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Inequality, Public Opinion, and Redistribution

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According to the "median-voter" hypothesis, greater inequality in the market distribution of earnings or income tends to produce greater generosity in redistributive policy. We outline the steps in the causal chain specified by the hypothesis and attempt to assess these steps empirically. Prior studies focusing on cross-country variation have found little support for the median-voter model. We examine over-time trends in eight nations during the 1980s and 1990s. Here too the median-voter hypothesis appears to have little utility.

Income inequality has two components: (1) "market" inequality and (2) government redistribution via taxes and transfers. In principle, the two can be combined in any of a variety of ways: low market inequality with high redistribution, low market inequality with low redistribution, high market inequality with moderate redistribution, and so on. Of particular interest in the study of inequality is what happens when market inequality is high or increases. Does government compensate with high redistribution in order to secure a relatively egalitarian distribution of posttax-posttransfer income?

According to one influential theoretical approach, that is indeed what tends to happen. This approach is based on a median-voter model of the politics of redistribution. Its best-known exposition is by Allan Meltzer and Scott Richard (1981). A higher level of market inequality implies a greater distance between

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mean and median (pretax-pretransfer) income, with the latter further below the former. The lower the median relative to the mean, the more the median income person or household is likely to benefit from government redistribution, in the sense that the transfers she receives will exceed her share of the tax burden. Hence the greater the amount of redistribution she will favor. More market inequality thus leads to political demand for more generous redistributive policy, which in a reasonably responsive democratic polity should result in exactly that.

The median-voter model is intuitively compelling. And for those with egalitarian sympathies its policy implications are encouraging, as it suggests that greater market inequality will tend to be offset (to some degree, at least) by greater redistribution. Our aim is to examine the utility of this hypothesis for understanding developments in affluent countries in the 1980s and 1990s.

There are four steps in the causal chain posited by the model:

1. People are aware of the true level of market inequality.
2. Where market inequality is higher, the median-income person or household will favor greater redistribution.
3. This preference will be expressed via voting, demands by organized constituencies, and/or public opinion polls and focus groups.
4. Government will respond with more generous redistributive programs.

Each of these steps is questionable on theoretical grounds (Burstein 1998; Fong 2001; Moene and Wallerstein 2003; Lenz 2004; Kenworthy and Pontusson 2005). Individuals may have imperfect information about the true level of inequality. Their preferences for redistribution may be guided by values rather than monetary self-interest. Voting and other political behavior may be based on a variety of issues, rather than solely or mainly on redistributive policy. And parties and governments may or may not respond to the desires of voters. However, our aim here is not to highlight the theoretical limitations of the model. Instead, we examine the model's empirical utility, focusing on the first, second, and fourth steps in the hypothesized causal chain.

The median-voter hypothesis can be conceptualized as a prediction about cross-sectional variation: countries with higher market inequality should have greater redistributive generosity. As a variety of observers have noted, the empirical pattern among affluent countries is inconsistent with this hypothesis (Alesina and Glaeser 2003; Moene and Wallerstein 2003; Kenworthy and Pontusson 2005; Iversen and Soskice 2006; though see also Lübker 2006). Redistributive policies in countries with higher levels of market inequality tend to be less generous, rather than more.

However, the median-voter hypothesis may be more relevant as a prediction about *change over time within countries*. It suggests that as inequality increases, the generosity of redistributive policy should increase. This is our interest here.

We seek to examine whether increases in market inequality tended to generate increases in redistributive generosity in eight affluent nations in the 1980s and 1990s. The countries are treated as multiple cases for testing the median-voter hypothesis.

Two recent studies have explored the association between changes in inequality and changes in redistribution in affluent nations. Milanovic (2000) and Kenworthy and Pontusson (2005) each find evidence consistent with the median-voter hypothesis: market inequality (of household incomes) is positively associated with redistribution. However, Kenworthy and Pontusson (2005) suggest that the actual causal path is not that specified by the median-voter model. The over-time pattern exists not because citizens and policy makers responded to increases in market inequality by increasing the generosity of redistributive programs. Instead, it is a function of the "automatic compensatory" effect of taxes and transfers. If income taxes are progressive, an increase in the earnings or investment income of those at the top results in a larger share being taken by taxes. If more people become unemployed or disabled, more will receive unemployment compensation or sickness/disability compensation or social assistance. Hence, redistribution will increase.

Neither of these studies examined the hypothesized changes in awareness of inequality and support for redistribution empirically. We do so here.

Data, Measures, Method

We examine over-time trends in market inequality, perceptions of the degree of inequality, preferences for redistribution, and redistributive policy generosity in eight countries in the 1980s and 1990s. To ensure comparability, we use the same data sources for all countries, though where possible we supplement them with additional data from country-specific sources in order to fill in or extend the time series. The data we utilize, particularly those for public opinion, are less than ideal. But they are the best available, and we believe they are good enough to help shed some light on the utility of the median-voter hypothesis.

Inequality

To gauge changes in market inequality we use two types of data. The first is data on individual earnings, which are from an unpublished data set assembled by the Organization for Economic Cooperation and Development (OECD 2006). The data set includes annual data on earnings for full-time employed individuals in a number of affluent countries since around 1980. The second is data on pretax-pretransfer ("market") household incomes from the Luxembourg Income Study (LIS). The LIS database is the most reliable source of cross-nationally comparable data on the distribution of income in affluent countries (Atkinson and Bran-

dolini 2001; Smeeding 2004). The LIS data are available in "waves"; for most countries there is an observation around 1985, 1990, 1995, and 2000.

For individual earnings, we measure inequality using the ratio of the ninetieth percentile in the distribution to the tenth percentile (P90/P10 ratio). For household incomes, we measure inequality with the Gini coefficient. It would be helpful to use the same inequality measure for both types of data, in order to have a common metric. However, that turns out to be problematic (see Kenworthy and Pontusson 2005). Fortunately, it is not critical for our analyses; our interest is mainly in the direction of change, and the two measures tend to yield similar conclusions regarding change. For both of these measures, larger numbers indicate more inequality.

Public Opinion

To examine awareness of inequality and support for redistribution, we utilize public opinion data from the International Social Survey Program (ISSP). The ISSP provides the best available comparative data on public opinion regarding inequality and government redistribution (Brooks and Manza 2006; Lübker 2006; Osberg and Smeeding 2006; Svallfors 2006). Three ISSP modules are particularly relevant for our purposes: the "Social Inequality" modules of 1987, 1992, and 1999. We use two sets of questions to tap public awareness of inequality. One is for pay inequality, the other for income inequality.

For pay inequality we use calculations by Jonathan Kelley from a group of questions asking what pay level the respondent thinks each of various occupations receives. For a number of countries the survey includes eleven such occupations: farm worker, bank clerk, secretary, bus driver, bricklayer, unskilled worker, skilled worker, small shop owner, cabinet minister, doctor, and company chairman [sic]. However, for several countries only a subset of these occupations was included in the survey. To maintain consistency over time and across countries, these calculations use responses for just three occupations: unskilled worker, skilled worker, and chairman of a large national corporation. The measure, which is described in detail in the appendix here and in Kelley and Zagorski (2005), is essentially the perceived pay level for the chair of a large corporation divided by the average perceived pay level of a skilled worker and an unskilled worker. The average ratio among all respondents is used to represent the perceived level of pay inequality for the country as a whole. This measure focuses on the perceived difference between a very high-paying occupation and two moderate-to-low-paying occupations. This seems reasonable given that we measure actual inequality of individual earnings as a P90/P10 ratio.

To tap public awareness of income inequality we use the following question: "How much do you agree or disagree with the statement 'Differences in income in [respondent's country] are too large?'" There are five response choices: strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree.

This question does not directly gauge awareness of how much inequality there is. Instead, it taps both awareness of the degree of inequality and attitudes about the fairness of that perceived level of inequality. In examining change over time, however, we believe the question can plausibly be presumed to measure changes in awareness of inequality. If we assume that people's views about how much inequality is too much are roughly constant over time, then changes in responses to this question will primarily gauge changes in people's views about how much inequality there is. This appears to be a reasonable assumption, as data from the ISSP suggest that there was little or no change during the 1980s and 1990s in views about how much inequality is too much (Kelley and Zagorski 2005, pp. 343-45).¹

The question we use to tap public support for redistribution is: "How much do you agree or disagree with the statement: 'It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.'" The response choices again are strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. This question also was asked in three ISSP "Role of Government" modules, in 1985, 1990, and 1996. For some of the countries we therefore have as many as six observations for this question.

Plainly, responses to the "government should reduce income differences" question give us only partial insight into the level of public support for redistributive policy generosity. Two key pieces of information are missing. One is how much respondents are willing to pay for redistribution. Responses might differ if the question were posed in such a way that a self-perceived middle-income respondent would have to accept higher tax payments in order to finance redistribution to the poor. The second has to do with the reference point. The question asks about support for redistribution in the abstract, so we cannot tell whether a respondent who agrees or strongly agrees that government should reduce income differences believes that this implies more redistribution than currently occurs. Nonetheless, these data are the best available for examining this key component of the median-voter hypothesis.

¹ There is another ISSP question that more directly taps awareness of inequality: "These five diagrams show different types of society. Which one do you think best describes [respondent's country] today ... (1) The great mass of people at the bottom. (2) A society like a pyramid. (3) A pyramid except that a few people are at the bottom. (4) A society with most people in the middle. (5) Many people near the top, and a few near the bottom." Unfortunately, because this is a categorical measure, it does not yield useful information about the perceived *level* or *degree* of inequality. The five response choices cannot be unambiguously rank-ordered in terms of the degree of inequality they indicate. Also, the question was included only in 1992 and 1999, not in 1987.

