings". For instance, the variable "occupation of the household's head" (D14), that would provide the information needed in the class-structure approach, presents as many as 496 different categories in the United States and 280 in Germany but only 31 in France, and is missing for Italy and Sweden. The variable "skill level in employment of the household's head" (SKILLHD) constitutes a reasonable substitute for Sweden and Italy, although skill categories differ in number (9 and 14, respectively) and precise definitions. Possibly for this unavoidable patchwork nature, no routine is available, to our knowledge, to compute standard social classifications from the LIS data, unlike other comparative projects such as the European Social Survey (see Leiulfsrud, Bison and Jensberg 2005).

Nonetheless, for the five countries just mentioned, we have tried to approximate the simplified version of Goldthorpe's classification to study its overlapping with an income-based class partition. In this classification, the "intermediate class" comprises routine nonmanual employees, lower-grade technicians, supervisors of manual workers and small employers and self-employed workers; it is distinct from the "working class" (skilled and unskilled manual workers, low-skilled routine non-manual workers), on one side, and the "salariat or service class" (all professionals, administrative and managerial employees, higher-grade technicians, large employers), on the other (e.g., Goldthorpe and McKnight 2006, 110, Table 5.1). By combining the information on occupation (France, Germany, the United States) or skill level in employment (Italy, Sweden) with that on the status in employment (ACTIVHD), we apply this classification to all active household's heads. Results are therefore not comparable to those presented above as households of inactive heads are now excluded; moreover, income medians are computed for the restricted group.

According to this classification, the size of the intermediate class ranges from 50 per cent in France to 61 per cent in Sweden and appears to be far less variable across countries than the size of the income middle class (compare the dotted areas with the narrow bars in

Figure 6). When the upper income cut-off is set at 150 per cent of the median income, large part of the intermediate class is located either at the bottom or at the top of the income distribution in Italy and the United States; but when the cut-off is raised to 200 per cent, the income-based middle class considerably outweighs the occupation-based middle class in France, Germany and Sweden. In all countries, the middle class identified on the basis of income includes a sizeable proportion of working class, together with some fraction of individuals in the top class. Excluding these two subgroups would reduce the size of the income middle class by between 40 and 50 per cent. Bearing in mind the limits in cross-country comparability, the social stratification by occupation and the clustering by income levels do not coincide.

Figure 6: Population shares of occupation-based and income-based middle classes in selected countries around 2004 (per cent)
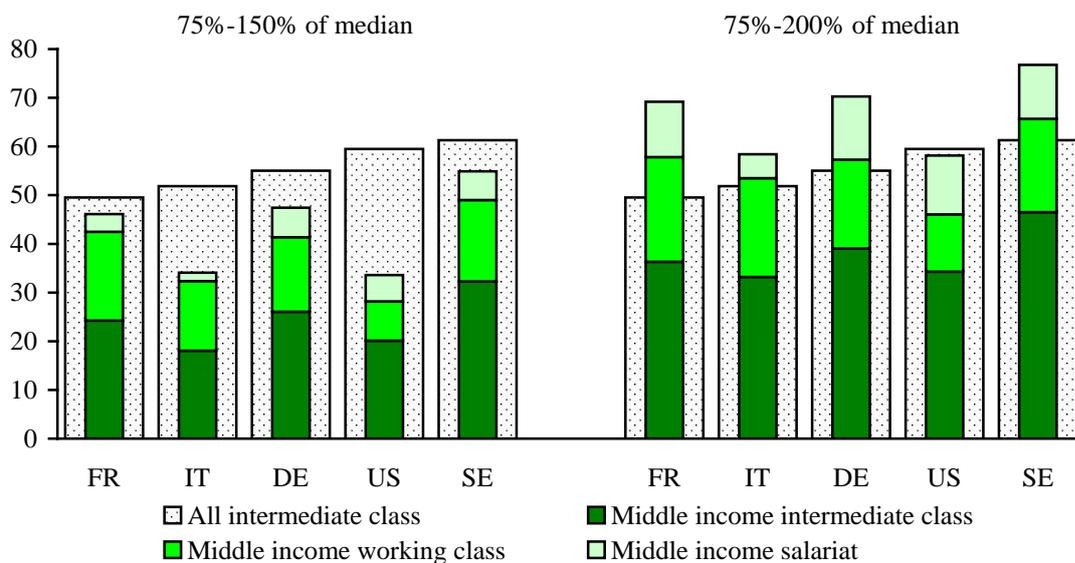
Source: Author's calculations from the LIS database, as of 10 May 2011.

