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Who Loses in the Downturn? Economic Crisis, Employment and Income Distribution

Herwig Immervoll
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WHO LOSES IN THE DOWNTURN? ECONOMIC CRISIS, EMPLOYMENT AND INCOME DISTRIBUTION

RESEARCH IN LABOR ECONOMICS

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WHO LOSES IN THE DOWNTURN? ECONOMIC CRISIS, EMPLOYMENT AND INCOME DISTRIBUTION

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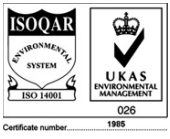

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INVESTOR IN PEOPLE

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PREFACE

Macroeconomic shocks such as the recent global economic crisis can have far-reaching effects on the levels and the distribution of resources at the individual and the household levels. A recession associated with a labor market downturn and turbulent property and financial markets gives rise to significant and widespread losses for workers and households. Identifying the likely pattern of losses is, however, not straightforward. This is especially the case at the outset of a severe recession, when up-to-date information about current household circumstances is patchy, and economic conditions are subject to rapid change.

For instance, in most cases, the data needed for detailed distributional analyses are two years or more out-of-date. This is a big drawback in periods characterized by volatile markets and quickly changing policy settings. Although it is possible to make informed guesses about the groups that are likely to be hardest hit, more detailed distributional studies are largely backward-looking and, as such, not directly useful for informing crisis response policies.

The lack of detailed knowledge about the incidence of losses hampers the identification of effective and timely policy responses that seek to alleviate adverse effects on households. There can also be a risk that, without regular assessments of the likely incidence of job and earnings losses, distributional concerns might carry insufficient weight in the debate about crisis-response measures.

This volume contains new results on how the economic downturn affects employment and the distribution of well-being. It contains nine original research papers that were presented at the IZA/OECD Workshop "Economic Crisis, Rising Unemployment and Policy Responses: What Does It Mean for the Income Distribution?" in Paris in February 2010. The different chapters shed light on what drives the distributional impact of severe labor market downturns in Europe and the United States.[1] The chapters offer insights into issues such as how consumption and income poverty change over the business cycle, how wages, employment, and incomes are affected by the crisis, which demographic groups are most vulnerable in the recession, and how well existing welfare provisions protect the newly unemployed.

Several of the chapters give illustrations of forward-looking simulation methods, providing scenarios of distributional outcomes before detailed data on actual household experiences become available.

In many countries, including the United States, the recent recessionary period follows a well-documented medium-term trend toward a more unequal income distribution.[2] In these cases, an important question is whether the recent downturn will exacerbate long-running trends toward higher inequality. In Chapter 1, Timothy Smeeding and Jeffrey Thompson use an extraordinarily comprehensive income concept to trace inequality trends over the 1989–2007 period. Their measure of "more complete income" (MCI) extends the standard disposable-income concept by adding incomes that accrue from the ownership of different types of wealth (stocks, bonds, mutual funds, home-equity, residential real estate, and business assets). Notably, the analysis seeks to include unrealized capital gains, which are particularly sizable among high-income groups. Using different sources of the most recent aggregate and micro-data, the authors then project MCI components to 2009 to investigate how changes in overall income, and its components, may have driven distributional outcomes during the "Great Recession." The findings illustrate that *overall* measured inequality need not necessarily go up during recessions, even if there are large losses for some of the poorest income groups. MCI-based income inequality appears to have peaked in 2007, with some measures of inequality declining at the top of the MCI distribution and significant losses of real-estate owners in the middle of the distribution (capital shares, which are an important driver of incomes at the top, have declined back to 2004 levels following the economic crisis, after increasing from 1989 to 2007). However, despite a projected decline from the 2007 peak, results suggest that overall income inequality in the United States in 2009 remains much higher than at most points during the past 20 years.

In Chapter 2, Bruce Meyer and James Sullivan zoom in on US trends at the bottom of the distribution and how they are associated with macroeconomic conditions. Past movements of poverty measures over the business cycle are of particular interest because they provide clues about the challenges facing households and policymakers in the current downturn. On a more fundamental level, the strength of the relationship between poverty and economic growth is at the very heart of controversies about the effectiveness of alternative antipoverty strategies. If growth and employment are associated with substantial poverty reduction, then this strengthens the case for pursuing growth-friendly policies, whereas policies that inhibit

growth would be costly not only on aggregate, but for poor households in particular. Using income and consumption data from 1960 to 2008, Meyer and Sullivan employ different concepts of income and consumption poverty, which go beyond official US "pretax" poverty measures, and enable them to provide an unusually rich account of the situation of economically vulnerable households. They find that a 1 percentage point increase in unemployment is associated with an increase in the after-tax income poverty rate of 0.9–1.1 percentage points, and an increase in the consumption poverty rate of 0.3–1.2 percentage points. If extrapolated to the recent downturn, these estimates would indicate a very large possible increase in poverty. However, the results in this chapter also show that, in the United States, the relationship between economic conditions and poverty has been highly unstable over the past 50 years. This raises some doubts about the usefulness of extrapolating results from previous downturns and underlines the need to analyze the current downturn more specifically.

