THE EXPANDING SOCIAL SAFETY NET

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ABSTRACT

Inflation-adjusted spending on means-tested subsidies have increased sharply since 2007, and most of this growth was due to changes in eligibility rules, and increases in subsidies per eligible person, rather than increases in the number of people who would have been eligible under pre-recession subsidy rules. The non-elderly parts of the safety net have increased from about $10,000 per year of non- or under-employment by non-elderly household heads and spouses in 2007 to almost $15,000 per year in 2010, adjusted for inflation. From 2007 to 2010, inflation-adjusted safety net spending increased $35,000 for every added year of non-employment or under-employment. As a result, the average private returns to employment are substantially less than they were in 2007.

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During this recession, a variety of private and public sector practices moved in a direction that might distort the labor market, and thereby reduce labor hours and increase output per hour. Among those are recent changes in regulations, such as the federal minimum wage hikes of 2007, 2008, and 2009. In addition, markets and governments have been allocating an increasing amount of resources on the basis of "means": household income and employment status. This paper documents the surprisingly large changes in means-tested resource allocation since 2007.

A leading example of means-tests resulted from the large number of homeowners who owed more on their mortgage than their house was worth, and both private and public sector renegotiations of the mortgage contracts have served as a massive implicit tax on earning during the recession because borrowers can expect their earnings to affect the amount that lenders will forgive (Mulligan 2009). Renegotiations of business debts (Jermann and Quadrini 2009), consumer loans (Han and Li 2007), student loans, and tax debts present debtors with similar disincentives. A new home buyers' $8000 tax credit was made available, but phased out as annual family income varied from $80,000 to $120,000. Other parts of the 2009 "stimulus law" increased the generosity of means-tested subsidies like food stamps, and employment-tested subsidies like unemployment insurance. Congress considered various legislation that would raise marginal income tax rates, and would present Americans with new health benefits that would be phased out as a function of income.

All of these safety net expansions help cushion individuals and businesses from reductions in their incomes. A necessary, but presumably unintended, byproduct of means-tested benefits is that they act as a penalty for raising one's market income: the more someone earns, the more of the "cushion" he has to give back. The penalty reduces the rewards to time and effort that raise market incomes, and thereby causes at least some people to do less toward earning their own market income. As people work fewer hours, and fewer businesses attempt to

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expand, output will be lower, and output per hour will be greater. As explained in Mulligan (2011b), the effect of an expanding safety net on real hourly wages depends on whether the safety net expands more for individuals than it does for businesses. The magnitude of these effects depends on the amount and characteristics of safety net expansions (the subject of this paper) and the sensitivity of work hours to those expansions.

The quantitative incentive effects of many, if not all, of the safety net events since 2007 are complex and varied, and might therefore seem beyond the reach of aggregate analysis. The purpose of this paper is to select the large subset of these events that can be characterized as changing means-tested transfers either from the government or from lenders, begin to quantify the combined amount of labor market distortion that they might create, and identify the types of workers that might be most affected.

Many economists have noticed that the unemployment insurance program was extended during the recession, and have attempted to determine its impact on employment.[1] However, aside from unemployment insurance, much analysis of the labor market since 2007 assumes that marginal tax rates have otherwise been constant.[2] This paper's results suggest that most of the change in marginal tax or "replacement" rates since 2007 is due to parts of the safety net other than unemployment insurance.

Table 1 displays the various means-tested or work-tested subsidies that appear in the personal income accounts as government social benefits. For each program, I estimate the 2006-2010 average fraction of program expenditures that go to the non-elderly, and indicate the result in the "inclusion factor" column of the table.[3] The Medicaid inclusion factor also includes a 25 percent reduction for the possibility that Medicaid benefits are a poor substitute for cash benefits.

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[1] A few of these are Elsby, Hobijn and Sahin (2010), Shimer (2010), and the studies cited in Council of Economic Advisers (December 2010).

[2] Mulligan (2008) and Herkenhoff and Ohanian (2011) consider the safety net created by loan discharges. Research on prior business cycles, such as Braun (1994) and McGrattan (1994) has considered marginal tax rates, especially from income and payroll taxes.

[3] On average between 2006 and 2010, 3.3 percent of regular state UI beneficiaries were aged 65 and over (United States Department of Labor, various issues). 6.6 percent of SNAP benefits were pro-rated to persons aged 60+ (Eslami, Filion and Strayer 2011) (Leftin, Gothro and Eslami 2010) (Wolkwitz and Trippe 2009) (Wolkwitz and Leftin 2008). 12.4 percent of SSI benefits were paid out under aged provisions (Social Security Administration 2011). 21 percent of Medicaid benefits (fiscal years 2009 and 2010 unavailable) were paid to the aged. I assume that the elderly share of Family Assistance, General Assistance, Energy Assistance, and Other is the same as it is for SNAP.

I then add up each program's product of inclusion factor and 2009 expenditures, and show the contribution of each program to the total in the last column of the Table. The three largest programs for persons under age 65 in 2009 were Medicaid, Unemployment Insurance (UI), and Supplemental Nutrition Assistance (SNAP).