Conclusions

The relationship between class and income distribution goes back to the origins of economic discipline, at least to the famous opening of Ricardo's *Principles of Political Economy and Taxation* (1821) that the principal problem in political economy is to determine the laws which regulate the distribution of "the produce of the earth among … the proprietor of the land, the owner of the stock of capital necessary for its cultivation, and the labourers by whose industry it is cultivated". At that time, it may have been reasonable to suppose a close

correspondence between social class and position on the income scale. Today, this relationship is blurred by the development of institutions that stand between the productive sector of the economy and the households sector, the state as well as private intermediaries (Atkinson 1983, ch. 9). The entire social stratification has become more complex: the middle class, that is the object of this paper, did not even feature in Ricardo's synthesis.

Nowadays, social class and income distribution largely belong to separate fields of analysis – the former a favourite terrain for sociologists, the latter a topic largely for economists. Indeed, it is normal among economists to think of classes simply as income groupings. As we have seen, the middle class has been then identified by setting limits either in the people space, $F(y)$, or in the income space, y. While in the former the size of the middle class is fixed and attention is focused on the evolution of the income share, in the latter population size is the main concern. This approach provides an interesting complement to analyses that focus on the bottom or the top of the income distribution.

We have indeed shown that around 2004 both the size of the middle class (for different income cut-offs) and its income share are largest in the Nordic nations and corporatist continental European countries; they are smaller in Italy, the United States and the United Kingdom, and especially Mexico. Moreover, we have observed a downsizing of the middle class between the mid-1980s and the mid-2000s: the middle 60 per cent of the population lost income shares to the benefit of the richest top fifth in all countries but Denmark; the middle class shrunk in ten countries while expanding in three other countries, as also confirmed by Foster and Wolfson's polarisation index.

These results offer a more nuanced view of the recent evolution of economic inequality. On the other hand, when we delve into the composition of middle income groups, we find that they are internally highly heterogeneous. We have shown this to be the case as regards both wealth holdings and the position in the labour market. Economists often stress the importance of having a large middle class for economic growth, either for its consumption patterns or for its propensity to accumulate human and physical capital, as well as for democracy and the political stability of a society. Yet, it is reasonable to wonder whether a pure income characterisation of social classes is analytically satisfactory. Perhaps, it is time to re-integrate the analyses of personal incomes, of position in the division of labour, and of ownership structure.

References

Atkinson, Anthony B. 1983. The Economics of Inequality, 2nd ed. Oxford: Clarendon Press.

Atkinson, Anthony B. 2004. "The Luxembourg Income Study (LIS): Past, Present and Future." Socio-Economic Review 2(2): 165-190.

Atkinson, Anthony B. 2008. "Concentration among the Rich." In Personal Wealth from a Global Perspective, edited by James B. Davies. Oxford: Oxford University Press.

Autor, D. H., L. F. Katz, and M. S. Kearney. 2006 "The Polarization of the US Labor Market." American Economic Review Papers and Proceedings 96(2): 189-94.

Banerjee, Abhijit V., and Esther Duflo. 2008. "What is middle class about the middle classes around the world?" Journal of Economic Perspectives 22(2): 3-28.

Beach, Charles M., Richard P. Chaykowski, and George A. Slotsve. 1997. "Inequality and Polarization of Male Earnings in the United States, 1968-1990". North American Journal of Economics and Finance 8(2): 135-151.

Beckett, Andy. 2010. "Is the British middle class an endangered species?" The Guardian, July 24, 2010, p. 28. http://www.guardian.co.uk/uk/2010/jul/24/middle-class-in-decline-society.

Bluestone, Barry, and Bennett Harrison. 1988. "The Growth of Low-Wage Employment: 1963-86." American Economic Review Papers and Proceedings 78(2): 124-128.

Bowles, Samuel, and Herbert Gintis. 1998. "Efficient redistribution: New rules for markets, states and communities." In Recasting egalitarianism: New rules for communities, states and markets, edited by Erik O. Wright. London: Verso.