Chapter 3 explicitly takes up the question to what extent experiences of different population groups in previous recessions are useful for estimating how they are likely to fare in the current downturn. Using household survey data for the United Kingdom covering a 32-year period, Richard Berthoud and Lina Cardona Sosa ask whether the effects observed in earlier business cycles are likely to be repeated in the current crisis. The authors analyze the impact of cyclical factors on overall employment patterns and the extent to which different population groups are affected. Importantly, the multivariate logistic regression analysis considers changes in both unemployment and labor market inactivity and therefore captures withdrawals from the labor force resulting from the increase in the number of discouraged workers that are associated with extended periods of slack labor markets. A key question is whether groups that are already disadvantaged are especially susceptible to job loss in a downturn. The authors then use recent data to test how far the experience of previous business cycles is being repeated in the current recession. In terms of the incidence of employment reductions, the predicted patterns are consistent with observed ones for a number of groups: men, younger people, and those with low qualifications are all shown to have been more sensitive to cyclical trends in the demand for labor in past recessions as well as in the most recent one. However, patterns observed for ethnic minorities in earlier periods are not repeated, and the regional concentration of employment losses is different as well. Interestingly, the results also suggest that there is not necessarily a "vicious cycle of disadvantage," in the sense that those already facing labor market

disadvantage would be most likely to face additional problems when jobs are scarce. For instance, findings by gender, age, and disability status indicate that, while the extent of disadvantage differs substantially between groups, existing disadvantage appears to be stable across business cycles.

Chapter 4 by Eva Sierminska and Yelena Takhtamanova also examines the severity of this recession compared to previous ones. However, it goes beyond an analysis of static employment status by looking at worker flows into and out of unemployment and, hence, throwing light on the drivers of increasing joblessness. The authors employ the US Current Population Survey spanning over six decades to measure transitions into and out of unemployment for different groups, showing the extent to which job losses and job finding rates differ by age, gender, and race. During the recent downturn, up until the end of 2009, men are found to have faced higher job separation probabilities as well as lower job finding probabilities than women. Across all groups, job-finding probabilities in the United States during the most recent recession exhibited their biggest ever drop from peak to trough. In addition, job separation probabilities showed one of the largest increases in the postwar period. The recent increases in unemployment rates are driven to a larger extent by the lack of hiring (low outflows). But flows into unemployment are nonetheless very important for understanding unemployment rate dynamics. In particular, the authors find that inflows into unemployment are not as acyclical as part of the literature suggests.

Like the previous chapter for the US, Francesco D'Amuri shows in Chapter 5 that the recession significantly reduced hirings and increased layoffs also in Italy. Employing the same methodological framework and using data from the Italian Labor Force Survey to estimate transition equation into and out of unemployment, he finds that the recession had a negative impact both on job finding and on job separation probabilities. As may be expected in the highly segmented Italian labor market, the latter is found to differ substantially by type of contract. Employees on fixed-term contracts experienced the biggest increases in separation rates, whereas employees on open-ended contracts appeared to be largely immune to higher unemployment risks. As Italian workers on fixed-term contracts are very often not eligible for unemployment benefits, this pattern raises concerns about the income protection for job losers. D'Amuri then uses the estimated transition probabilities to simulate the likely evolution of the distribution of labor *earnings* in 2010 by means of multiple stochastic imputations, taking into account the flow into and out of unemployment for different groups of workers. On the basis of the predicted changes in the composition of the labor force, and the increase in unemployment, the results indicate rising

earnings inequality. However, this change appears to be driven almost entirely by the increasing number of unemployed. Despite a large number of transitions into and out of employment, the author does not find evidence for changing with-group inequality among the employed (probably because most of the transitions concern lower paid workers on fixed-term contracts).

Although movements into and out of employment are important drivers of overall earnings inequality, recessions also affect the earnings of those who manage to keep their jobs (or move from one job to another). Chapter 6 by Lutz Bellmann and Hans-Dieter Gerner analyzes the balance of employment and earnings changes in Germany. Unlike in Anglo-Saxon and Southern European countries, the economic crisis in Germany has resulted in unusually and, to many, surprisingly small movements in overall employment rates. Instead, many firms sought to retain workers and reduce labor costs by adjusting the earnings of existing employees. As, also in contrast to other countries, the effects of the crisis were largely restricted to export-oriented industries, such adjustments were particularly important in those sectors. A particular question concerns wage levels as one possible driver of earnings adjustments: did wage reductions among high-skilled workers counteract the precrisis trend in Germany toward increasing earnings inequality? Using detailed establishment-level data for the private sector, the authors find that although aggregate employment was stable, establishments affected by the economic crisis *did* in fact reduce employment levels significantly. Furthermore, the results indicate that the economic crisis was associated with declining wages. However, wages appear not to have been a primary adjustment channel in establishments that could easily reduce labor costs by reducing working hours (e.g., those operating working-time accounts). In sum, the authors find no evidence of a reversal of relative wage trends as a result of the crisis. Instead, it appears that the low-skilled have faced more sizable losses than better-qualified groups of workers.

The economic crisis not only impacts on private sector pay but can also put extreme pressure on public spending as fiscal deficits soar. In Chapter 7, Tim Callan, Brian Nolan, and John Walsh analyze the consequences for the income distribution of cutting public-sector pay using a microsimulation model for Ireland. In Ireland, labor costs in the public sector constitute one of the most important elements of public expenditure. As is well known, Ireland has also faced a particularly severe fiscal crisis and ballooning fiscal deficits. Next to tax-benefit reforms, innovative measures have already been implemented to claw back pay from public-sector workers. In addition to redistribution policies, public-sector pay and employment are the most direct levers for governments to change household income, with potentially sizable

consequences for the overall distribution of incomes. The authors analyze three rounds of tax-benefit policy responses, as well as the subsequent public-sector pay cuts. The results provide some useful pointers for other countries facing the challenge of reducing large fiscal deficits. Tax-benefit policy changes announced in three budgets in 2009 and 2010 are found to result in large income losses for the bottom income decile, while they are mainly inequality-reducing for all income groups above the bottom 10%. On top of these changes, public-sector pay cuts have reduced the pay of many of the affected workers by several percentage points, and by significantly more than 10% for some high-earning public-sector employees. Interestingly, the adjustment burden has not been shared with retired public-sector workers, whose pension entitlements were protected. The central finding regarding these pay cuts is that they reduced inequality, both because public employees are predominantly located in the middle and upper parts of the income distribution and because pay reductions were progressive, with much higher cuts for better-paid individuals. The authors suggest that, with the precrisis public-sector pay premia now reversed into public-sector penalties, there are limits to the scope for further pay cuts along similar lines.