All of these safety net programs expanded during the recession, but that observation by itself does not tell us whether the programs grew because labor hours fell, labor hours fell because the safety net became more generous, or some other possibility. Mulligan (2011a) considers whether, and how much, aggregate labor market outcomes were different because of the safety net expansions documented here. But this paper does estimate the amount of expenditure growth that occurred because programs became more generous for given beneficiary circumstances, as opposed to changes in beneficiary circumstances (e.g., workers lost their jobs) that obligated safety net programs to spend more even under their pre-recession benefit rules.

The task is complicated by interactions among the programs. For one, an increased generosity of safety net program A might reduce labor hours, and the reduced labor income obligates safety net program B to spend more, even though program B's benefit rules were unchanged. From the point of view of program B, it appears that "the recession" caused it to spend more, but in fact at least part of its spending growth derives from an overall safety net that became increasingly generous because that safety net includes program A.

Second, a single program's quantitative impact on the labor market depends on the generosity of the rest of the safety net, because an important determinant of labor market behavior is the effect of working on a person's disposable income. A person earning, say, $30,000 per year might react differently to program A's $5000 annual benefit for non-workers when the rest of the safety net provided nothing, than he would when the rest of the safety net provided $25,000 in annual benefits for non-workers. In the first case, not working would mean giving up $25,000 of disposable income ($30,000 in lost income from working, minus program A's $5000 benefit) whereas, in the second case, a $5000 benefit from program A makes it possible to stop working without losing any disposable income. More generally, the benefit paid by a single program to people with low incomes has a larger percentage impact on the reward to earning income the more that the rest of the safety net helps people with low incomes.

Ultimately we need measures of the safety net as a whole, but I begin with the analysis of particular programs – unemployment insurance, nutrition assistance, Medicaid, and loan discharges – in order to highlight some of the important safety net events, policy changes, and incentive magnitudes. The paper concludes by bringing program-by-program results together to quantitatively examine the entire safety net. Remarkably, this paper's quantitative estimates of the aggregate replacement rate from means-tested safety net programs are congruent with Mulligan's (2011b) estimates of labor market distortions inferred solely from productivity and consumption behavior. Readers interested only in results for the entire safety net can jump to "The Safety Net from an Aggregate Perspective" section near the end of this paper. Three of the tables and two of the charts are available in a single Excel file in the working papers section of nber.org.

Unemployment Insurance Expansions

The unemployment insurance (UI) program is jointly administered and financed by the federal and state governments, offering weekly cash benefits to people who have lost their jobs and have as yet been unable to find and start a new job. On average they receive about $300 a week until they start working again, they stop looking for work or their benefits are exhausted. Unemployment insurance is one of the larger programs shown in Table 1 and, adjusting for inflation, more than tripled its spending from 2007 Q4 to 2009 Q4. Undoubtedly more people became unemployed during that period for reasons apart from the existence of unemployment insurance, and even under the pre-recession benefit rules the program would have increased its spending. However, much of the spending increase came from changes in benefit rules since the recession started, especially those that lengthened eligibility periods.

Before the recession, an unemployed person in a typical state without high unemployment would often have his benefits limited to a maximum of twenty-six weeks (United States Department of Labor 2007). The federal law in place before the recession included some local labor market "Extended Benefit" (EB) triggers that, based on the statewide unemployment rate, would automatically lengthen the maximum benefit period. These automatic triggers began to extend benefits around the nation in the middle of 2008 (United States Department of Labor 2011). At about the same time, new "Emergency Unemployment Compensation" (EUC)

legislation extended maximum benefit periods for the entire nation. The American Recovery and Reinvestment Act of February 2009 (hereafter, ARRA) further extended the EUC periods to up to 99 weeks, and legislation later in 2009 and in 2010 permitted the 99 week maximum to continue.[4]

The Fraction of Unemployed Receiving UI Increased Sharply During the Recession

Historically, many unemployed persons have not collected unemployment benefits due to ineligibility, lack of awareness, or simply unwillingness to collect benefits (Anderson and Meyer 1997). A full account of changing UI program incentives must account for the propensity of unemployed persons to actually receive benefits. Figure 1 displays national time series for the number of unemployment compensation beneficiaries per unemployed person, separately for persons aged 16-24, persons aged 25 and over, and all persons aged 16 and over.[5] This ratio can be less than one for all of the reasons mentioned, plus the fact that some unemployed persons had already exhausted their benefits sometime during the calendar year. Not surprisingly, most young unemployed people do not receive unemployment compensation, in large part because they are much less likely to have an employment history that would qualify them for benefits. More striking is the increase in recipiency rates from 50 percent to 85 percent among persons aged 25 and over.[6]

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[4] Among other UI expansions, the Act also increase monthly benefit amounts and excluded the first $2,400 of UI benefits received in 2009 from federal personal income taxation (United States Department of Labor 2011).