Bradbury, Katherine L. 1986. "The Shrinking Middle Class." Federal Reserve Bank of Boston New England Economic Review September-October: 41-55.

Brandolini, Andrea, Silvia Magri, and Timothy M. Smeeding. 2010. "Asset-Based Measurement of Poverty." Journal of Policy Analysis and Management 29(2): 267-284.

Brzezinski, Michal. 2010. "Income Affluence in Poland." Social Indicators Research 99(2): 285-299.

Burkhauser, Richard V., Amy Crews Cutts, Mary C. Daly, and Stephen P. Jenkins. 1999. "Testing the significance of income distribution changes over the 1980s business cycle: a cross-national comparison." Journal of Applied Econometrics 14(3): 253-272.

Danziger, Sheldon, Peter Gottschalk, and Eugene Smolensky. 1989. "How the Rich Have Fared, 1973-87." American Economic Review Papers and Proceedings 79(2): 310-14.

Duclos, Jean-Yves, Joan Esteban, and Debraj Ray. 2004. "Polarization: Concepts, Measurement, Estimation." Econometrica 72(6): 1737-1772.

Eisenhauer, Joseph G. 2008. "An Economic Definition of the Middle Class." Forum for Social Economics 37 (2): 103-113.

Eisenhauer, Joseph G. 2011. "The Rich, the Poor, and the Middle Class: Thresholds and Intensity Indices." Research in Economics, forthcoming.

Erikson, Robert, and John H. Goldthorpe. 1992. The Constant Flux: A Study of Class Mobility in Industrial Societies. Clarendon Press: Oxford.

Estache, Antonio, and Danny Leipziger (editors). 2009. Stuck in the Middle: Is Fiscal Policy Failing the Middle Class?. Washington, DC: Brookings Institution Press.

Esteban, Joan-María, and Debraj Ray. 1994. "On the Measurement of Polarization." Econometrica 62(4): 819-851.

Foster, James E., and Michael C. Wolfson. 2010. "Polarization and the decline of the middle class: Canada and the U.S." Journal of Economic Inequality 8(2): 133-273.

Goldthorpe, John H. 2010. "Analysing Social Inequality: A Critique of Two Recent Contributions from Economics and Epidemiology." European Sociological Review 26(6): 731-744.

Goldthorpe, John H., and Abigail McKnight. 2006. "The Economic Basis of Social Class." In Mobility and Inequality: Frontiers of Research from Sociology and Economics, edited by Stephen L. Morgan, David B. Grusky and Gary S. Fields. Stanford, CA: Stanford University Press.

Goos, M, and A. Manning. 2007. "Lousy and Lovely Jobs: The Rising Polarization of Work in Britain." Review of Economics and Statistics 89(1): 118-133.

Goos, M., A. Manning, and A. Salomons. 2009. "Job Polarization in Europe." American Economic Review Papers and Proceedings 99(2): 58-63.

Grabka, Markus M., and Joachim R. Frick. 2008. "The Shrinking German Middle Class– Signs of Long-Term Polarization in Disposable Income?" DIW Berlin Weekly Report 4(4): 21-27.

Haveman, Robert, and Edward N. Wolff. 2004. "The Concept and Measurement of Asset Poverty: Levels, Trends and Composition for the U.S., 1983–2001." Journal of Economic Inequality 2(2): 145-169.

Horrigan, Michael W., and Steven E. Haugen. 1988. "The Declining Middle-Class Thesis: A Sensitivity Analysis." Monthly Labor Review 111(5): 3-13.

Jenkins, Stephen P. 1995. "Did the middle class shrink during the 1980s? UK evidence from kernel density estimates", Economics Letters 49(4): 407-413.

Korpi, Walter, and Joakim Palme. 1998. "The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality, and Poverty in the Western Countries." American Sociological Review 63(5): 661-687.

Lawrence, Robert Z. 1984. "Sectoral Shifts and the Size of the Middle Class." Brookings Review 3(1): 3-11.

Leiulfsrud, Håkon, Ivano Bison, and Heidi Jensberg. 2005. Social Class in Europe. European Social Survey 2002/3. Trondheim: NTNU Social Research Ltd.