A crucial determinant of the immediate budgetary implications of a recession, as well as of household income losses, is the design of tax-benefit policies. In Chapter 8, Mathias Dolls, Clemens Fuest, and Andreas Peichl analyze to what extent tax benefit systems in 19 different EU countries provide protection for households at different income levels. The authors use the multicountry microsimulation model EUROMOD to investigate the responsiveness of household taxes and benefits to two stylized shocks on market income and employment. They ask what part of the shock is absorbed by public policies automatically, that is, how much automatic stabilization is provided by different tax benefit systems. Although this is not a forecasting exercise, the approach provides forward-looking scenarios to understand potential distributional implications of the crisis. Dolls, Fuest, and Peichl show that the extent to which households are protected differs across income levels and countries. A key finding is that a proportional income shock leads to a reduction in inequality whereas distributional implications of asymmetric unemployment shocks crucially depend on who is most affected by rising unemployment. Using subgroup decompositions, the authors show that different countries place unequal weights on the income insurance provided for different groups. In particular, there is little stabilization for low-income groups in Eastern and Southern Europe whereas the opposite is true for the majority of Nordic and

continental European countries. A principal reason is the rather low coverage of out-of-work benefits in the former group of countries.

The final chapter by Francesco Figari, Andrea Salvatori, and Holly Sutherland undertakes an in-depth analysis of the role of social protection systems, and especially unemployment benefits, as a means of income insurance for the newly unemployed. Their "stress test" of welfare states focuses on five EU countries and, like the previous chapter, also uses the EUROMOD tax-benefit model. The chapter provides evidence on the differing degrees of resilience of household incomes of the newly unemployed. This variation is not only due to different tax-benefit policies but also due to the household context of the unemployed person. The highest degree of income insurance is provided in countries with contribution-financed unemployment benefits. However, the major source of income protection is not provided by the government but by other household members with earnings. Unsurprisingly, if no other household incomes are present, household incomes fall much lower as a proportion of precrisis income. This highlights the importance of facilitating households' shock-adjustment capabilities, for example, by strengthening female employment. Furthermore, the authors show the correlation of the degree of income insurance with the resulting effect on government budgets. In particular, costs per unemployed person rises with precrisis income level. Interestingly, it is not benefit expenditures, but the income taxes and social contributions lost through unemployment, which are the main drivers of overall budgetary costs.

Income and labor-market micro-data covering the entire recession period will soon become available. With these data, it will be possible to analyze the distributional consequences of the crisis in more detail than is possible at the outset of a recession. Together with the early evidence in this volume, ex-post analysis of later and more comprehensive information on households' crisis experiences will allow assessing the strengths and weaknesses of the different forward-looking approaches presented here. The aim of such validation exercises should be to further refine the methods available for providing timely advice on the effectiveness of different policy responses to the next downturn.

As with past volumes, we aimed to focus on important policy and methodological issues and to maintain the highest levels of scholarship. We encourage readers who have prepared manuscripts that meet these stringent standards to submit them to *Research in Labor Economics* (RLE) through the IZA website (http://www.iza.org/rle) for possible inclusion in future volumes. We thank all referees for insightful editorial advice in preparing this volume.

NOTES

1. The views expressed are entirely those of the authors. In particular, they do not represent the official opinions of the OECD or of individual member countries.
2. OECD, 2008, *Growing Unequal? Income Distribution and Poverty in OECD Countries*, OECD Publishing, Paris.

Herwig Immervoll
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RECENT TRENDS IN INCOME INEQUALITY: LABOR, WEALTH AND MORE COMPLETE MEASURES OF INCOME

Timothy M. Smeeding and Jeffrey P. Thompson

ABSTRACT

The impact of the "Great Recession" on inequality is unclear. Because the crises in the housing and stock markets and mass job loss affect incomes across the entire distribution, the overall impact on inequality is difficult to determine. Early speculation using a variety of narrow measures of earnings, income, and consumption yield contradictory results. In this chapter, we develop new estimates of income inequality based on "more complete income" (MCI), which augments standard income measures with those that are accrued from the ownership of wealth. We use the 1989–2007 Surveys of Consumer Finances, and also construct MCI measures for 2009 based on projections of assets, income, and earnings.

We investigate the level and trend in MCI inequality and compare it to other estimates of overall and "high incomes" in the literature. Compared to standard measures of income, MCI suggests higher levels of inequality and slightly larger increases in inequality over time. Several MCI-based inequality measures peaked in 2007 at their highest levels in 20 years.

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The combined impact of the Great Recession on the housing, stock, and labor markets after 2007 has reduced some measures of income inequality at the top of the MCI distribution. Despite declining from the 2007 peak, however, inequality remains as high as levels experienced earlier in the decade, and much higher than most points over the last 20 years. In the middle of the income distribution, the declines in income from wealth after 2007 were the result of diminished value of residential real estate; at the top of the distribution, declines in the value of business assets had the greatest impact.