[5] For each age group, I divide the annual average weekly number of program beneficiaries by the annual average weekly number unemployed (United States Bureau of Labor Statistics 2011). An age group's program beneficiaries is calculated as the sum of beneficiaries unemployed 26 weeks (which is the product of regular program beneficiaries from the U.S. Department of Labor (2011) and the fraction of beneficiaries in the age group as estimated by U.S. Department of Labor (2011)) and beneficiaries unemployed more than 26 weeks (which, for persons aged 16-24, is the product of the remaining program beneficiaries from the U.S. Department of Labor (2011) and the 56 percent of regular beneficiaries age 16-24). I use 56 percent because 0.56 is the ratio of youth's (ages 16-24) share of long term unemployment (more than 26 weeks) to its share of short term unemployment, as calculated from the monthly CPS files 2007-2010 (results are similar if using 100 percent rather than 56, because youth's share of regular program beneficiaries is small). Beneficiaries unemployed more than 26 weeks and aged 25+ are calculated as the residual of all remaining program beneficiaries and the number of remaining program beneficiaries who are aged 16-24. Other indicators also show an increase in UI takeup rates during the recession (Rothstein 2011, 15).

[6] By comparison, recipiency rates during the 1981-82 recession were lower than they were in prior years (Burtless 1983).

The importance of benefit exhaustion, as opposed to other determinants of eligibility and takeup, for explaining recipiency rates varies by year and age group. By 2010, benefit exhaustion probably explains most of the small amount of non-recipiency among unemployed persons aged 25 and over: about 12 percent of them had been unemployed more than 92 weeks, as compared to 15 who were not receiving benefits.[7] Benefit exhaustion explains roughly half of non-recipiency for that age group in 2007, because about a quarter of unemployed persons that age had been unemployed more than 26 weeks (the typical benefit duration in 2007). The recipiency rate change from 2007 to 2010 is therefore a combination of a decreased likelihood of exhausting benefits and an increased propensity to receive benefits early in the unemployment spell. These two factors changed so much that, even though the average weekly number of unemployed persons aged 25 and over increased by more than 6 million from 2007 to 2009, the average weekly number of those persons not receiving unemployment insurance actually fell by 700,000.[8] This absolute decline in non-participating unemployed suggests that people are more willing (equivalently, less unwilling) to collect unemployment benefits than they were before the recession began.[9]

Ineligibility or low takeup, rather than benefit exhaustion, explains most of the non-recipiency among unemployed persons aged 16-24 in all of the years 2007-2010. In 2010, for example, only 5 percent of them were unemployed more than 92 weeks whereas more than 80 percent of unemployed persons that age were not collecting benefits.

If the emergency (EUC) and extended benefit (EB) programs had not begun paying benefits during the recession, the recipiency rate changes shown in Figure 1 would have been quite different. Essentially no EUC and EB benefits were paid in 2007 or in the first half of 2008. In the second half of 2008, the EUC and EB programs immediately became about a quarter of all UI benefits and beneficiaries. By the end of 2009, they were a majority of all UI

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[7] The Emergency Unemployment Compensation program's maximum benefit duration varies by state: 73 weeks, 92 weeks, and 99 weeks are common duration periods. My calculations use 92 weeks as the maximum duration.
[8] For the purposes of this calculation, I assume that, consistent with the law, nobody received unemployment benefits for a week that he was employed.
[9] Note that the absolute number of short unemployment spells (all age groups) increased between 2007 and 2009, suggesting that fixed costs of initiating benefits cannot explain why non-participating unemployment has fallen. The ARRA's incentives for states to adopt "alternate base periods" is another factor expanding eligibility (National Employment Law Project 2010).

benefits and UI beneficiaries. If it were not for these programs, UI recipiency rates may well have declined, rather than increased.

The UI Program Absorbs a Larger Fraction of Earnings Lost Due to Unemployment than it did in 2007

By offering people a potential source of income while they are not working, unemployment insurance can reduce employment through a couple of channels. One channel is the decision by workers and employers to separate, especially to separate by layoff. Employers and employees understand that, after a worker quits or is laid off, earnings and production will be lost for the duration of time that the employee is unemployed and the duration of time that the employee's work tasks are not performed. These losses by themselves discourage separation, and do so to a greater degree the more earnings and production are expected to be lost. By replacing some of the lost earnings after a layoff, unemployment benefits make layoffs less costly, and the separation replacement rate – the ratio of anticipated replaced earnings to anticipated total earnings lost during the time unemployed after the separation – is an important determinant of the magnitude of the amount by which UI increases layoffs.[10]

For a worker who expects to have a typical unemployment spell after his layoff,[11] Figure 1 tells us the expected fraction of weeks unemployed that he will collect benefits because it is the fraction of unemployed weeks in the population for which unemployment benefits are being received. The separation replacement rate is the product of this fraction and the ratio of the weekly benefit amount to the average weekly earnings foregone during the unemployment spell. I take the weekly benefit amount for eligible persons aged 25 and over to be $300, which is about the program's weekly average. For persons under 25, I take it to be $150.[12] For foregone earnings, I consider the ranges [500,800] and [200,400], respectively, noting that median weekly

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[10] See below for a discussion of "experience rating."