Note that we do not focus on the attitudes of the median income person or household. It would make little sense to do so, since there is considerable variation in awareness and attitudes among those in the middle of the distribution. Instead, we use the average level of perceived inequality and the average degree of support for redistribution as proxies. One other possibility might be to consider the average for the middle 10% or 20% of the distribution (that is, from the 45th percentile to the 55th, or from the 40th to the 60th). However, income is coded into categories in the ISSP, and that prevents us from being able to consistently isolate a particular segment of the distribution across years and countries.²

A potential problem in examining trends in public opinion is that observed changes or lack of changes may reflect compositional shifts in the population, rather than shifts (or non-shifts) in awareness of inequality or support for redistribution. Suppose, for example, that a country experiences a significant increase in (earnings and/or income) inequality during a given period of time. The median-voter hypothesis predicts that this will cause an increase in the mean response to the "income differences are too large" question. Suppose, however, that during the period the country's population ages somewhat (due to longer life expectancy and a declining birth rate) and that older people are less likely than younger people to perceive income differences as too large. This shift in the age structure of the population could offset the impact of the change in inequality, yielding no change in the mean response to the "income differences are too large" question. Other compositional shifts in education, incomes, work circumstances, and so on might have similar effects.

To examine this possibility, we estimate two individual-level ordinary least squares (OLS) regressions for each country. Responses to the questions used for two of our three public opinion measures — the "Income differences are too large" question and the "It is government's responsibility to reduce income differences" question — are the dependent variables in the three regressions. (We are unable to do this for the ratio measure of perceived pay inequality.) Year dummy variables — one or two, depending on how many years of ISSP data are available for the particular country — are the independent variables of interest. The regressions include a variety of controls for individual characteristics: education (years of schooling completed), income (family income), subjective class position, employment status (employed or not employed), union membership (member or nonmember), age, and sex. If a year dummy variable is statistically and substantively significant in such a regression, this heightens our confidence

² For example, in country A there might be ten income categories. In 1987 categories 4 and 5 might encompass the middle 20% of the income distribution, but in 1992 and 1999 the categories might allow us to capture only the middle 16% or the middle 27%. Country B may have 21 income categories, which allow us to isolate the middle 18% in 1987 and the middle 22% in 1992. And so on.

that a genuine change has occurred in the perceived level of inequality or in support for redistribution. We do not show the full results of these regressions here (they are available on request). Instead, we simply note them in the text.

Redistribution

The focus of the median-voter model, and of much of the broader interest among social scientists in redistribution, is on the degree of *intended generosity* of social programs.

The measures most commonly used by researchers studying social policy generosity (or "welfare state effort") are government transfers as a share of GDP and social policy expenditures as a share of GDP (Hicks 1999; Iversen and Cusack 2000; Huber and Stephens 2001; Kittel and Obinger 2003; Castles 2004; Brooks and Manza 2006). An alternative, used in several recent studies, is a measure of what might be referred to as "actual redistribution": the difference (absolute or percentage) between inequality of pretax-pretransfer (market) income and inequality of posttax-pretransfer income (Milanovic 2000; Bradley et al. 2003; Kenworthy 2004, 2007; Kenworthy and Pontusson 2005; Mahler and Jesuit 2006). However, both of these measures fuse intended generosity with need. Expenditures and actual redistribution will be higher if programs are structured more generously but also if more people are unemployed, elderly, poor, and so on. As suggested earlier, this is a problem for testing the median-voter hypothesis: if market inequality and redistribution both increase over time, the latter could be a product of increases in the number of people making use of redistributive programs rather than of changes in the generosity of those programs.

A better strategy for assessing the intended generosity of programs is to use a measure of program details (Esping-Andersen 1990; Korpi and Palme 2003; Allan and Scruggs 2004). Such a measure directly taps the degree of intended generosity of redistributive programs, which is the theoretically relevant concept. Until very recently no such measure was available with over-time data. We use several here. Three are from a data set compiled by Lyle Scruggs (2004) on various program details for three key types of redistributive policies: public pensions, unemployment insurance, and sickness insurance. The data include measures of eligibility criteria, replacement rates, and benefit duration. Esping-Andersen (1990) suggested that these various program components can usefully be combined in a single index of "decommodification." We use Scruggs' calculations of decommodification scores, which are based on a revision of Esping-Andersen's scoring procedure (Scruggs 2005; Scruggs and Allan 2005), to examine over-time trends in redistributive policy generosity. These data are available for all of the countries we analyze. Higher decommodification scores indicate greater program generosity.

The fourth measure of program details that we use is a set of estimates, compiled by Kenneth Nelson (2004), of inflation-adjusted benefit levels for social

assistance programs ("social assistance" in most European countries, AFDC and Food Stamps in the United States). Unfortunately, these data are available for only five of our eight countries and this measure does not take into account eligibility criteria or benefit duration.

Data We Do Not Use

There are other sources of comparative data on inequality, public opinion, and redistribution. For inequality, these include data from the University of Texas Inequality Project (n.d.) on pay inequality within manufacturing and household income inequality and data from the United Nations on household income inequality (World Income Inequality Database n.d.). For public opinion the chief alternative is the World Values Survey (n.d.). For redistributive programs, another relevant data source is the Social Citizenship Indicators Project (SCIP) at the Swedish Institute for Social Research (Korpi and Palme 2003). We do not use these alternative sources because they cover fewer countries or years, are less directly comparable across countries, are inferior in terms of tapping the relevant concept, and/or are not publicly available.

Countries

The OECD data on individual earnings inequality and the Scruggs data on social policy program details are available annually for most affluent OECD nations, but the countries and years we examine are limited by data availability in the ISSP and the LIS. There are only eight countries for which we can effectively match up these two databases for multiple years. Two are Nordic European countries: Norway and Sweden. Two are continental European countries: Germany and Italy. Four are Anglo (English-speaking) nations: Australia, Canada, the United Kingdom, and the United States.

Which Variation?

As we noted in the introduction, it frequently has been observed that there is a negative, rather than positive, cross-sectional association between inequality and redistributive policy generosity across countries. Our interest here is in trends over time. Should we focus on the over-time variation within each country? Or should we concentrate on the variation across countries in change over time?

In our view, the latter would require asking too much of the available data on public opinion. We believe changes in the mean responses to the "Income differences are too large" and "It is the responsibility of government to reduce income differences" questions provide a reasonably accurate gauge of the *direction* of change in public opinion. We are not especially confident that they accurately tap the *magnitude* of shifts in public opinion. We are even less confident that they are suitable for assessing *differences across countries in the magnitude* of such shifts. As noted earlier, the "income differences are too large" question combines

a positive assessment of the degree of inequality with a normative view about what level of inequality is fair or appropriate. Normative views on this issue tend to vary considerably across countries (Kelley and Evans 1993; Marshall et al. 1999; Kelley and Zagorski 2005; Lübker 2006). Hence there is reason to be skeptical about whether or not similar changes in mean responses in, say, Sweden and the United States would indicate true similarity in the degree of change in the perceived level of inequality in the two countries.

We therefore confine our analyses to *within-country trends over time*. We treat the eight countries as, in effect, a set of case studies.

Findings

For each country we begin by examining trends in inequality in the 1980s and 1990s. We turn next to trends in awareness of inequality and support for redistribution. We then examine trends in the generosity of redistributive programs. The data are displayed in figures 1 through 8.

Norway

The data for Norway are shown in figure 1. The two inequality charts suggest different conclusions about recent trends in inequality in Norway. The trend for earnings inequality among full-time employed individuals suggests no noteworthy change during the 1980s and 1990s. Data are available for only eight years. However, the data points are spaced sufficiently well across the two decades that we can reasonably infer that the pattern has been one of a constant level of earnings inequality. In contrast, the time series for pretax-pretransfer household income inequality indicates an increase in inequality since the late 1980s. The rate of increase tapered off in the second half of the 1990s, but the level of market income inequality at the end of the 1990s was higher than at the beginning of the decade.

Were these trends in inequality perceived accurately by Norwegians? Unfortunately, ISSP data are available only for 1992 and 1999. The first chart in the second row in figure 1 shows the ratio of the perceived pay level of a chairman of a large national corporation to the average perceived pay level of a skilled and an unskilled worker. Consistent with the trend in earnings inequality, the data suggest no change in the perceived degree of pay inequality between 1992 and 1999. The second chart in the second row shows the trend in the mean response to the "income differences are too large" question. The line is flat, despite the increase in market income inequality during this period. The chart in the third row shows the trend in responses to the "government should reduce income differences" question, which we use as an indicator of support for redistribution. It too suggests no change. Regressions controlling for compositional shifts in the popula-

tion indicate that there actually was an increase in the perceived level of market income inequality and in support for redistribution between 1992 and 1999, but the increase was very small in magnitude.

How, if at all, did redistributive policy change? The decommodification indexes for pensions and sickness insurance indicate no noteworthy shift during either decade. There were some changes in pension policy, but they amounted to short-term shifts that were reversed shortly afterward. For instance, there was a decline in generosity in 1980 that was reversed in 1982. The same thing happened in 1987 and 1998 and in 1999 and 2000. The generosity of unemployment insurance was increased in 1980 and 1985, but then remained constant through the remainder of the 1980s and the 1990s. Unfortunately, data on social assistance benefits are not available.

Summary: How consistent with the median-voter hypothesis were developments in Norway in the 1980s and 1990s? On the one hand, earnings inequality remained largely constant through the two decades, and so too did the perceived level of pay inequality and income inequality, the degree of support for redistribution, and the degree of redistributive policy generosity. On the other hand, market income inequality among households increased significantly between the late 1980s and the late 1990s without any corresponding increase in the perceived level of income inequality, in support for redistribution, or in the generosity of redistributive policy. Thus, some developments in Norway are consistent with the median-voter hypothesis while others are not.