Mandel, Hadas, and Michael Shalev. 2009. "How Welfare States Shape the Gender Pay Gap: A Theoretical and Comparative Analysis." Social Forces 87(4): 1873-1911.

Medeiros, Marcelo. 2006. "The Rich and the Poor: The Construction of an Affluence Line from the Poverty Line." Social Indicators Research 78(1): 1-18.

Milanovic, Branko, and Shlomo Yitzhaki. 2002. "Decomposing world income distribution: Does the world have a middle class?" Review of Income and Wealth 48(2): 155-178.

Peichl, Andreas, Thilo Schaefer, and Christoph Scheicher. 2010. "Measuring Richness and Poverty: A Micro Data Application to Europe and Germany". Review of Income and Wealth 56(3): 597-619.

Pressman, Steven. 2007. "The Decline of the Middle Class: An International Perspective." Journal of Economic Issues 41(1): 181-200.

Rank, Mark R., Thomas Hirschl. 2001. "Rags or Riches? Estimating the Probabilities of Poverty and Affluence across the Adult American Life Span." Social Science Quarterly 82(4): 651-669.

Ravallion, Martin. 2010. "The Developing World's Bulging (but Vulnerable) Middle Class." World Development 38(4): 445-454.

Ricardo, David. 1821. On the Principles of Political Economy and Taxation, 3rd ed. London: John Murray.

Smeeding, Timothy M. 2006. "Poor People in Rich Nations: The United States in Comparative Perspective." Journal of Economic Perspectives 20(1): 69-90.

Soltow, Lee. 1989. "The Rich and the Destitute in Sweden, 1805-1855: A Test of Tocqueville's Inequality Hypotheses." Economic History Review 42 (new series, 1): 43-63.

US Department of Commerce. 2010. Middle Class in America. Report prepared for the Office of the Vice President of the United States Middle Class Task Force, January.

Watkins, George P. 1907. The Growth of Large Fortunes, Publications of the American Economic Association 8: 1-170.

Wolfson, Michael C. 1994. "When Inequalities Diverge." American Economic Review Papers and Proceedings 84(2): 353-858.

Wright, Erik Olin. 1997. Class Counts: Comparative Studies in Class Analysis. Cambridge: Cambridge University Press.

Wright, Erik Olin. 2009. "Understanding Class. Towards an Integrated Analytical Approach." New Left Review 60: 101-116.

Appendix

Table A1: Income distribution statistics

Country	Around 1985			Around 2004		
	Median (2004 inter-national $)	Gini index	Wolfson polarisation index	Median (2004 inter-national $)	Gini index	Wolfson polarisation index
Austria	18,726	0.227	0.187	22,828	0.269	0.211
Canada	22,705	0.283	0.239	24,273	0.318	0.268
Denmark	19,506	0.254	0.196	22,563	0.228	0.186
Finland	15,638	0.209	0.169	19,398	0.252	0.201
France	15,061	0.298	0.238	17,966	0.281	0.226
Germany	17,260	0.265	0.210	20,226	0.278	0.218
Italy	13,102	0.332	0.292	15,139	0.338	0.281
Luxembourg	19,009	0.237	0.201	35,399	0.268	0.216
Mexico	3,569	0.445	0.422	4,340	0.458	0.419
Norway	21,222	0.233	0.186	27,767	0.256	0.182
Poland	7,708	0.271	0.232	6,658	0.320	0.258
Sweden	14,228	0.218	0.172	19,963	0.237	0.187
Taiwan	10,807	0.269	0.221	20,281	0.305	0.256
United Kingdom	12,826	0.303	0.268	20,819	0.345	0.291
United States	23,437	0.335	0.301	26,672	0.372	0.315

Source: Author's calculations from the LIS database, as of 10 May 2011.