[11] By "typical" spell, I mean a spell whose probability of lasting exactly x weeks is equal to the fraction of the unemployed population who has been unemployed x weeks, for all $x > 0$.

[12] Weekly benefits are typically half of prior weekly earnings, up to a fairly low cap. The median weekly earnings among people working in the younger age group (about $300 before fringes and employee taxes) is less than half of the median weekly earnings in the older group, but the older group is much more likely to be subject to the cap.

earnings among those and employed, adding fringes and subtracting payroll taxes, was about $743 for those aged 25 and over and $334 for those aged 16-24.[13]

Figure 2 displays the separation replacement rate results for 2007 (dashed curves) and 2009 (solid curves), and both age groups. Weekly earnings while working are measured on the left scale for the younger group (green curves) and on the right scale for the older group (red curves). The replacement rates are measured on the horizontal scale. The aged 25+ replacement rates range from 31 to 49 percent in 2009, and are 12-19 percentage points above the curves for 2007. The age 16-24 replacement rates are also greater in 2009 than in 2007 although their overall level is low due to the fact that a small fraction of young unemployed people receive UI benefits.

The replacement rates shown in Figure 2 increased from 2007 to 2009 for the older age group largely because of the increase in their recipiency rates. Recipiency rates rose for that age group because the emergency and expanded benefit programs began paying benefits, and also because of an increased propensity to collect benefits during the first 26 weeks of unemployment spells. Thus, expanded eligibility periods and increased takeup both served to increase the unemployment insurance programs replacement rate for persons aged 25 and over. Another factor increasing replacement rates from 2007 to 2009, not shown in the Figure, is that the ARRA increased monthly benefit amounts and excluded the first $2,400 of UI benefits received in 2009 from federal personal income taxation (United States Department of Labor 2011).

A second channel that unemployment benefits reduce employment is through exit from unemployment – at least some unemployed people might find, accept, or begin a new job more quickly if the unemployment insurance program were not providing an alternative source of income. This effect varies with amount of time a person has already been unemployed, because persons unemployed a longer time have fewer, if any, weeks of unemployment benefits remaining.

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[13] I used weekly earnings for persons at work in the CPS-MORG sometime during 2007 and 2009. I scaled those earnings by the ratio of total employee compensation to wage and salary income (1.22 in 2007, 1.24 in 2009) from the national income accounts and averaged the two calendar years. I subtracted payroll taxes from the total; the tax amount was calculated as 15.3 percent of pre-fringe weekly earnings.

For these purposes, an interesting summary statistic is the expected amount of unemployment benefits that an unemployed person would lose by immediately starting a job, expressed as a fraction of what he would earn on that job. For a person who has already exhausted his benefits, or who otherwise will not receive benefits, that fraction is zero. For an unemployed person still eligible for, and intending to collect, benefits, that fraction is the ratio of the weekly benefit amount to the average weekly earnings foregone during the unemployment spell, times the expected fraction of future weeks unemployed that benefits will be received. I estimate the former ratio as I did for Figure 2. For persons whose weeks already unemployed equals the median unemployment duration, I estimate, separately by age group, the latter fraction as the product of UI recipients per person unemployed no more than twenty-six weeks and the fraction of unemployed with at least median duration (median duration was 8.5 in 2007, and 15.1 in 2009) whose duration is less than 26 weeks (2007) or 92 weeks (2009). Because essentially none of those unemployed no more than twenty-six weeks will have exhausted their benefits, the first term in the product is a measure of UI eligibility and takeup before exhaustion. The second term in the product is, for a person expecting a typical unemployment spell, a measure of the expected fraction of his spell that will occur before exhaustion.

Figure 3 shows the continuation replacement rate results. The rates are lower than shown in Figure 2, because benefit exhaustion is closer for a person who has already experienced the median unemployment duration (Figure 3) than it is for someone who just started their unemployment spell (Figure 2). But more important for our purposes is that the continuation replacement rates in 2009 are about twice of what they were in 2007. Again, legislation that extended unemployment benefit duration is primarily responsible for the increase; the replacement rates probably would have declined without that legislation.

Most UI Program Expenditure is Made Pursuant to Federal Expansions since 2007

Table 2's top row displays actual unemployment insurance spending (all programs) for 2007, 2009, and 2010, adjusted for inflation and measured as a ratio to the entire U.S.

population. [14]   Actual spending increased almost 300 percent (that is, spending almost quadrupled) in two years.