Sweden

Data for Sweden are displayed in figure 2. The first chart in the first row indicates that, unlike Norway, Sweden experienced an increase in earnings inequality among employed individuals. This occurred mainly in the 1990s. The data in the second chart in the first row indicate that market household income inequality also increased. However, this increase occurred in the 1980s and early 1990s, before the rise in individual earnings inequality. In the mid-to-late 1990s market inequality among households declined slightly.

Like for Norway, the public opinion data for Sweden cover only the 1990s, as Sweden was included in the ISSP social inequality modules in 1992 and 1999 but not in 1987. There is an additional year of data — 1996, from a "Role of Government ISSP module — for support for redistribution. The trends shown in the charts in the second row in figure 2 suggest a perception of increasing inequality. The first chart in that row shows that on average the perceived ratio of the pay level of a corporate chair to that of skilled and unskilled workers widened, and the second chart suggests an increase in the perceived level of market income inequality among Swedes.

Support for redistribution also appears to have increased during the 1990s, though only during the first half of the decade. The chart in the third row shows

that the mean level of agreement that government should reduce income differences rose between 1992 and 1996 and then remained constant between 1996 and 1999. Regressions controlling for compositional shifts in the population suggest that these apparent increases in the perceived level of market income inequality and in support for redistribution were real, though because of data limitations it is possible to control only for age and sex.

Did the Swedish government respond by making redistributive programs more generous? No. Pension generosity was increased in the early 1980s, but that preceded the rise in inequality. In the late 1980s and early 1990s, after a decade of rising income inequality, the generosity of Swedish pensions was reduced. The reductions continued through the 1990s, particularly in 1999. In that year the system was significantly altered: most notably, a purely means-tested pension and supplementary private accounts were introduced (Palme 2003). The generosity of both sickness insurance and unemployment insurance also were reduced in the 1990s. Social assistance benefit levels were increased in the 1980s but then reduced in the 1990s.

Summary: As with Norway, some aspects of developments in Sweden are consistent with the median-voter hypothesis while others are not. In the 1990s there were increases in the actual degree of earnings inequality, in perceived levels of pay inequality and income inequality, and in support for redistribution. Not consistent with the median-voter model is the fact that the perceived level of market income inequality increased in the 1990s when the actual level was declining. Also, despite a small increase in support for redistribution in the 1990s, the generosity of Swedish redistributive policy decreased in that decade in all four of the areas for which data are available: pensions, unemployment insurance, sickness insurance, and social assistance.

Germany

Data for Germany are shown in figure 3. Like Norway, Germany experienced no noteworthy change in individual earnings inequality. A mild decrease in 1989 was offset by an increase in 1998. Otherwise the trend was flat. Pretax-pretransfer household income inequality, by contrast, shifted significantly. There was a sizeable increase in the first half of the 1980s, followed by a decline almost equal in magnitude in the second half of that decade. In the 1990s inequality increased steadily.

Germans appear to have been markedly inaccurate in their perceptions of trends in inequality. The perceived pay inequality measure, shown in the first chart in the second row, suggests a perception of rising pay inequality from 1987 to 1992 and then declining inequality between 1992 and 1999, whereas the trend in actual earnings inequality was flat. Responses to the "income differences are too large" question, shown in the second chart in the second row, suggest that Germans perceived an increase in market income inequality between 1987 and

1992 and then a decline between 1992 and 1999. This is exactly the opposite of the actual trend in market income inequality. The public opinion data are for western Germany (the former Federal Republic) only, so these patterns are not a function of the addition of east Germans to the sample. Regressions controlling for compositional shifts in the population imply that these changes in public opinion were genuine, albeit not especially large.

The chart in the middle row in figure 3 indicates that support for redistribution roughly followed perceptions of earnings and income inequality. The average response to the "government should reduce income differences" question was constant between 1985 and 1992, declined between 1992 and 1996, and then held constant again between 1996 and 1999. Here too the regressions indicate that the drop in support for redistribution between the early and mid-to-late 1990s was not simply a function of shifts in the composition of the population.

Was there a response in government redistributive policy, either to the increase in household income inequality or to the seemingly contradictory shift in public opinion? Not much of one. There was no noteworthy change in the generosity of unemployment insurance throughout the two decades. Sick leave insurance was similarly constant, though there was a small reduction in generosity in 1997. Pension generosity too held constant through the 1980s and early 1990s, before being reduced in the second half of the 1990s.

Summary: Developments in Germany, then, offer little support for the median-voter hypothesis. The trend in support for redistribution does appear to have followed the trends in the perceived level of market income inequality. But the trends in public perception of the levels of pay inequality and income inequality were inconsistent with trends in the actual levels. Trends in the generosity of redistributive programs also were inconsistent with those in the actual level of inequality: market income inequality increased in the 1990s, but unemployment insurance and social assistance were unchanged and pensions and sickness insurance were cut back somewhat.

Italy

The available data on individual earnings inequality for Italy cover only 1986 to 1996. As the first chart in figure 4 indicates, during that ten-year period there was no noteworthy change in earnings inequality. In contrast, the level of market household income inequality changed dramatically. It decreased in the second half of the 1980s but then jumped sharply in the early 1990s.

The 1987 ISSP module for Italy does not include the questions on perceived pay levels for various occupations, so it is not possible to assess trends in public perceptions of the level of pay inequality. But data are available regarding perceptions of income differences. They are shown in the second chart in the second row. They suggest an increase in perceived inequality between 1987 and 1992, but only a very slight one. Then again, the share of Italians responding that they

strongly agree that incomes differences are too large jumped from 44% to 53% (not shown).

The trend in responses to the "government should reduce income differences" question followed that for the "income differences are too large" question. As the chart in the middle row in figure 4 indicates, the mean response fluctuated a bit but overall did not change. On the other hand, the share saying they strongly agreed jumped noticeably (not shown). Regressions controlling for compositional shifts in the population suggest that between the mid-1980s and the early 1990s there was a real increase in both the perceived level of market income inequality and in support for redistribution. Although the magnitude of the increase was relatively small, this contrasts with the decline in market income inequality during those years.

Pension generosity was increased significantly between 1980 and 1987, but that precedes the years for which data are available on inequality and public opinion. Between 1987 and 1992 the level of generosity fluctuated, with no net change. The generosity of unemployment insurance was increased in 1996 and 2000, but most of the available data on actual and perceived inequality end before then. There was no change at all in sickness insurance. Data are not available for trends in social assistance.

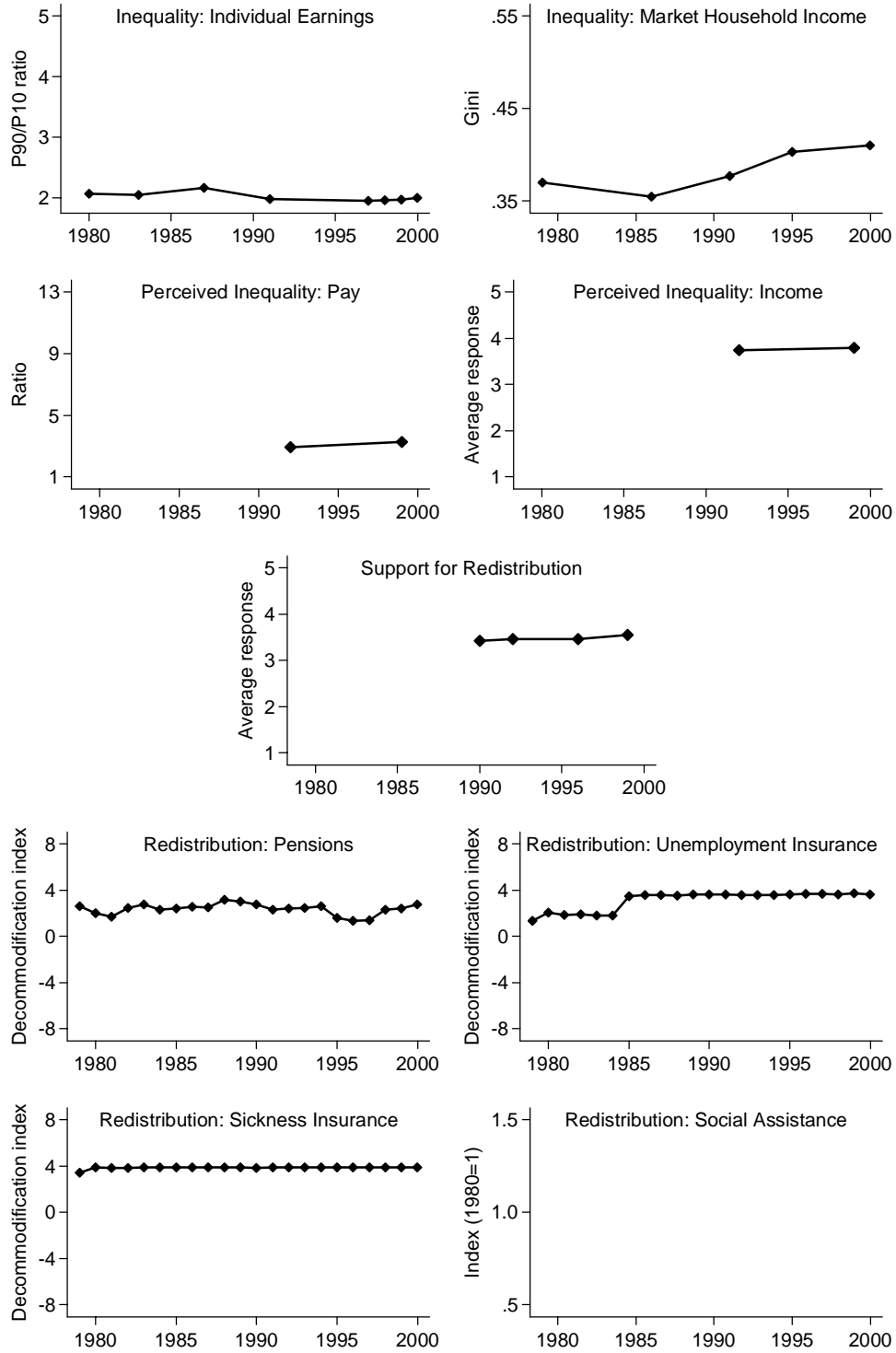
Summary: Due to data limitations, it is a bit more difficult to draw conclusions for Italy than for the other countries. But to the extent we can say anything about trends in Italy, they too can be viewed as either supporting or contradicting the median-voter hypothesis. On the one hand, there was a fairly small increase between the mid-1980s and the mid-1990s in earnings inequality, in the average perceived level of income inequality, in the average level of support for redistribution, and in the generosity of redistributive programs. On the other hand, household market income inequality appears to have decreased significantly in the late 1980s whereas during that period the perceived level of income inequality and the generosity of pensions increased slightly and redistributive program generosity was unchanged.