Table A2: Income share of the bottom, middle and top income groups (per cent)

Country	Around 1985			Around 2004		
	Bottom 20%	Middle 60%	Top 20%	Bottom 20%	Middle 60%	Top 20%
Austria	10.1	57.1	32.8	9.2	54.4	36.3
Canada	8.1	55.4	36.5	7.3	53.5	39.2
Denmark	8.8	56.9	34.3	10.1	57.1	32.8
Finland	10.6	58.0	31.4	9.7	55.4	34.9
France	7.3	55.5	37.2	8.8	54.2	37.1
Germany	9.2	55.1	35.7	8.9	54.1	37.0
Italy	7.3	52.2	40.5	7.2	51.8	41.0
Luxembourg	10.3	55.8	34.0	9.2	54.6	36.3
Mexico	4.6	45.9	49.6	4.5	44.3	51.2
Norway	9.9	56.9	33.2	9.5	55.3	35.2
Poland	8.8	55.5	35.7	7.6	52.6	39.9
Sweden	9.8	58.6	31.6	10.0	56.3	33.7
Taiwan	9.7	53.5	36.8	8.2	52.8	39.0
United Kingdom	7.9	54.1	38.0	7.3	50.8	41.9
United States	6.1	54.4	39.5	5.8	51.1	43.1

Source: Author's calculations from the LIS database, as of 10 May 2011.

Table A3: Population shares of the bottom, middle and top income groups for an upper income cut-off at 125 per cent of median (per cent)

Country	Around 1985			Around 2004		
	Below 75%	75%-125%	Above 125%	Below 75%	75%-125%	Above 125%
Austria	24.3	47.2	28.6	26.0	44.3	29.7
Canada	29.6	38.3	32.2	30.9	35.1	34.1
Denmark	28.5	45.2	26.3	26.8	46.5	26.7
Finland	24.2	51.2	24.6	26.8	44.0	29.2
France	28.7	38.9	32.4	26.9	41.1	32.0
Germany	26.3	43.9	29.8	26.7	42.8	30.5
Italy	31.6	33.0	35.5	32.4	33.0	34.7
Luxembourg	24.9	45.6	29.5	25.4	43.9	30.7
Mexico	37.0	24.4	38.6	35.6	25.6	38.8
Norway	24.2	47.9	28.0	24.3	49.1	26.6
Poland	28.7	39.5	31.8	29.6	37.3	33.1
Sweden	24.4	50.6	25.0	25.3	47.4	27.4
Taiwan	25.5	43.4	31.1	28.0	38.4	33.7
United Kingdom	31.1	34.8	34.1	31.9	32.9	35.3
United States	33.4	31.1	35.6	34.0	29.9	36.1

Source: Author's calculations from the LIS database, as of 10 May 2011.

Table A4: Population shares of the bottom, middle and top income groups for an upper income cut-off at 167 per cent of median (per cent)

Country	Around 1985			Around 2004		
	Below 75%	75%-167%	Above 167%	Below 75%	75%-167%	Above 167%
Austria	24.3	67.3	8.4	26.0	61.7	12.4
Canada	29.6	56.4	14.1	30.9	52.6	16.6
Denmark	28.5	63.3	8.2	26.8	66.1	7.1
Finland	24.2	70.1	5.7	26.8	62.9	10.3
France	28.7	57.6	13.7	26.9	59.4	13.7
Germany	26.3	62.4	11.3	26.7	60.1	13.2
Italy	31.6	48.4	20.0	32.4	50.3	17.4
Luxembourg	24.9	63.4	11.7	25.4	61.7	12.9
Mexico	37.0	36.5	26.6	35.6	37.8	26.6
Norway	24.2	67.0	8.8	24.3	67.2	8.5
Poland	28.7	58.5	12.8	29.6	54.3	16.2
Sweden	24.4	70.0	5.7	25.3	65.9	8.8
Taiwan	25.5	60.0	14.5	28.0	54.5	17.6
United Kingdom	31.1	52.1	16.9	31.9	49.1	19.1
United States	33.4	47.8	18.9	34.0	46.5	19.6

Source: Author's calculations from the LIS database, as of 10 May 2011.