In order to focus on benefit and eligibility rule changes, rather than behavioral changes in the labor market, I assume that the number of people unemployed 1-26 weeks would not have been different in 2009 or 2010 if 2007 benefit rules had remained in place: the second row estimates are merely actual spending amounts for the regular state programs. Spending would still have more than doubled under the previous eligibility rules, largely because such a greater fraction of the population was unemployed 1-26 weeks than in 2007. Nevertheless, by 2010, less than half of actual spending – $180 per person out of a total of $427 – was on unemployed people who, so far, were unemployed 1-26 weeks and therefore would have been eligible for benefits under the 2007 rules. Most of the actual spending growth occurred because the actual eligibility rules in 2009 and 2010 were quite different than they were in 2007. The third row of the table shows hypothetical program spending using the 2007 eligibility rules and taking $25 per week off benefits paid since the ARRA.[15]

Expansions of the Food Stamp Program

The Department of Agriculture's food stamp program, now known as Supplemental Nutrition Assistance (SNAP), provides funds to low income households for the purpose of buying food (Social Security Administration 2008), often in conjunction with cash assistance programs. The bottom half of Table 1 shows how the program was spending twice as much in 2010 as it was in 2007, adjusting for inflation and population.

The Department of Agriculture found that food stamp spending increase "…is likely attributable to the deterioration of the economy, expansions in SNAP eligibility, and continued

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[14] Note that most Americans – children, practically all of the employed, to name a few – are not receiving unemployment benefits during any given week, so the program's average weekly payment per beneficiary (about $300) is much larger than the program's per capita weekly spending shown in Table 3.1 (about $8 per week in 2010). The table shows per capita amounts in order to compare total spending over time and across programs, adjusting for population growth.

[15] The American Recovery and Reinvestment Act of February 2009 provided for a $25 increase in the weekly unemployment benefit. To make the adjustment, I took UI spending in any quarter since 2009-Q2 and multiplied by 275/300, where $300 is a typical actual weekly benefit amount. Note that the table's third row still includes effects of eligibility expansions apart from maximum benefit period, such as state-level adoption of "alternate base periods" (National Employment Law Project 2010) .

outreach efforts." (Leftin, Gothro and Eslami 2010, xiii). At least three eligibility expansions occurred since the recession began:

- Work requirements16 were lifted April 1, 2009 through September 30, 2010 (Eslami, Filion and Strayer 2011, 8).
- Monthly income limits were 10% higher in fiscal year 2010 than they were in fiscal year 2007 (Eslami, Filion and Strayer 2011, 86), an increase at about twice the rate of inflation over that time period.
- "The 2008 Farm Bill eliminated the cap on the dependent care deduction October 1, 2009." (Eslami, Filion and Strayer 2011, 5).

The ARRA increased maximum benefits by 13.6 percent (Eslami, Filion and Strayer 2011, 22), and the minimum benefit increased in October 2008 (Eslami, Filion and Strayer 2011, 9). Potential program participants have increasingly been given the opportunity to apply for benefits on the internet (Eslami, Filion and Strayer 2011, 8).

The second row of the Table's SNAP panel estimates the program's hypothetical spending growth with 2007 eligibility rules by assuming that real spending per capita increased since 2007 only in proportion to increases in the poverty rate, plus the ARRA benefit increase. The last row assumes that real spending per capita increased only with the poverty rate. Under either scenario, the hypothetical spending increases are significant, but well less than half of the actual spending increases.

Overall, Table 2 suggests that most of the growth in spending on UI and SNAP is due to changes in eligibility rules, and increases in payments per eligible person. The programs' spending certainly would have grown if benefit rules had remained as they were in 2007, but much less than it actually did.

Temporary Assistance for Needy Families (TANF, sometimes known as "welfare") has been operated in conjuction with SNAP since 1997 and offers, among other things, cash assistance for poor families. Prior to the recession, "…federal rules also require[d] states to show that at least half of the [TANF] caseload participates in work-related activities"

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[16] When the work requirements were in place, participants between 18 and 50 without dependent children could not receive SNAP benefits for more than "3 months in a 36-month period if they do not work or participate in a workfare or employment and training program other than job search." (United States Department of Agriculture, Food and Nutrition Service 2011)

(Zedlewski, The Role of Welfare during a Recession 2008). The ARRA changed this in 2009, providing "a 'hold-harmless' clause for states that experienced caseload increases, stating that they could still receive the same caseload reduction credit toward the work participation rate requirement that they had received in 2007 or 2008" (Lower-Basch 2010, 5). In other words, ARRA gave states more flexibility to allow unemployed people to participate in TANF.

TANF was not a new safety net program, but it was more available to unemployed people after ARRA than it was before. I suspect, however, that the contribution of TANF program changes to the resources available to non-employed people has been much less than the changes in the UI and SNAP programs. TANF's enrollment and real spending per capita has increased little since 2007 (Food and Research Action Center 2011). Moreover, the ARRA increased TANF subsidies, by about $1 billion, to working people through subsidized employment programs (Zedlewski 2011).