Australia

Data for Australia are shown in figure 5. Earnings inequality among the full-time employed was constant in Australia for most of the 1980s and 1990s. There was a bit of an increase in the 1990s, beginning in 1993, but it was relatively small. In contrast, market income inequality among households increased steadily during the period for which data are available, 1981 to 1994.

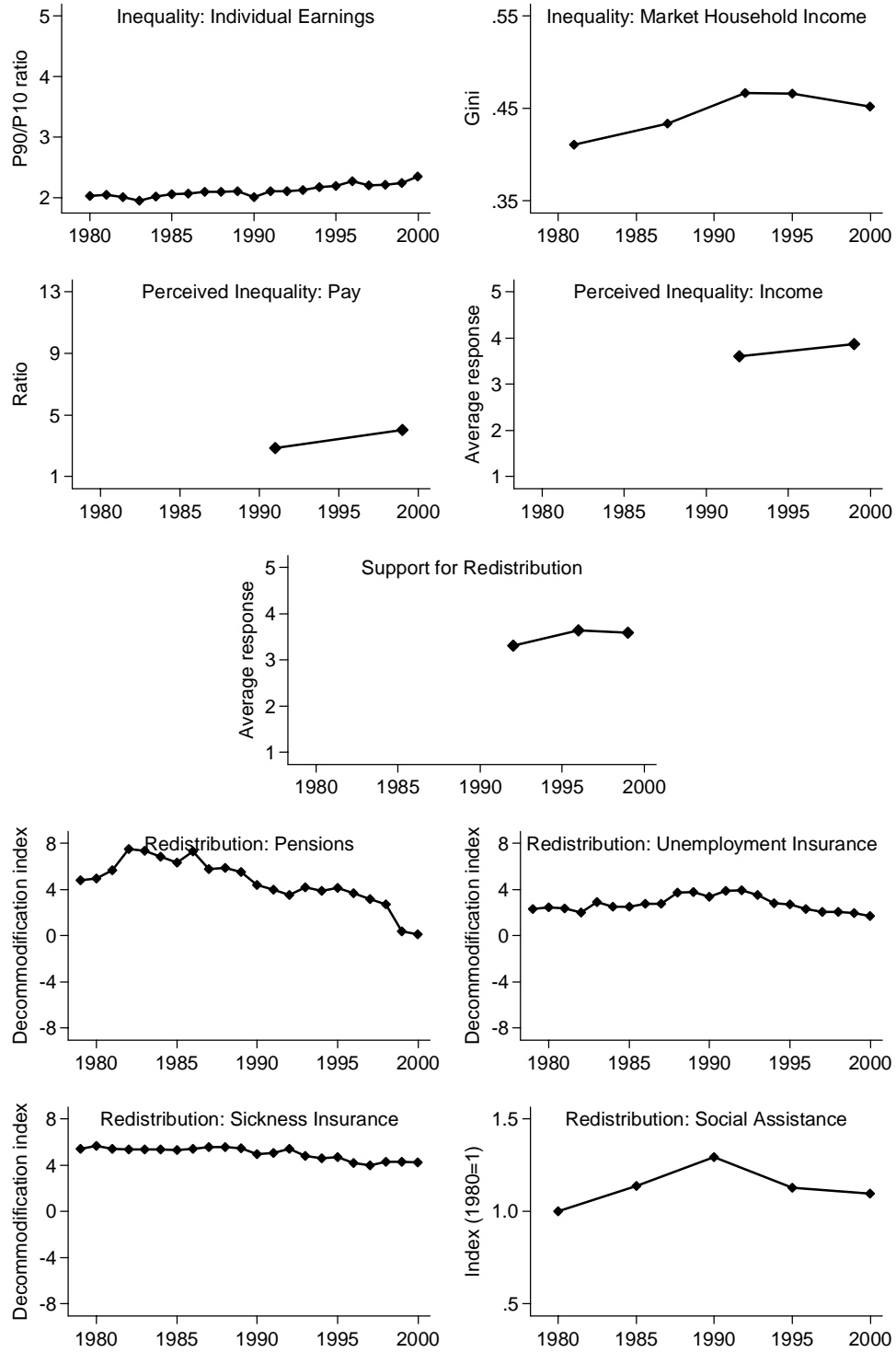
The first chart in the second row suggests a sizeable increase in perceived pay inequality between 1987 and 1999, with most of the rise occurring prior to the mid-1990s. Here we have additional data from country-specific surveys that replicate the ISSP questions. The second chart in that row indicates that the perceived level of income inequality changed little during these years.

Figure 1. Norway



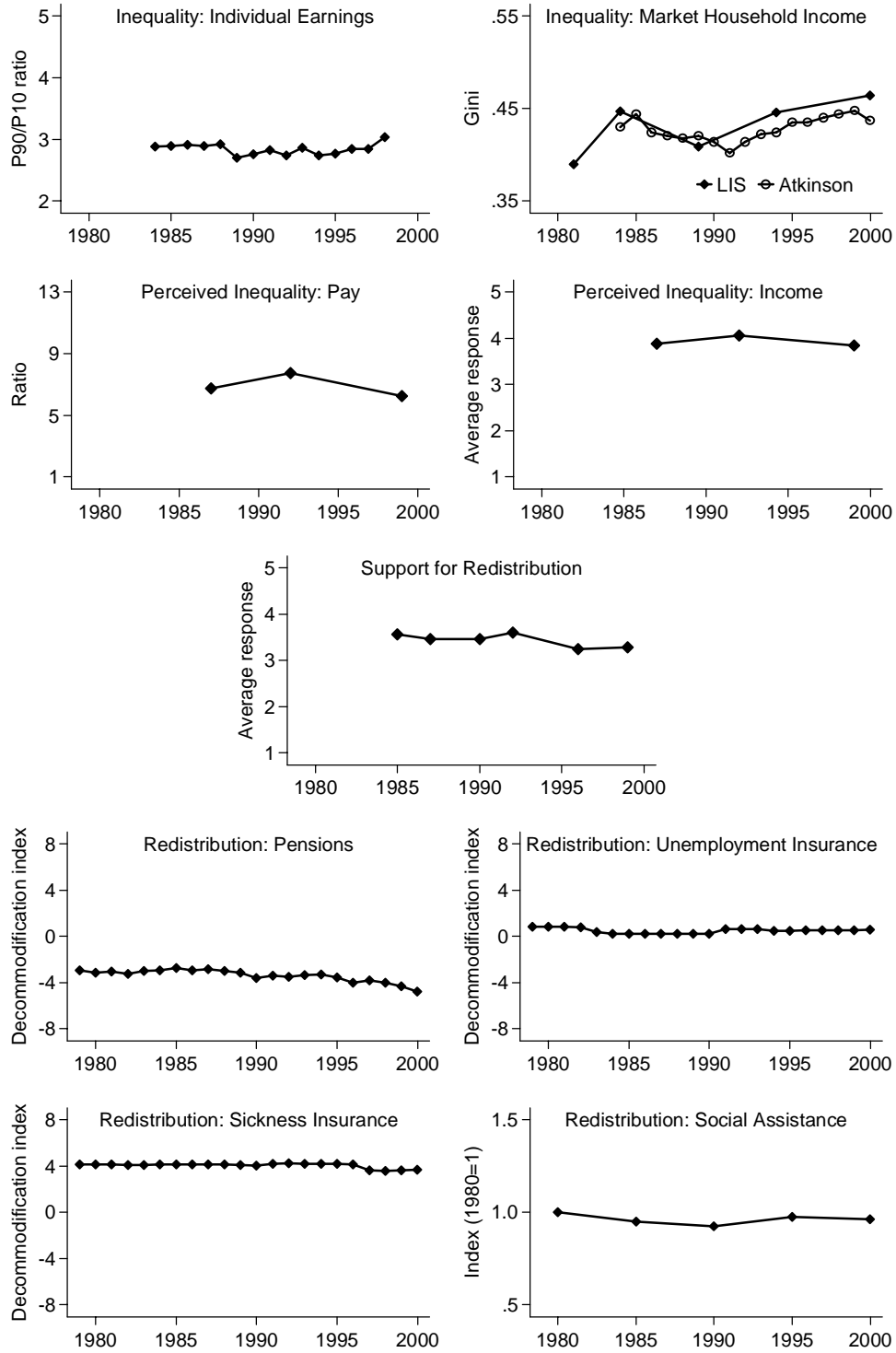
Note: There are no social assistance generosity data for Norway. Vertical axes of some charts are truncated. For variable definitions and data sources, see the appendix.