We also assess the level and trend in the functional distribution of income between capital and labor, and find a rising share of income accruing to real capital or wealth from 1989 to 2007. The recent economic crisis has diminished the capital share back to levels from 2004. Contrary to the findings of other researchers, we find that the labor share of income among high-income groups declined between 1992 and 2007.

Keywords: income and wealth distribution; capital and labor Shares; great recession

JEL Classification: D31; D33

1. INTRODUCTION

This chapter is an attempt to capture the effects of secular and cyclical forces on the inequality of income across Americans who are suffering through the "Great Recession," and the period of slow employment growth and housing market stagnation that has followed. A full accounting of inequality in this period will have to wait years, as impacts of the recession and its aftermath are still unfolding, and the necessary data will not be available until late 2011. The most current micro data that can be used to analyze income distribution are from calendar year (CY) 2009 (Current Population Survey [CPS] income or poverty), or CY 2007 (Survey of Consumer Finances [SCF] wealth).

Based on currently available data, however, we do know quite a lot about some of the economic hardships resulting from the recession. The economy lost jobs every month between December 2007 and October 2009 – four months after the official end of the Great Recession – 8.3 million jobs in all, and unemployment rose from 5.0 to 10.1 percent (NBER, 2010). The incidence of job loss has been particularly severe among young workers, and

those with lower levels of education. Total employment declined by less than 5 percent, but among teens it declined by 20 percent and among those with high school degrees or less it declined by 7 percent (Engemann & Wall, 2009). Poverty rose in 2009, and forecasts based on available employment and food stamp data indicate it was likely even higher in 2010 (Census, 2010; Monea & Sawhill, 2009).

Expected changes in the distribution of income in 2009, 2010, and beyond, though, are not as clear. Past recessions (excepting the Great Depression of the 1930s) tended to hurt people at the bottom of the distribution to a greater extent than people at the top (Atkinson, 2009). These effects are and were tempered by the safety net, and are driven by the loss of labor market earnings, which recovers when employment recovers. However, a major aspect of the recent recession has been the drop in property income values, financial assets, and home prices, as well as employment losses. Because all parts of the income distribution have suffered losses of income and wealth, the impacts on the overall distribution are more difficult to determine.

Preliminary analysis and speculation over shifts in the distribution suggests a range of potential outcomes. There is some evidence that the collapse in the stock and housing markets has produced declining CEO pay, lower dividends, and reduced Wall Street bonuses, which could cause the income gap to shrink "at the expense of the wealthy" (Davis & Frank, 2009; Leonhardt & Fabrikant, 2009). Looking at the data on consumption, some researchers have found evidence of declining inequality between 2006 and 2009 (Meyer & Sullivan, 2010; Heathcote, Perri, & Violante, 2010a, 2010b). Much of that decline is attributable to a notable drop in consumption at the top of the distribution, partially reversed in 2009 as the Obama ARRA plan boosted durables spending and the stock market recovery took hold (Parker & Vissing, 2009; Petev, Pistaferri, & Saporta, 2010). Overall consumption still fell in 2008 and 2009 combined, but the change in inequality is less certain once we look at the 2009 and early 2010 data.

Early indicators from some standard income inequality measures from the Census Bureau, however, suggest that high-income shares, as well as Gini and Theil indices, rose between 2007 and 2009 (Census, 2010). The major losses in income, in proportional terms, were experienced by the 80th and 10th percentiles, with relatively smaller losses for the 90th percentile (Smeeding & Thompson, 2010). These findings are fully consistent with those of Krueger, Perri, Pistaferri, and Violante (2010) and Heathcote et al. (2010a, 2010b), who also find earnings and disposable income inequality rising secularly in rich countries, and also in recessions, including this

recession (Heathcote et al., 2010b), and especially for bottom income units. Because of top-coding in the CPS, though, these data can tell us little about what is going on at the very top of the distribution.

Data with broad measures of income, and that also contain detailed information for households at the very top of the distribution, are not yet available to give an updated understanding of inequality. The Congressional Budget Office "tax burden" series, for example, is only available up through 2007 (CBO, 2010). Similarly, the SCF as well as the IRS tax data used in analysis of high incomes are only available through 2008 (Smeeding & Thompson, 2010; Piketty & Saez, 2006; Saez, 2010). But, as Burkhauser, Feng, Jenkins, and Larrimore (2009) show – using non-top-coded Census Income data – most of the change in income inequality over the past decade has been among the rich. However, even these data exclude the vast majority of capital income – the issue to which we now turn.

In the remainder of this chapter, we will, first, briefly review some of the different approaches to analyzing trends in income distribution; second, describe our method for calculating a "more complete" measure of income (MCI); third, compare levels and trends – for recent years and across the last couple of decades – for inequality using MCI and other standard income measures; fourth, describe the impact of using MCI on the trends in capital versus labor shares; and finally, discuss some potentially policy implications of these trends.