Medicaid: A Large Program with Little Expansion between 2007 and 2014

The state-administered Medicaid program pays health care providers on behalf of low-income individuals and families (Centers for Medicare and Medicaid Services 2011). It is the largest program shown in Table 1, spending about $8,000 per beneficiary per year.[17] Due to the high rates of spending on the elderly and disabled, spending per non-elderly, non-disabled beneficiary is about half the average for the entire program (Henry J. Kaiser Family Foundation 2011). An average family eligible for Medicaid would obtain over $10,000 in benefits per year, even without any elderly or disabled members.[18]

A few states recently began to require participants to pay regular premiums, make co-payments upon visits to healthcare providers, or both (Henry J. Kaiser Family Foundation 2011). The copayments are small: for example, in 2008 the Wisconsin Medicaid program began

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[17] To calculate spending per beneficiary, I divide calendar year Medicaid spending (as reported in the government social benefits section of the personal income accounts) by the number of persons enrolled in Medicaid as of June of that year (Henry J. Kaiser Family Foundation 2011). Sometimes annual spending per beneficiary is measured as the ratio of spending to the number of persons enrolled at any time during the year (Henry J. Kaiser Family Foundation 2011), in which case the ratio is about $5,000. With the exception of amounts for premiums and copayments (see below), all of the Medicaid statistics reported in this paper include the Medicaid CHIP program.

[18] For example, at $4,000 per beneficiary per year, families with three beneficiaries would receive benefits with an average value (at program cost) of $12,000 per year. Note that private family health insurance, a substitute for Medicaid enrollment, typically costs about $13,000 per year (Crimmel 2010).

collecting co-payments ranging from zero to three dollars from participants with incomes below 200 percent of the poverty level (Dague 2011). The premiums, if any, also increase with beneficiary income (Dague 2011).

Unlike the UI and SNAP programs, the Medicaid program has not yet significantly expanded its eligibility or average benefit since 2007. Some states have restricted Medicaid benefits in order to control costs. A number of states have expanded eligibility (Smith, et al. 2011), but those expansions were small enough that nationwide Medicaid enrollment and inflation-adjusted Medicaid spending actually grew slightly less between 2007 and 2010 than did the number of Americans in poverty.[19] To a first approximation, Medicaid spending and enrollment have expanded since 2007 because of the number of families who have seen their incomes decline (Smith, et al. 2011, 15).

The Patient Protection and Affordable Care Act was passed in March of 2010. As a result of this legislation, Medicaid enrollment and spending are expected to increase significantly in 2014, when the program is made "available to able-bodied adults with incomes up to 133 percent of the federal poverty level" (Sack 2010). Thus, while the safety net has already expanded due to recent changes in eligibility rules for the UI and SNAP programs, Medicaid may be the main way that the safety net further expands in the near future.

Even though Medicaid did not become significantly more generous during the recession, its prerecession generosity made the UI and SNAP expansions more potent. The Medicaid program was already replacing an important benefit from working – health insurance, or the funds to purchase health insurance – so the UI and SNAP expansions served to replace other parts of the income from working.[20] Moreover, Medicaid is more generous now than it was in previous decades, and therefore leaves less to be replaced by the rest of the safety net. For example, non-elderly non-disabled Medicaid participants per family at or below 125 percent of the poverty level was 1.9, 1.7, 2.3, and 3.8 in 1977, 1987, 1997, and 2007, respectively.

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[19] The poverty rate increased 18 percent between 2007 and 2010, when Medicaid enrollment and inflation-adjusted spending per capita increased 16 percent.
[20] Each dollar of UI income can reduce SNAP and TANF benefits, but less than dollar-for-dollar (Hanson and Andrews March 2009). The ARRA required that the $25 increase in weekly UI benefits not count against the recipient's Medicaid eligibility (Ross and Parrott 2009).

Means-tested Loan Forgiveness

Household debt had been increasing during the 1980s and 1990s, but the rate of increase was extraordinary between 2000 and 2007. In 2000, household sector debt was less than 80 percent of annual personal income. By 2007, it had reached 114 percent of the nation's personal income (Dynan and Kohn 2007) – more than $14 trillion. The change was almost entirely due to accumulation of home mortgage debt; non-mortgage debt remained about one quarter of personal income throughout the period (Dynan and Kohn 2007). The mortgage debt had grown more or less in proportion to the growth in residential real estate values (Dynan and Kohn 2007); by 2007 home mortgage debt was 87 percent of annual personal income.

The combination of housing market events and the profit motive for mortgage lenders turned trillions of dollars of household debt into a massive safety net. Normally, home mortgages are fully secured by a residential property: when a homeowner fails to make the scheduled payments on time, the lender can seize the property and sell it to obtain his principal, interest, and fees.[21] When the lender has this valuable foreclosure option, borrowers overwhelming either make their home mortgage payments on time, or sell their property in an orderly fashion in order to obtain the funds to repay the mortgage lender. As long as a property could be sold for enough to repay its mortgage, even homeowners who had become unemployed could be expected to pay their mortgages in full.[22] The vast majority of mortgages were paid in full and on time, and homes were typically owned by occupants, not by banks.