Figure 2. Sweden



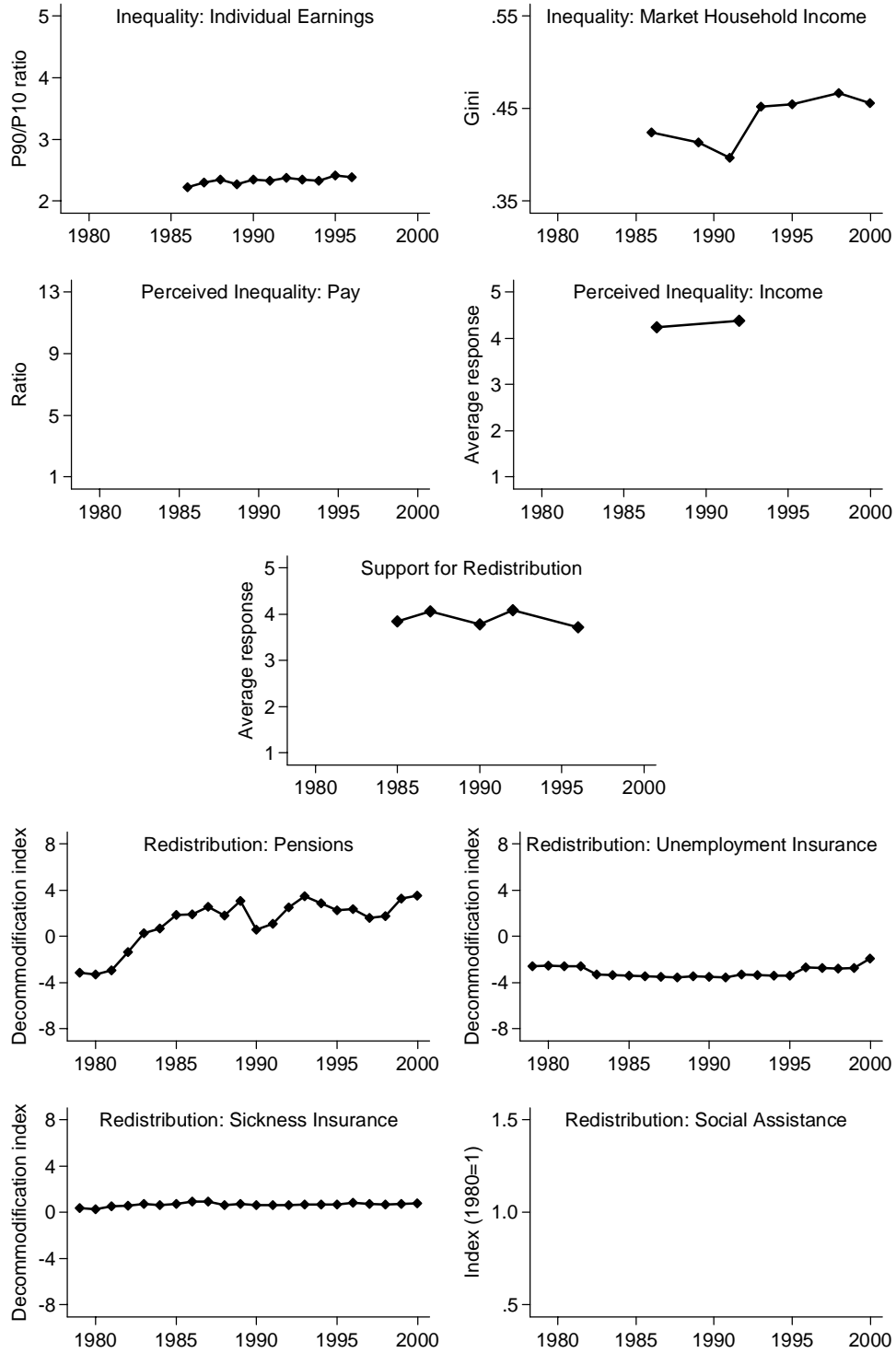
Note: Vertical axes of some charts are truncated. For variable definitions and data sources, see the appendix.

Figure 3. Germany



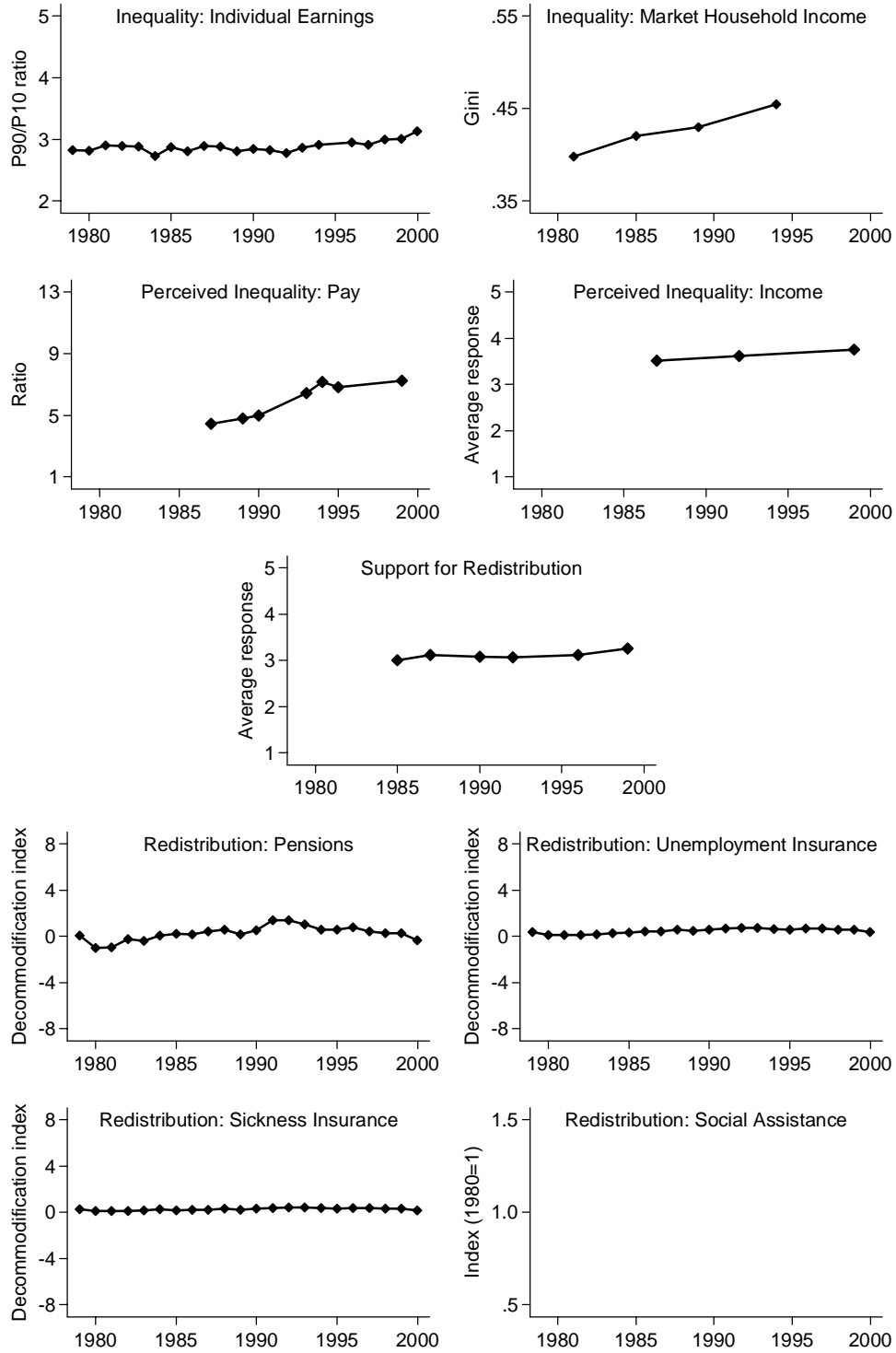
Note: Vertical axes of some charts are truncated. For variable definitions and data sources, see the appendix.

Figure 4. Italy



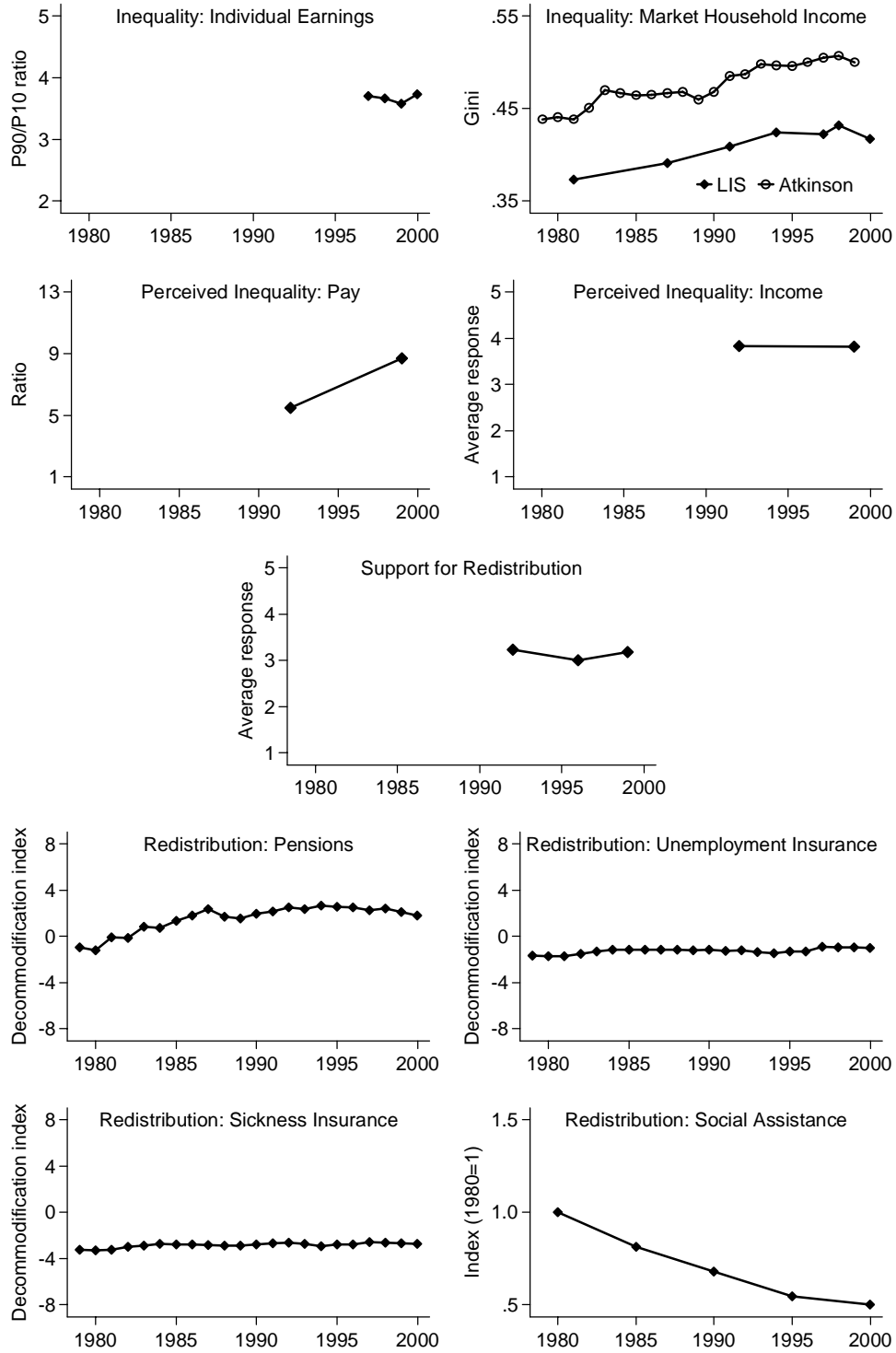
Note: There are no perceived pay inequality or social assistance generosity data for Italy. Vertical axes of some charts are truncated. For variable definitions and data sources, see the appendix.