Table A5: Population shares of the bottom, middle and top income groups for an upper income cut-off at 200 per cent of median (per cent)

Country	Around 1985			Around 2004		
	Below 75%	75%-200%	Above 200%	Below 75%	75%-200%	Above 200%
Austria	24.3	72.1	3.6	26.0	67.3	6.8
Canada	29.6	63.0	7.4	30.9	59.9	9.3
Denmark	28.5	67.6	3.9	26.8	70.5	2.7
Finland	24.2	73.8	2.0	26.8	68.5	4.7
France	28.7	64.4	7.0	26.9	65.4	7.7
Germany	26.3	68.0	5.7	26.7	65.9	7.4
Italy	31.6	55.9	12.5	32.4	57.3	10.3
Luxembourg	24.9	70.0	5.1	25.4	67.2	7.4
Mexico	37.0	43.5	19.5	35.6	44.7	19.7
Norway	24.2	72.1	3.8	24.3	71.4	4.3
Poland	28.7	65.3	6.0	29.6	60.8	9.6
Sweden	24.4	73.7	1.9	25.3	70.9	3.8
Taiwan	25.5	66.5	8.0	28.0	61.8	10.3
United Kingdom	31.1	60.1	8.8	31.9	56.0	12.1
United States	33.4	55.9	10.8	34.0	54.1	11.9

Source: Author's calculations from the LIS database, as of 10 May 2011.

Table A6: Population shares of the bottom, middle and top income groups for an upper income cut-off at 300 per cent of median (per cent)

Country	Around 1985			Around 2004		
	Below 75%	75%-300%	Above 300%	Below 75%	75%-300%	Above 300%
Austria	24.3	75.3	0.4	26.0	72.4	1.6
Canada	29.6	69.4	1.1	30.9	66.9	2.3
Denmark	28.5	70.8	0.7	26.8	72.7	0.5
Finland	24.2	75.6	0.2	26.8	72.3	1.0
France	28.7	69.7	1.6	26.9	71.4	1.7
Germany	26.3	72.4	1.2	26.7	71.6	1.7
Italy	31.6	65.3	3.2	32.4	64.7	2.9
Luxembourg	24.9	74.7	0.4	25.4	73.3	1.3
Mexico	37.0	54.1	9.0	35.6	54.6	9.8
Norway	24.2	75.3	0.5	24.3	74.3	1.4
Poland	28.7	70.1	1.1	29.6	67.5	2.9
Sweden	24.4	75.5	0.1	25.3	74.0	0.8
Taiwan	25.5	72.8	1.7	28.0	69.6	2.5
United Kingdom	31.1	67.2	1.7	31.9	64.5	3.7
United States	33.4	64.5	2.1	34.0	62.5	3.5

Source: Author's calculations from the LIS database, as of 10 May 2011.

Table A7: Asset poverty of the middle class by different income cut-offs (per cent)

Country	Income cut-offs at 75% and 125%			Income cut-offs at 75% and 200%		
	Non asset poor	Asset poor	Total	Non asset poor	Asset poor	Total
Financial assets (threshold at 25% of income poverty-line)						
Germany	17.1	22.8	39.8	32.3	31.4	63.6
Italy	23.9	9.6	33.5	44.4	13.3	57.7
Norway	27.9	20.4	48.2	46.3	24.9	71.2
Sweden	23.5	21.2	44.7	41.6	27.4	69.0
United States	12.5	19.1	31.6	26.5	27.3	53.8
Net worth (threshold at 50% of income poverty-line)						
Germany	25.0	14.9	39.8	44.5	19.2	63.6
Italy	28.2	5.3	33.5	50.1	7.7	57.7
Norway	–	–	48.2	–	–	71.2
Sweden	–	–	44.7	–	–	69.0
United States	20.4	11.2	31.6	38.6	15.2	53.8

Source: Author's calculations from the LWS database, as of 10 May 2011.

Table A8: Population shares of occupation-based and income-based middle classes, by different income cut-offs (per cent)

Country	Income middle class (cut-offs at 75% and 125%)				Income middle class (cut-offs at 75% and 200%)				Interme-diate class
	Working class	Interme-diate class	Salariat	All	Working class	Interme-diate class	Salariat	All	
France	18.2	24.3	3.6	46.1	21.5	36.3	11.4	69.2	49.5
Germany	15.3	26.1	6.1	47.4	18.3	39.0	13.0	70.3	55.0
Italy	14.3	18.1	1.8	34.1	20.3	33.2	4.9	58.4	51.9
Sweden	16.7	32.3	5.9	54.9	19.2	46.5	11.1	76.8	61.3
United States	8.1	20.1	5.4	33.6	11.8	34.3	12.1	58.2	59.5

Source: Author's calculations from the LIS database, as of 10 May 2011.