When residential property values plummeted in 2008 and 2009, a number of residential properties were suddenly "under water": worth less than the mortgages that they secured. In those cases, the lender's foreclosure option was no longer valuable – selling the property would likely yield too little funds to cover principal, let alone interest and fees. For the same reason, a

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[21] In exchange for funds to make a home purchase or improvement, a homeowner promises in the mortgage agreement to either make his scheduled payments or, at the lender's discretion, pay late fees or surrender ownership of the home.

[22] Foote et al (2009, footnote 3). Liebowitz (2009) finds that negative equity was a more important factor than unemployment in causing the foreclosures that occurred in the second half of 2008. Geanakopolos and Koniak (2009) find that foreclosures are "stunningly sensitive" to the amount of home equity. See also First American Core Logic (2008, 2).

homeowner who suddenly owed more than his house was worth might minimize his losses by stopping his mortgage payments.

A homeowner always has the option to stop paying his mortgage, even if he can afford the payments. Although state laws are somewhat different, to a good approximation the worst case scenario for a homeowner who stops paying is that he can no longer own or occupy the house, may suffer a reduction in his credit rating that might raise his future borrowing costs, and may personally suffer a loss in pride for his failure to pay as promised.[23] But if the combined value of the house and these costs were less than the present value of his promised mortgage payments, then he could do better than paying in full. That's probably an important reason why, as of early 2009, more than five million homes were already either in foreclosure (lenders were seizing the collateral as a consequence of lack of payment) or their owners were delinquent on their mortgage payments.

In order to minimize lending losses, it helps to encourage at least some of the underwater borrowers to make their scheduled mortgage payments, and thereby pay more than their homes were worth. As explained above, insisting on full payment from everyone probably would not minimize losses because lenders would find themselves owning millions of unoccupied homes. Lenders could essentially eliminate foreclosures by reducing all mortgage amounts enough that homeowners were no longer underwater, but that would eliminate their chances of collecting from the subset of borrowers would pay in full despite being underwater.

Lenders needed a way to estimate which borrowers would pay in full, and for other borrowers try to work out a mortgage modification that would give them an incentive to pay at least a bit more than their homes were worth. Naturally, a borrower's income is a factor to be considered – borrowers with high income can be expected to repay more than borrowers with low income. Thus, a partial solution to the lenders' collection problem is to insist that high income borrowers to pay more, and allow some low income borrowers to pay less. Lenders have been doing exactly that.

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[23] A number of states prohibit lenders from holding homeowners liable for the difference between the mortgage amount and funds obtained from a foreclosure sale. Other states technically allow such liabilities, but homeowners can often shield their assets from home loan deficiency judgments. In a few states, homeowners may expect to be liable for the deficiency (Ghent and Kudlyak 2011), but in practice collection of such liabilities may, in effect, involve some of the same means-tests noted below.

Suppose, for illustration, that lenders asked borrowers to, short of paying in full, pay $500 more for each $1000 earned. Conversely, for every $1000 *less* that a borrower earns, he can expect an additional $500 reduction in his mortgage payments. From this perspective, the lenders' desire to maximize debt collections (following the collapse of residential real estate values) causes them to create a kind of safety net program that gives low income people more help with their housing expenses – much like the federal food stamp program gives low income people more help with their food expenses – in the form of modified mortgage payments.

Mulligan (2009) examines the economics of mortgage modification in more detail, and the role of public policy in determining mortgage modification formulas, so my purpose here is to put the loan modification safety net in the context of the government-provided safety nets. As with the government programs examined above, I look at (a) how "eligibility" rules are different now than they were before the recession began, and (b) how much revenue was ultimately spent by the program.

In 2006, before the recession began, only seven percent of homes were worth less than the mortgages they secured,[24] and the average amount underwater was small. As a result, 93 percent of mortgage borrowers could not expect their mortgage to be modified regardless of how little income they might earn, and even the remaining seven percent could at best expect a small modification. The implicit safety net from mortgage modification in 2006 was quite small, if not zero. Consumers did have some unsecured debt, especially credit card debt amount to about $300 billion (Federal Reserve Bank of St. Louis 2011). That credit card debt would act something like a safety net because they might expect it to be partially discharged in a bankruptcy proceeding, with more debt forgiven the lower is their income. However, since credit card debts were bulk of dischargeable debts in 2006, the size of the debt modification safety net was small in 2006.

With the collapse of residential property values, home mortgages were much further underwater in 2009 than they were before the recession began. By the end of 2009, 24 percent of homes with mortgages were worth less than the mortgages they secured, the average amount underwater was $70,700, and the aggregate amount was $801 billion (First American Core Logic

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[24] Less than four million homes with mortgages had negative equity (C. H. Smith 2010). The total number of owner occupied homes with mortgages was about 51 million (United States Census Bureau 2007).

February 2010). Loan modification in 2009 thereby had the potential of redistributing more resources than unemployment insurance, food stamps, or even Medicaid.