Figure 5. Australia



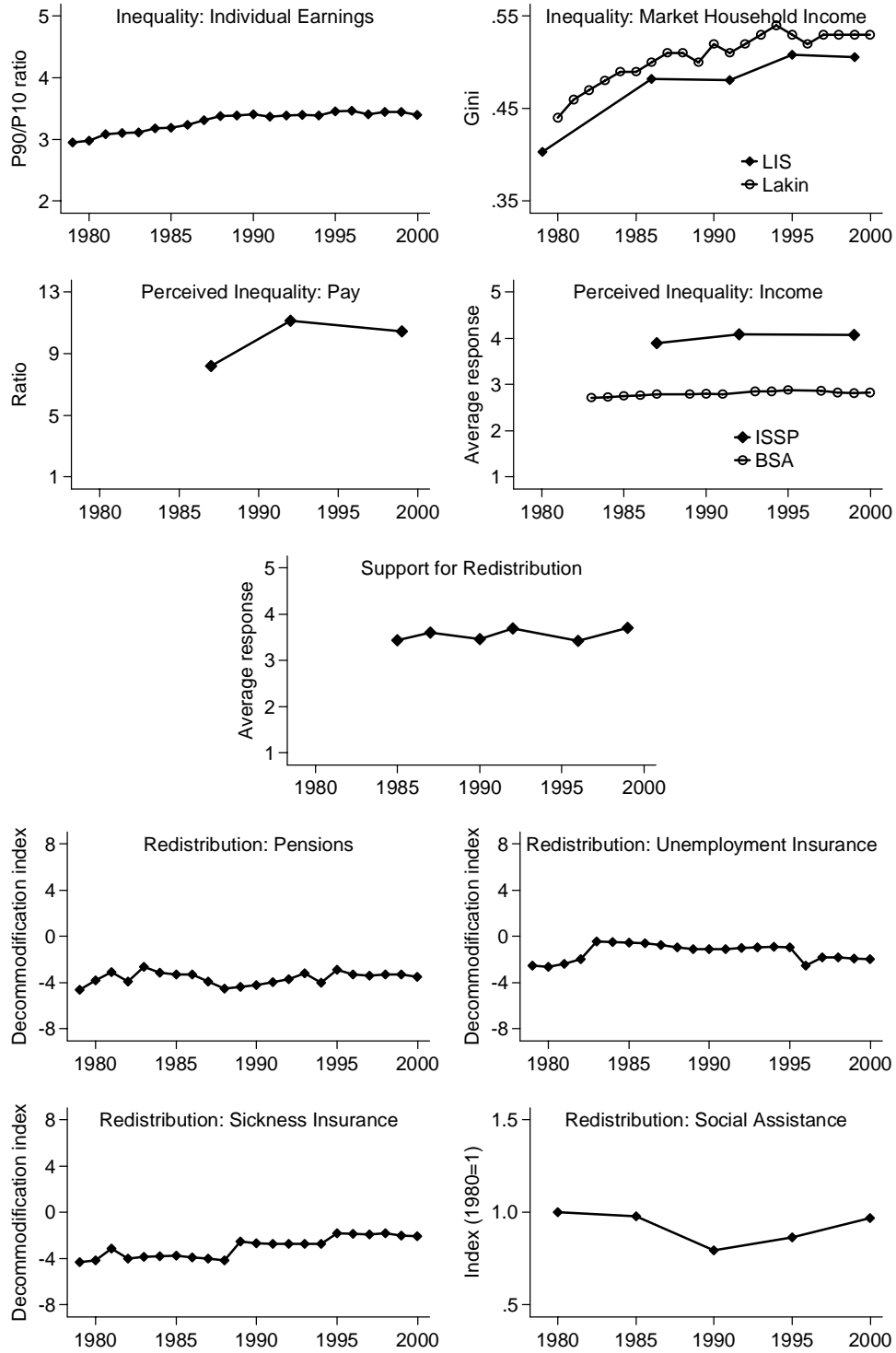
Note: There are no social assistance generosity data for Australia. Vertical axes of some charts are truncated. For variable definitions and data sources, see the appendix.

Figure 6. Canada



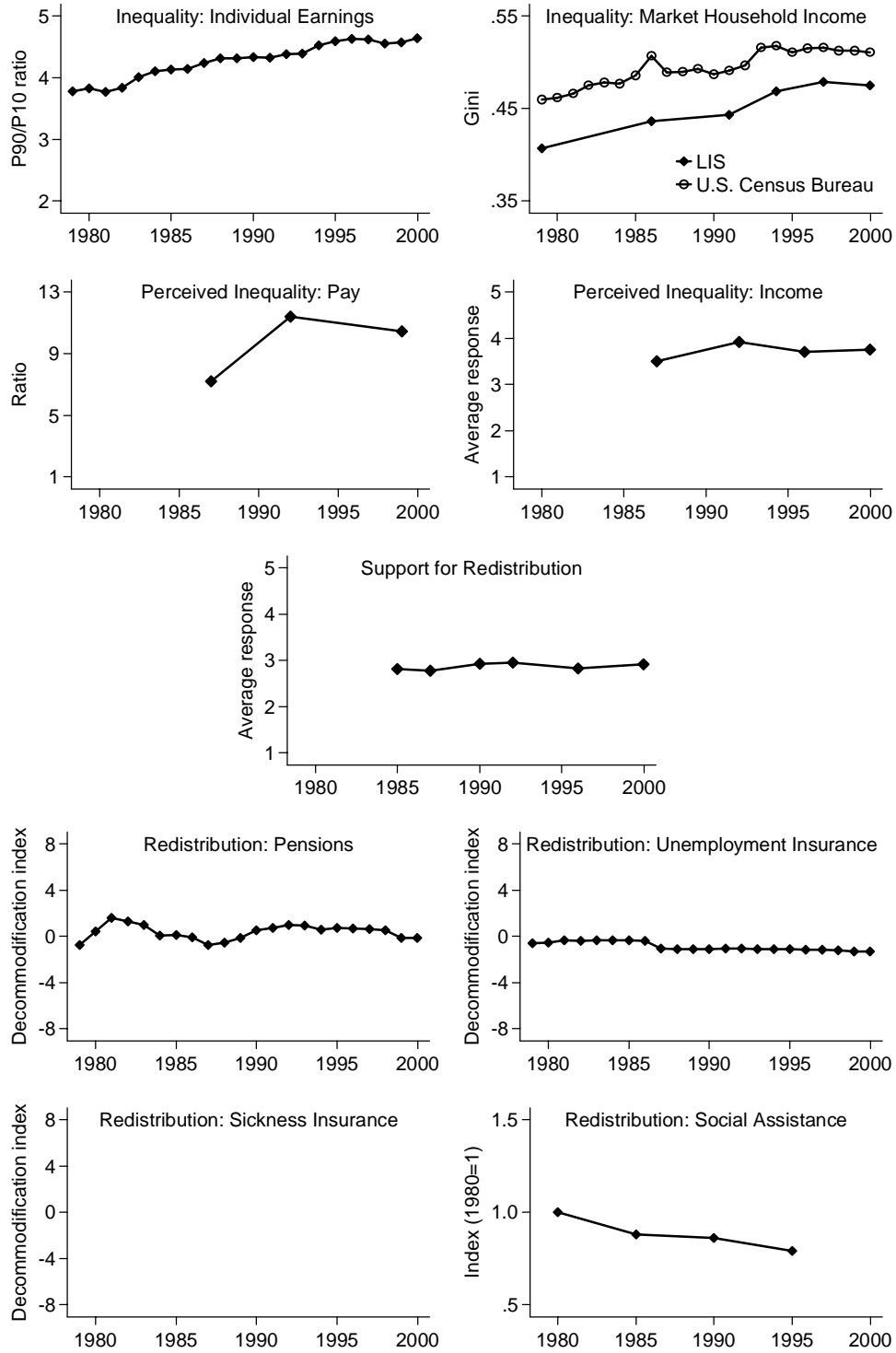
Note: Data on trends in perceived pay inequality are not available for Canada. Vertical axes of some charts are truncated. For variable definitions and data sources, see the appendix.

Figure 7. United Kingdom



Note: Vertical axes of some charts are truncated. For variable definitions and data sources, see the appendix.