The MCI income concept incorporates a broader range of the resources available to households than the definition of income in the typical survey, and, as such, is a better representation of economic "well-being." Motivated by the classic Haig–Simons income, MCI is intended to reflect the possibility to consume, and is also arguably a better representation of well-being than actual measured consumption. Estimated with data from the SCF, MCI results in higher income across the distribution, but especially at the top end. We also find a greater trend toward income concentration at the top of the distribution using MCI than do other analysts. A number of standard measures of inequality using MCI peaked in 2007, after rising relatively steadily since 1989, including the Gini index, the 99/50 ratio, and the income shares of top 1 percent and next 4 percent. Nearly all of the increase in inequality is the result of large gains at the very top of the distribution, with little evidence of rising inequality at the bottom of the distribution. The Great Recession appears to have halted, temporarily at least, the trend toward greater inequality. Any declines, however, have so far been modest, leaving inequality as high as any point before the 2007 peak.

We also assess the level and trend in the functional distribution of income between capital and labor. We find that if properly measured, the labor share

is closer to 55 percent of total income rather than the 75 percent that is sometimes claimed. The results using MCI suggest that, contrary to the findings of Piketty and Saez (2003, 2006), the capital share of income at the top of the income distribution has risen in recent decades (as also found cross nationally by Glyn, 2009). By 2007, income from capital accounted for more than half of MCI among the top few percentiles of the income distribution.

2. APPROACHES TO UNDERSTANDING INEQUALITY AND THE DISTRIBUTION OF INCOME

For some time there has been widespread concern about growing inequality in the distribution of household income in the United States. The U.S. Census Bureau shows the Gini index of household income rose from .40 to .47 between 1967 and 2009, and that the ratio of incomes of households at the 90th and 10th percentiles of the income distribution rose from 9.2 to 11.4 over the same period. And while there is a general consensus among researchers that income inequality has increased in the United States and much of the rest of the world (Brandolini & Smeeding, 2009), there is less agreement over how much it has increased, or whether income is even the most important factor in understanding inequality, let alone the causes of the increase.

Labor economists have shown that inequality in hourly wages increased considerably over the same period (Autor, Katz, & Kearney, 2008). With earnings representing the single largest portion of household income, some argue that trends in earnings inequality are the key factor behind inequality in the U.S. income distribution.[1] A number of recent provocative studies highlight the role of extremely high earnings among "superstars," CEOs, athletes, rock stars, and celebrities (Kaplan & Rauh, 2010; Walker, 2005; Gordon & Dew-Becker, 2005), but these papers are only able to identify about 25–30 percent of even the highest-income earners.

And, labor income in the form of wages had declined to 50.2 percent of national income by the third quarter of 2006 – a 50-year low as a share of national income (Aron-Dine & Shapiro, 2006; Bureau of Economic Analysis, 2010; Goldfarb & Leonard, 2005). Even after adding together labor income (even including supplements or employee benefits) and corporate profits, which peaked at 13.7 percent of total national income in the third quarter of 2006 after rising for three decades, there is still more than a fifth of the nation's economic pie missing. Other uncounted components of national income such as net interest, proprietor's income,

and rental incomes are largely missing from micro data-based income distribution calculations (see Table 1).

Meyer and Sullivan (2010) argue that levels of income inequality are not as great as suggested by the Census Bureau, and that the emphasis on income itself is misplaced. With appropriate adjustments for household size, taxes, and transfers, Meyer and Sullivan (2010) show that the 90/10 ratio was 5.3 in 2008, up from 4.1 in 1979. More important, they argue that consumption is a better proxy for well-being or even permanent income than the income measures used in most of the inequality research (also see Slesnick, 1994, 2001).[2] Consumption inequality has showed no trends toward greater inequality in recent decades, and has – as mentioned above – declined in the last few years.

Consumption is a strong predictor of different measures of hardship (Meyer & Sullivan, 2003), but it is deficient in some important respects as a

Table 1. Relation of Gross Domestic Product, Gross National Product, and National Income – Including Those Accounted for in this chapter (Italics) [Quarters Seasonally Adjusted at Annual Rates].

	2006-III (Billions of Dollars)	Share (%)	2009-IV (Billions of Dollars)	Share (%)
National income	12,093		12,466	
Compensation of employees	7,484	61.9	7,773	62.4
Wage and salary accruals	*6,075*	*50.2*	*6,266*	*50.3*
Supplements to wages and salaries	*1,409*	*11.6*	*1,507*	*12.1*
Proprietors' income with inventory valuation and capital consumption adjustments	*1,131*	*9.4*	*1,060*	*8.5*
Rental income of persons with capital consumption adjustment	*140*	*1.2*	*287*	*2.3*
Corporate profits with inventory valuation and capital consumption adjustments	*1,655*	*13.7*	*1,468*	*11.8*
Net interest and miscellaneous payments	*662*	*5.5*	*783*	*6.3*
Taxes on production and imports less subsidies	992	8.2	1,034	8.3
Business current transfer payments	84	0.7	128	1.0
Current surplus of government enterprises	−5	0.0	−7	−0.1

Source: BEA NIPA Table 1.12, Available at www.bea.gov

Note: *We account for supplements to wages and salaries only in so far as they appear as part of defined contribution pension plans. Health care and other employer subsidies are not counted.*

measure of well-being. As Dickens' famous line suggests, it might be better to treat the debt-financed consumption of low-income households whose consumption far exceeds their income instead as a measure of hardship:

> Annual income twenty pounds, annual expenditure nineteen six, result happiness. Annual income twenty pounds, annual expenditure twenty pound ought and six, result misery.
>
> – David Copperfield

And by focusing on the 90th percentile of the distribution, much of the consumption-oriented research misses what is going on at the very top of distribution.

Several analysts have suggested that most, if not all, of the gains in incomes from rapid expansion of productivity in the 1990 and early 2000s accrued to the richest 1–5 percent of Americans (Gordon & Dew-Becker, 2005; Piketty & Saez, 2003, 2006).[3] This result is supported by the analysis of top-coded Census Income data by Burkhauser et al. (2009). The long-term analysis by Atkinson, Piketty, and Saez (2009) shows that since the early 1970s income growth among the top 5 percent (particularly the top 1 percent) has far outpaced the rest of the nation.

Even in micro data that accurately reflect affluent households (Piketty & Saez, 2006; CBO, 2010), however, the annual income measures only include the flow realized from wealth (capital) in any one year.[4] In addition, the higher one goes in the income or earnings distribution, the more likely one is to find high rates of turnover in top *incomes* from year to year. Indeed, advocates of high American income mobility point out that the top 1 percent of income earners have 70 percent turnover rates year-to-year (Cox & Alm, 1999).

This problem is exacerbated by the fact that powerful income recipients can choose the form and timeframe in which their compensation is paid, e.g., for tax reasons (Auten & Carroll, 1999; Gruber & Saez, 2002). For instance, the two founders of Google, in a widely reported press story, took $1 each in earnings in 2005. Of course, each one also exercised less highly taxed stock options, which left them with $1.0 billion or more in "asset incomes" in that year (Ackerman, 2006). Whether for reasons of tax and estate planning, or simple accumulation, the large majority of the gains from wealth are not realized annually.[5]

The question we address in this chapter is how to add this income to household distributional micro data, and determine to whom did this property or capital income accrue? The key to pulling these disparate sources and trends in economic well-being together is a more full accounting

of annual income from wealth, whether realized or not. Indeed, we believe that much of what has been interpreted as "consumption from wealth" is not drawing down wealth stocks at all, but comes from spending out of accretions to wealth (see Love & Smith, 2007, for older households; and Sierminska & Takhtamanova, 2006, for an international comparison). Similarly, the declines in U.S. savings rates over many years, leading up to the recession, were largely composed of spending from accumulated assets, especially owned homes and other appreciating assets. While the run-up in home values and dividends received through 2007 fueled consumer spending (e.g., Baker, Nagel, & Wurgler, 2006), steep declines in housing values since have diminished consumption due to a decrease in wealth stocks (Glick & Lansing, 2010) and the savings rate has risen. Clearly, wealth increasingly matters for consumption as well as for income.

The idea of accounting for income from wealth as well as income from earnings and other sources is not new (see Weisbrod & Hansen, 1968; Taussig, 1973), and has been used recently by Wolff and Zacharias (2006a, 2006b) and Haveman, Holden, Wolfe, and Sherlund (2006) in some fashion, to study inequality trends in the 1980s and 1990s.[6] Nevertheless, it is clearly time for a reappraisal given recent seismic changes in overall labor and capital income flows.

3. INCOME THEORY AND METHODOLOGY

There are many definitions of personal (macro) and household (micro) income from both "sources" and "uses" perspectives. According to the most popular theoretical measure of income, the Haig–Simons (H-S) income definition, income (I) is equal to consumption (C) and the change in net worth (ΔNW) realized over the income accounting period. So defined, H-S income is a measure of potential consumption or the amount one could consume without changing one's total net worth (one's stock of assets or debts). Thus, according to a "uses" of income definition:

$$I = C + \Delta\mathrm{NW} \tag{1}$$

From the functional or "sources" side of income, we can arrive at the same measure by adding together income from earnings (E, including self-employment income), income from capital (KI, including capital gains plus other income from wealth), plus net transfers (NT, which include those

received minus those paid, whether private or public in nature), resulting in the following definition:

$$I = E + \mathrm{KI} + \mathrm{NT} \tag{2}$$

If we ignore NT for now, and divide self-employment income into income from labor and capital, we are left with the macroeconomists' functional distribution of income.

The key element that is included above but largely missing in most estimates of both micro and macro estimates of income distribution is the distribution of income from capital. Despite long-standing interest in labor and capital "factor shares," macroeconomists (e.g., Goldfarb & Leonard, 2005; Guscina, 2006) and microeconomists who study distribution are both seemingly content with using data where only a small fraction of income from capital is measured. Interest, rent, and dividends received are reported in most micro data-based income definitions such as the one used by the Census Bureau. Capital gains and losses (KG, including those from realized stock options) and royalties are counted in other income definitions such as that used by the CBO (2010) and by Federal Reserve Bank in the SCF income distribution measure.[7]

However, the large majority of capital income (KI) accrues to persons but is never realized (and is therefore not counted in any given year). This includes imputed rental flows for owner-occupied housing, business savings in the form of corporate and noncorporate retained earnings, and unrealized capital gains. Much of this income stays with the firm that utilizes capital and is not realized by the owners of these assets (except as it is reflected the value of their enterprise, either self-owned or as shares of corporate stock).