Figure 8. United States



Note: There is no public sickness insurance program in the United States. Vertical axes of some charts are truncated. For variable definitions and data sources, see the appendix.

The trend in support for redistribution was very similar to that for the perceived level of income inequality: it stayed flat throughout the period. Regressions controlling for compositional shifts in the population confirm that there was no shift in awareness of market income inequality or in preferences for redistribution between the mid-1980s and the late 1990s.

The generosity of redistributive programs for which data are available remained basically unchanged throughout the two decades. Pension generosity was increased steadily from 1980 to 1991 and then slowly reduced to its prior level during the course of the 1990s. The decommodification indexes for unemployment insurance and sickness insurance did not change. Data are not available for social assistance benefits in Australia.

Summary: The perceived level of income inequality, the level of support for redistribution, and the generosity of key redistributive programs were largely unchanged in Australia in the 1980s and 1990s. This is consistent with the median-voter hypothesis. Yet other developments in Australia were inconsistent with the hypothesis. The perceived level of pay inequality jumped sharply in the late 1980s and early 1990s despite no apparent shift in the actual degree of earnings inequality. And a fairly significant rise in household market income inequality between the early 1980s and the mid-1990s did not produce a commensurate rise in the level of perceived market income inequality, in support for redistribution, or in redistributive policy generosity.

Canada

Data for Canada are displayed in figure 6. Unfortunately, consistent time-series data on earnings inequality are available only for a brief period in the late 1990s. Data for household market income inequality are available throughout the two decades. They suggest a steady rise from the early eighties through the mid-nineties and then little change during the remainder of the nineties.

Data for the perceived level of pay inequality and market income inequality are available only for the 1990s. The perceived level of pay inequality shot up sharply during that decade, while the perceived level of market income inequality did not change.

Support for redistribution also did not shift during the 1990s. The trend in the mean response to the "government should reduce income differences" question is relatively flat. Regressions that control for compositional changes in the population support the conclusion that awareness of market income inequality and preferences for redistribution remained constant in the nineties.

The generosity of unemployment insurance and sickness insurance remained constant through the two decades. Pension generosity was increased in the 1980s, then was unchanged in the 1990s. In sharp contrast, the real value of social assistance benefits declined steadily and quite sharply throughout the two decades. By 2000 the benefit level was approximately half of what it had been in 1980.

Summary: As for each of the other countries, varying aspects of developments in Canada can be viewed as supporting or contradicting the median-voter hypothesis. The trends in both the perceived level of income inequality and in support for redistribution were flat in the 1990s and so too were the generosity of social insurance programs. On the other hand, the trend in the perceived level of income inequality is inconsistent with the trend in the actual level of income inequality. And the generosity of social assistance benefits declined sharply, which is inconsistent with what the median-voter model predicts given the increase in income inequality and the lack of change in the perceived level of income inequality and in support for redistribution.

United Kingdom

It is well known that inequality increased in the United Kingdom in the 1980s and 1990s. The first chart in figure 7 indicates that the increase in earnings inequality among full-time employed individuals occurred mainly in the 1980s. In the 1990s there was no change. Income inequality among households, by contrast, increased during both decades, though in fits and starts. There was a sharp rise between 1979 and 1986, followed by no change between 1986 and 1991. Another significant increase occurred between 1991 and 1995, followed by no change during the rest of the nineties. The overall degree of increase in market household income inequality over the two decades was larger in the United Kingdom than in any of the other seven countries we examine.

There appears to have been a sharp difference in the British public's perceptions of trends in pay inequality and in income inequality. For the former, the data suggest a significant increase in the perceived level of inequality between 1987 and 1992, whereas for the latter there appears to have been no change. For perceived income differences we can supplement the ISSP data with a lengthier and more complete time series from the British Social Attitudes survey.³ It too indicates no noteworthy shift in the perceived level of market income inequality.

The same is true for redistributive preferences. The chart in the middle row in figure 7 suggests no shift over time in favor of greater redistribution. Regressions controlling for compositional shifts in the population tell a similar story regarding changes (or lack thereof) in the perceived level of income inequality and in support for redistribution.

Although the 1979-1997 Thatcher and Major governments instituted some significant changes in British economic and social policy, pensions, unemployment insurance, and sickness insurance were largely unaffected. There was no radical reduction in the generosity of these three programs over the two decades.

³ The question is: "Thinking of income levels generally in Britain today, would you say that the gap between those with high incomes and those with low incomes is ... too small, about right, or too large?" We coded the responses 1, 2, and 3, respectively.

Indeed, sickness insurance moved in the direction of greater generosity. Social assistance benefits, on the other hand, were cut back in the late 1980s. But the reductions were largely restored during the 1990s. As of 2000 the inflation-adjusted value of social assistance benefits was almost exactly what it had been in 1980.

Summary: The United Kingdom is a particularly useful test case for the median-voter hypothesis because both earnings inequality and income inequality increased sharply, though for earnings inequality the rise occurred only in the 1980s. Given these developments, the model predicts an increase in the perceived level of inequality, an increase in support for redistribution, and a rise in the generosity of redistributive programs. However, for the most part these did not occur.

United States

Like in the United Kingdom, in the United States both individual earnings inequality and household pretax-pretransfer income inequality increased. The first two charts in figure 8 show that both rose steadily and quite substantially in the 1980s and the first half of the 1990s before leveling off over the second half of the nineties. The magnitude of the increase in earnings inequality was the largest among the eight countries, and the increase in market income inequality exceeded that in every country except the U.K.

Did Americans notice? Yes, to some degree they apparently did (for more detail see McCall and Brash 2004; McCall 2006). The first chart in the second row of figure 8 suggests that the perceived level of pay inequality increased between 1987 and 1992 but then declined by 1999. For the "income differences are too large" question we are able to add an extra year of data, as the General Social Survey (GSS), which administered the ISSP social inequality module survey in 1987, 1992, and 2000, also asked this question in 1996. The second chart in the second row suggests that, like for pay inequality, Americans perceived an increase in inequality of incomes between 1987 and 1992. Regressions controlling for compositional shifts in the population suggest that this increase was real. But the perceived level of income inequality then fell between 1992 and 1996 and remained flat between 1996 and 2000.⁴

⁴ The chart shows the mean response to the "income differences are too large" question. If we instead consider the share responding "strongly agree," we would conclude that the perceived level of inequality increased between 1992 and 1996: the share rose from 28% to 33%. The mean response declined over these four years because while the share strongly agreeing increased, the share responding "agree" dropped sharply (from 49% to 34%) and the share responding "strongly disagree" increased significantly (from 2% to 8%).

Americans' attitudes toward redistribution changed only slightly, if at all. The mean responses to the "government should reduce income differences" question suggest an increase in support for redistribution in the early 1990s, but only a small one. This was followed by a similarly small decrease between 1992 and 1996 and then no change during the late 1990s. Regressions controlling for compositional shifts in the population suggest no genuine change in support for redistribution between the mid-1980s and 2000.

The decommodification indexes for pensions and unemployment insurance indicate no significant shift in either program. Pension generosity increased in the late 1980s but then declined to its previous level in the late 1990s. There was no change at all in the generosity of unemployment insurance. The United States has no public sickness insurance program. There was a reduction in the generosity of social assistance benefits in the 1980s and the first half of the 1990s (the data series ends in 1995): the real value of AFDC and Food Stamp benefits declined noticeably.

Summary: The evidence for the United States during the 1980s and 1990s suggests that there was an increase in inequality until the mid-to-late nineties and that in the period from the late eighties through the early nineties this was recognized by the public. However, at some point after 1992 the perceived level of inequality declined. The increase in the perceived level of inequality in the early nineties does not appear to have produced heightened support for redistribution. Nor was there a commensurate increase in the generosity of redistributive programs. As with the other countries, then, the U.S. experience calls into question the utility of the median-voter hypothesis in understanding developments in redistributive policy.

Why Doesn't the Median-Voter Hypothesis Fare Better?

The median-voter hypothesis about the impact of inequality on redistribution is intuitively compelling. Yet our examination of over-time trends in eight countries in the 1980s and 1990s reveals many empirical anomalies for the hypothesis. (And recall that we have not examined one of the four elements of the hypothesized causal chain: voting behavior.) What might account for these inconsistencies?

Measurement Error?

One possibility is measurement error. In particular, the available public opinion data are considerably less than ideal, in that they provide indirect measures of the perceived level of inequality and of support for redistribution. Indeed, it may not be possible to effectively capture people's true opinions about these matters —

which tend to be characterized by lack of information, ambivalence, contradiction, and multidimensionality — via a small number of survey questions (Hochschild 1981; Kluegel and Smith 1986; Saris and Sniderman 2004).

On the other hand, the OECD data on earnings inequality, the Luxembourg Income Study data on household income inequality, and the Scruggs data on redistributive policy are likely to be fairly reliable. We could thus sidestep public opinion and look directly at the over-time associations between inequality and redistribution. This does not salvage the hypothesis. In each of the eight countries we observe a nontrivial increase in market income inequality without a proportionate rise in redistributive program generosity.

Are These Eight Countries the Exceptions?

The median-voter hypothesis is a tendential, or probabilistic, one. It asserts that higher levels of inequality will tend to be recognized by the public, which will tend to increase support for redistribution, which will tend to produce greater redistributive program generosity. Our eight countries are a convenience sample from the group of affluent nations; they were selected based on data availability. It is possible, then, that the respects in which the median-voter hypothesis is contradicted in these eight countries are merely exceptions to the general tendency. We cannot dismiss this possibility, but it strikes us as unlikely.

Posttax-Posttransfer Inequality Rather Than Market Inequality?