Thus, we define "more complete income" (or MCI) as follows. We retain earnings and net transfers (E and NT), and maintain that portion of capital income (KI) received as capital gains and royalties (KG). But we then subtract *reported* interest, rent, and dividends (IRD) while adding back in an *imputed* return to all forms of net worth, or "imputed capital income" (IKI). Thus, we impute interest, rent, and dividends to owners of assets and forego the amounts actually reported by respondents.[8] This produces

$$\mathrm{MCI} = E + \mathrm{NT} + (\mathrm{KG} - \mathrm{IRD} + \mathrm{IKI}) \tag{3}$$

Indeed the following more complete definition of capital income (KI) comes close to measuring the concept of "ΔNW" that intrigued both Haig and Simons:

$$\mathrm{KI} = \mathrm{KG} - \mathrm{IRD} + \mathrm{IKI} \tag{4}$$

MCI is an incomplete concept of income as we are unable to measure such items as employer benefits, pension fund accruals not counted as personal wealth such as defined benefit pension plans (though pension flows for elders are counted as transfers received), or unrealized stock options and other promised contractual benefits (''golden parachutes'') that are not yet exercised or received.[9]

3.1. Developing MCI Estimates with the SCF

We calculate MCI using the SCF, a national representative triennial survey that includes an oversample of wealthy households that are under-represented in most standard surveys. The SCF contains high-quality, detailed information on household assets as well as income.[10] There are 16 broad asset classes, including stocks, bonds, mutual funds, home equity, residential real estate, and business assets, as well as six broad classes of debt. The data include an income definition (SCF income) that is broader than the standard Census money income definition. SCF income includes wages, self-employment and business income (SEBI), taxable and tax-exempt interest, dividends, realized capital gains, food stamps and other support programs provided by the government, pension income and withdrawals from retirement accounts, Social Security income, alimony and other support payments, and miscellaneous sources of income.[11]

Income net wealth (income less capital) is calculated by subtracting realized income from capital from the SCF income definition. Gains from the sale of an asset (capital gains), however, are retained in the income measure.[12] After removing income from capital from SCF income, flows to assets are imputed for the full range of assets measured in the SCF data. In calculating the implicit return on various assets, we employ two techniques: first we apply ''short-run'' (3-year) average rates of return to 22 specific asset/debt types in each of our eight income years, and then also ''long-run'' (30-year) average returns over the entire period.[13] These long-run rates allow us to separate more permanent long-run returns from more volatile short-run changes, and to assess more smooth trends in income from assets. They also allow us to test the sensitivity of our results to various assumed rates of return.

Separate rates of return were calculated for stocks, bonds, and housing assets, based, respectively, on the Dow Jones Industrial Average, 10-year U.S. Treasury Notes, and the House Price Index of the Federal Housing Finance Agency (FHFA). In addition, flows to assets are calculated gross of

the inflation rate (CPI-U), while some flows are based on the average of two different types of return (the average of the return to stocks and bonds, for example). The actual rates used to impute these flows are included in Tables A1 and A2. The complete details on the construction of MCI, including how taxes are calculated for the various components of MCI so that we can create pre-tax as well as after-tax inequality measures, are provided in the Technical Appendix.[14]

The following additive series of combined capital income flows are added to income, net of reported interest, rent, and dividends, in the following order:

- "*plus finance*" adds imputed flows to directly held stocks, stock mutual funds, combination mutual funds, bonds, other bond mutual funds, savings bonds, government bond mutual funds, and tax-free bond mutual funds, as well as "other managed assets," such as trusts and annuities to "*income less capital*";
- "*plus retire*" adds flows to "quasi-liquid retirement accounts," such as IRA/Keoghs and account-type pensions to "*plus finance*";
- "*plus home*" adds flows to owner-occupied home equity to "*plus retire*";
- "*plus other investments*" adds flows to investment real estate equity, transaction accounts, certificates of deposit (CDs), and the cash value of whole life insurance to "*plus home*";
- "*plus business*" adds flows to other business assets and vehicles – only vehicles worth more than $50,000 – to "*plus other investments*";
- *MCI* subtracts flows to non-real-estate debt, including credit card debt, installment loans, and other debt from "*plus business*" – after replacing observations, where "plus business" value incomes were below SCF income with the SCF income value.

Separate estimates for each of these income concepts are created using both long-run (30-year) averages and short-run (3-year) time-specific rates. The long-run rates are based on the average annual return between 1977 and 2007, with the same long-run rate applied to each year of SCF data – 1989, 1992, 1995, 1998, 2001, 2004, 2007, and projections of the data into 2009.

We also explore an alternative treatment of the vehicle assets, computing a service flow to vehicle ownership, following Slesnick (1994).[15] We consider how modifying treatment of this asset that is particularly important for middle- and low-income households influences levels and trends in inequality. For SCF income, MCI, and all of its components, we calculate a variety of standard distributional measures, including the Gini Index, ratios of key income percentiles (including, for example, the 99/50, 90/50, and the 10/50), in

addition to income shares held by the top 1, 5, and 10 percent of the distribution.

3.2. Projecting SCF into 2009

The next round of the SCF (the eventual SCF 2010) will reflect economic conditions in 2009, but will not be available until mid-2011. Since the economy entered into a deep recession after 2007, heavily impacting earnings as well as stock markets and housing values, the portrait of inequality in the most recently available data cannot be expected to reflect current conditions. In order to present estimates of inequality that reflect the impacts of the "Great Recession," we have projected the data from 2007 SCF into 2009. These projections are based on income data from the BEA National Income and Product Accounts, asset data from the Federal Reserve Board Flow of Funds data, and earnings data from the CPS.

The income and asset categories used to calculate MCI are adjusted according to the percent change observed in these same categories between the last two quarters of 2007 and 2009. The changes by income and asset category, and the detailed source of each are displayed in Table A3. Changes over this period for the stock market reflect not just the decline in the total market capitalization that started at the end of 2007, but some of the rebound in market value since the first quarter of 2009. Changes in annual earnings are allowed to vary by education and industry class, reflecting – at least in part – how the labor markets of different demographic groups have been impacted by the Great Recession, as described by Engemann and Wall (2009).[16] The earnings measures in the SCF are adjusted based on the changes in total weekly earnings between the first 11 months of 2007 and 2009. The change in earnings is calculated for 20 separate industry–education cells, and reflects the combined impact of changes in employment, hours, and wages (Table A4).[17] Not adjusted for inflation, total earnings declined for most workers with less than a college degree. Total earnings of workers with a high school diploma or more education rose between 2007 and 2009, but at a rate less than inflation. Total earnings increased for workers with a college degree in all six industry groups, but less than inflation in three of those.

Fewer sets of results are calculated for the 2009 projected incomes. Partly this is a result of not being able to apply short-run rates to data that are themselves projected using changes in assets and income categories that are themselves functions of short-run rates of return. But, it is also the case since

some of the tables and figures in the chapter are driven by the demographic composition of the population, which is not modified in the projection to 2009.

4. RESULTS

We begin by tracing how the addition of unrealized capital income changes the distribution of income, in both tables and figures. Then we look at after-tax income and finally examine levels and trends in various income percentiles and the share of final income that is either from wealth (capital) or labor. We also briefly explore the demographic profile of high-MCI households.

4.1. From SCF Income to MCI

We begin with Table 2 and Fig. 1, where we apply the long-run rates of return to various asset types and chart the way in which this process changes mean and median income in 2006–2007, as well as the 99th, 95th, 90th, and 10th percentiles (and the Gini inequality measure). As the figures reviewed in Table 1 suggest, capital income makes a great deal of difference to correctly measured income in the United States. Subtracting some capital income from SCF gross income (''less capital'') reduces the mean and median, but as we successively add wealth-related income components in Table 2, both measures change dramatically. Moving from SCF income to MCI, mean income rises by 31 percent and the median by 16 percent. The biggest changes come from stocks, imputed rent on owned homes, and business assets. Owned homes (''plus home'') affect large changes in both mean and median as housing is the quintessential ''middle class asset'' and is the only capital income flow that significantly boosts the median. Stocks and bonds (''plus finance'') and business assets (''plus business'') have larger affects on the mean due to the skewed distribution of returns accruing mostly to high-MCI units. Indeed, the 99th, 95th, and 90th percentiles rise by 49, 41, and 32 percent, respectively, in 2007 dollars from SCF to MCI. In contrast, the 10th percentile increases only by 17 percent across these same measures. When we take into account the changes in the medians, the relative inequality measures, the 99/50, 95/50, and 90/50 ratios still rise by 28, 21, and 13 percent, respectively. The 10/50 ratio is the same in SCF income and MCI. The correction of negatives and the subtraction of debts, reflected in the difference between ''plus business'' and MCI, seem to have little effect on the overall results.

Table 2. SCF (2006–2007) – Full Income Definition Summary Statistics – Original Rankings and Long-Run Rates of Return.

									Change	
	SCF income	Less capital	Plus finance	Plus retire	Plus home	Plus oth invest	Plus business	MCI	SCF to MCI	As percentage of SCF
Mean	84,144	73,058	79,292	84,763	92,876	98,868	108,677	110,147	26,003	31
Median (P50)	47,305	43,808	46,157	47,444	51,997	54,488	55,768	55,014	7,709	16
P90	140,887	128,546	135,571	148,855	163,986	175,709	184,423	185,892	45,005	32
P95	206,702	185,106	200,588	218,850	241,284	259,486	287,293	290,835	84,133	41
P10	12,340	11,369	12,340	12,340	13,839	14,397	14,407	14,397	2,057	17
P99	693,121	516,327	611,309	669,215	728,744	822,229	1,011,830	1,031,528	338,407	49
90/10	11.4	11.3	11.0	12.1	11.8	12.2	12.8	12.9	1.5	13
90/50	3.0	2.9	2.9	3.1	3.2	3.2	3.3	3.4	0.4	13
10/50	0.26	0.26	0.27	0.26	0.27	0.26	0.26	0.26	0.00	0
95/50	4.4	4.2	4.3	4.6	4.6	4.8	5.2	5.3	0.9	21
99/50	14.7	11.8	13.2	14.1	14.0	15.1	18.1	18.8	4.1	28
99/90	4.9	4.0	4.5	4.5	4.4	4.7	5.5	5.5	0.6	13
Gini	0.572	0.539	0.559	0.569	0.562	0.572	0.599	0.608	0.04	6

Notes:

SCF income	Fed default gross household income definition, includes wages, self-employment and business income, taxable and tax-exempt interest, dividends, realized capital gains, food stamps and other support programs provided by the government, pension income and withdrawals from retirement accounts, Social Security income, alimony and other support payments, and miscellaneous sources of income.
Less capital	SCF income less income from wealth (interest, dividends, rent, royalties, and income from trusts and nontaxable investments, including bonds, as well as some self-employment income).
Plus finance	+ imputed flows to stocks, bonds, annuities, and trusts.
Plus retire	+ imputed flows to quasi-liquid retirement accounts (401(k), IRA, etc.).
Plus home	+ imputed flow to primary residence.
Plus oth invest	+ imputed flow to other residences and investment real estate, transaction accounts, CDs, and whole life insurance.
Plus business	+ imputed flow to other assets and businesses + imputed flow to vehicle wealth.
MCI	− imputed interest flow for remaining debt (after adjusting for negative incomes).

In numerical terms, households at the 10th percentile of MCI have incomes of $14,397 (Table 2) and net assets of $23,112 (Table A6). Income from wealth increases SCF income by only $2,057 at the 10th percentile. This is in contrast with MCI and net worth values of $185,892 and $864,138