In many of the countries, we observe a substantial rise in market inequality — of individual earnings and/or household incomes — but little or no change in the perceived level of inequality and in preferences for redistribution. Perhaps, however, that is because people's perceptions of the level of inequality tend to be based largely on the distribution of household income *after* taxes and transfers. In most of these countries government taxes and transfers kicked in and largely offset the rise in market inequality during the 1980s and 1990s, yielding little or no change in inequality of posttax-posttransfer household income (Kenworthy 2004, 2007; Kenworthy and Pontusson 2005). The lack of change in the perceived level of inequality, in the preferred level of redistribution, and in the generosity of redistributive programs is more consistent with this pattern.

This argument has potential merit. But it is inconsistent with the median-voter hypothesis, which suggests that public opinion and redistributive program generosity respond to *market* inequality.

Confounding Factors?

Trends in the generosity of redistributive programs may not correlate in the predicted way with trends in inequality and/or public opinion because of confounding factors. For example, during the 1980s and 1990s globalization exerted a

growing influence in all of these economies. In particular, increases in capital mobility put pressure (real or imagined) on policy makers to reduce tax rates (Ganghof 2000; Genschel 2002). This also was a period of declining unionization in many countries (Western 1997; Ebbinghaus and Visser 1999). In addition, these two decades were characterized by a rise in the influence of market liberal economic ideology (Pierson 1994, 2001).

Each of these developments likely contributed to pressure on policy makers to reduce the generosity of redistributive programs and/or weakened the political base supporting maintenance or expansion of such programs (Hicks 1999; Huber and Stephens 2001; Swank 2002). Perhaps, then, rising inequality did not produce increased redistributive policy generosity because of these countervailing influences. Perhaps rising inequality did have an impact on public opinion and on policy makers' decisions, but that impact served merely to blunt the effect of developments pushing in the direction of reduced redistributive generosity (Kenworthy and Pontusson 2005).

Another possibility is that the impact of increases in market inequality on preferences for redistribution was offset to some degree by rising wages and living standards (McCall 2006). If a person's absolute well-being is improving, she or he may object less to a decline in relative position.

We find these interpretations plausible. If we had more observations and good measures of the perceived constraints imposed by globalization, the influence of market liberal ideology, and related factors, we could attempt to assess this hypothesis more formally. But data limitations prevent that. In any event, even if correct these considerations do not help to account for the lack of congruence we observe in many of the countries between trends in actual levels of inequality and in perceived levels of inequality.⁵

Redistribution versus Insurance?

Karl Ove Moene and Michael Wallerstein (2003) have suggested that public pensions, unemployment insurance, and sickness insurance are likely to be viewed as insurance programs rather than redistributive ones. In their argument, citizens do not conceive of such programs as redistribution from rich to poor, but rather as

⁵ Moreover, other developments in a number of these countries may have pushed for greater redistribution. For instance, several researchers have suggested recently that greater perceived risk of job loss is likely to heighten an individual's support for generous redistributive programs (Cusack, Iversen, and Rehm 2006; Rehm 2006). One indicator of risk is the unemployment rate. Because many affluent countries experienced steady, and in some cases quite significant, increases in unemployment during the 1980s and 1990s, there may have been greater popular pressure for heightened redistributive generosity. To the extent this occurred, we should expect to have observed a much larger rise in redistributive generosity than we do.

government pooling of risk — and most importantly, as programs for which they themselves have a nontrivial likelihood of becoming a beneficiary. It is commonly assumed that the demand for insurance rises with income: those with more income are willing to pay more to safeguard their living standards in the event of job loss, illness, old age, and so on. Hence, the higher the level of inequality, and therefore the lower the earnings or income of the median voter, the less the median voter will favor expenditures on these types of programs. In this view, then, the median-voter approach predicts a negative association between inequality and the generosity of social insurance programs.

Could this help to account for the patterns we observe? That does not seem likely. Inequality of earnings and/or market income increased in each of the eight countries during the 1980s and/or 1990s. The Moene-Wallerstein hypothesis would thus predict declines in the generosity of pensions, unemployment insurance, and/or sickness insurance. But only the Swedish case, where the generosity of both pensions and sickness insurance were reduced, is consistent with this prediction. And in Sweden this could well have been a product of the severe economic crisis of the early 1990s coupled with the comparatively high level of generosity of those programs. The crisis spurred considerable criticism of existing welfare state programs (Lindbeck et al. 1994), and Swedish policy makers likely felt it possible to reduce program generosity somewhat without doing significant harm. In the other seven countries the generosity of pensions, unemployment insurance, and sickness insurance remained largely unchanged despite rising inequality. Canada appears to directly contradict the Moene-Wallerstein hypothesis. It experienced a substantial rise in market income inequality, yet the Canadian programs for which generosity was reduced were redistributive (means-tested) ones, not insurance ones.

Conclusion

The median-voter hypothesis contends that greater market inequality will tend to produce greater redistributive program generosity. As various observers have noted, the cross-sectional pattern among affluent countries is inconsistent with the hypothesis. Our examination of over-time patterns in eight countries in the 1980s and 1990s also yields little support for the hypothesis, suggesting further reason for skepticism about its empirical utility.

Appendix: Variable Definitions and Data Sources

Variables in Figures 1-8

Inequality: individual earnings. Ratio of pretax earnings of a person at the 90th percentile of the earnings distribution to a person at the 10th percentile. Full-time employed individuals only. Annual earnings for Canada and Sweden. Monthly earnings for Germany and Italy. Weekly earnings for Australia, the United Kingdom, and the United States. Hourly earnings for Norway. Source: Authors' calculations from data in OECD (2006).

Inequality: household market income. Gini coefficient for pretax-pretransfer household income. Income adjusted for household size using the square root of the number of persons in the household as the equivalence scale. Incomes top-coded at 10 times the unequivalized median and bottom-coded at 1% of the equivalized mean. For Italy, the income data actually are posttax-pretransfer. Source: Authors' calculations from Luxembourg Income Study data (variable: MI). Additional data from country-specific sources: Source for Canada is Atkinson (2003, p. 488, using data from Statistics Canada); see also Frenette, Green, and Picot (2006, p. 77). Source for Germany is Atkinson (2003, p. 493, using data from the German Socio-Economic Panel). Source for the United Kingdom is Lakin (2004, table 27, p. 40). Source for the United States is U.S. Census Bureau (n.d., table REI-5, definition 3).

Perceived inequality: pay. Geometric mean of the following: Perceived pay of chairman of a large national corporation divided by the average of perceived pay level of a skilled worker and perceived pay level of an unskilled worker. The questions were open-ended: "About how much do you think a [chairman of a large national corporation, skilled worker in a factory, unskilled worker in a factory] earns?" Source: Calculations by Jonathan Kelley from ISSP data; for discussion see Kelley and Zagorski (2005).

Perceived inequality: income. Mean response to the question: "How much do you agree or disagree with the statement 'Differences in income in [respondent's country] are too large?'" 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree. Source: Authors' calculations from ISSP data. Source for additional data for the United Kingdom: Authors' calculations from British Social Attitudes Survey (n.d.).

Support for redistribution. Mean response to the question: "How much do you agree or disagree with the statement: 'It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.'" 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree. Source: Authors' calculations from ISSP data.

Redistribution: pensions. Decommodification index for pensions, based on a scoring procedure similar to that in Esping-Andersen (1990) but substantially

revised. Five aspects of pension policy are used: net replacement rate for a single person, net replacement rate for a couple, employee share of funding, qualifying condition, and take-up rate. The first four are standardized (using data for 18 countries). Values of less than -2 or greater than 2 are recoded as -2 and 2, respectively. The four standardized scores are then summed, and the resulting sum is multiplied by the take-up rate. Source: Scruggs (n.d.). For discussion see Scruggs (2005); Scruggs and Allan (2005).

Redistribution: unemployment insurance. Decommodification index for unemployment insurance, based on a scoring procedure similar to that in Esping-Andersen (1990) but substantially revised. Six aspects of unemployment insurance policy are used: net replacement rate for a single person, net replacement rate for a family of four, qualifying condition, waiting period, benefit duration, and coverage rate. The first five are standardized (using data for 18 countries). Values of less than -2 or greater than 2 are recoded as -2 and 2, respectively. The five standardized scores are then summed, and the resulting sum is multiplied by the coverage rate. Source: Scruggs (n.d.). For discussion see Scruggs (2005); Scruggs and Allan (2005).

Redistribution: sickness insurance. Decommodification index for sickness insurance, based on a scoring procedure similar to that in Esping-Andersen (1990) but substantially revised. Six aspects of sickness insurance policy are used: net replacement rate for a single person, net replacement rate for a family of four, qualifying condition, waiting period, benefit duration, and coverage rate. The first five are standardized (using data for 18 countries). Values of less than -2 or greater than 2 are recoded as -2 and 2, respectively. The five standardized scores are then summed, and the resulting sum is multiplied by the coverage rate. Source: Scruggs (n.d.). For discussion see Scruggs (2005); Scruggs and Allan (2005).

Redistribution: social assistance. Real value of maximum benefit level, indexed to equal one in 1980. Programs included: *Socialhjalpe* and *Socialbidrag* in Sweden; *Sozialhilfe* in Germany; General Assistance in Canada (Ontario); National Assistance, Supplementary Benefit, and Income Support in the United Kingdom; AFDC and Food Stamps in the United States (Michigan). Source: Nelson (2004, pp. 33, 52-53).

Independent Variables in the Individual-Level Public Opinion

Regressions (ISSP data)

Education. Years of schooling completed. Missing for Sweden and Canada.

Income. Family income, in ranked categories. Missing for Sweden.

Class. Subjective social class. 1 = lower, 2 = working, 3 = middle, 4 = upper. Missing for Sweden and the United Kingdom.

Employment status. 0 = not employed, 1 = employed. Missing for Sweden.

Union membership. 0 = nonmember, 1 = member. Missing for Sweden.

Sex. 0 = male, 1 = female.

Age. In years. Range: 18 to 95.

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