In order to quantify the size of the loan modification safety net and its changes over time, I estimate the amounts that "home retention actions" (as the federal government calls them) actually changed mortgage payments from the original mortgage contract, which specified only payment in full or foreclosure. To estimate those amounts for 2008-2010, I first measure the number of residential properties in each quarter receiving loan modifications, lender permission for short sale, or lender permission for deed-in-lieu of foreclosure.[25] Table 3 is aggregated to the calendar year, and shows that that a large majority of the home retention actions were mortgage loan modifications or payment plans, and that 2010's 3.7 million home retention actions was more than any other year.

Second, I multiply the number of transactions by a $20,319 average value of each loan modification.[26] For the years 2006 and 2007, for which I do not have data on the number of home retention actions, I assume that 2006 and 2007 had dollar value of these discharges that were, as a proportion to discharges in 2008, the same as total mortgage loan discharges by commercial banks.[27]

Because the home retention actions are necessary primarily when homes are worth less than the mortgages they secure, the amount discharged by home retention actions is much less in 2006 and 2007 when residential property values were still high. During 2010, mortgage lenders had discharged more than $70 billion of mortgage debt through home retention actions. $70 billion for one year is small by comparison to the total amount that homeowners were underwater, but is more than the spending by the entire food stamp program for that year.

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[25] The number of transactions is from Office of Thrift Supervision (various issues), extrapolated to the industry according to the fraction of mortgages sampled (0.63). Hope NOW (2011) reports somewhat more industry transactions, but not a corresponding amount per transaction.

[26] A typical modification reduced monthly payments (principal and interest combined) by $400 for a minimum of 60 months. At an annual discount rate of seven percent, the present value of $400 per month for 60 months is $20,319.

[27] For example, to arrive at the 2007 value of $6.9 billion, I begin with the $35.1 billion for 2008, divided by total single family mortgage loan discharges by commercial banks in 2008 ($25.5 billion), and multiplied by total single family mortgage loan discharges by commercial banks in 2007 ($5.0 billion). Note that the mortgage discharge amounts in Table 3.3 represent discharges by all mortgage lenders – not just commercial banks – but only for home retention actions (not for foreclosures).

Few people who became unemployed, or otherwise saw their incomes reduced, during 2006 or 2007 could expect to have much of their mortgage debt reduced, because the large majority of homes were worth more than the mortgages they secured. In this regard, the part of the safety net coming from mortgage modification was absent before the recession. Home mortgages had to be underwater, as many have been since 2008, in order for this part of the safety net to provide many resources.

The last row of the table displays discharges on other consumer loans, such as credit card debt. Those discharges are smoother over time because they are not directly tied to the housing cycle, but still totaled more than $70 billion in 2010. The combination of discharges of other consumer loans and discharges of home mortgages by home retention actions was almost $150 billion in 2010, which exceeds peak spending for the entire unemployment insurance system.

The Safety Net from an Aggregate Perspective

Inflation-adjusted government spending on unemployment insurance (UI) and food stamps (SNAP) has more than doubled on a per capita basis, and most of this growth is due to changes in eligibility rules, and increases in payments per eligible person, rather than increases in the number of people who would have been eligible under pre-recession program rules. By 2009, the UI program was absorbing a larger fraction of earnings lost due to unemployment than it did in 2007, with the majority of its expenditure made pursuant to federal expansions since 2007. Indeed, among persons aged 25 and over, it was more common to experience unemployment without government help before the recession than it was since 2007.

The combination of housing market events and the profit motive for mortgage lenders turned trillions of dollars of household debt into a massive safety net. Means-tested consumer loan discharges have already exceeded unemployment insurance expenditures, and many more discharges are expected in the future.

It is quite possible that the labor market is more sensitive to program expansions like these, because persons with low incomes can rely on sources of support that were more

significant on the eve of this recession than they were in the past. Medicaid had become the largest single safety net program. Unemployment insurance program eligibility was extended to workers with interrupted work histories (National Employment Law Project 2010), and thereby potentially with employment rates that are more sensitive to incentives.[28] By 2007, married women were earning more than ever before, with 26 percent of women in dual earner households actually earning more in 2007 than their husbands earned (United States Bureau of Labor Statistics 2011).[29] A spouse's income is not the same as a government safety net, but nonetheless her earnings can help cushion a man from earnings lost during unemployment.

Aggregate Safety Net Spending and Aggregate Replacement Rates

The personal income accounts from the Bureau of Economic Analysis, together with the loan discharge data used in Table 3, offer an aggregate perspective on the array of means-tested programs shown in Table 1, because they permit calculation of the total amount of resources provided to households with low incomes or experiencing unemployment. Before the recession, housing collapse, and expansion of means-tested programs, the inflation-adjusted combination of the non-elderly portion of these benefits was only about $340 billion per year. The combination was flowing at an inflation-adjusted annual rate of over $600 billion per year by the second half of 2009.

As noted above, spending on these programs grew in part because the number of people without jobs, and the number of people with market incomes below the poverty line, increased since 2007. In order to obtain an aggregate indicator of the changing generosity of the safety net as a whole (for non-elderly people), it helps to have a quantitative aggregate measure of changes in the number of people less than age 65 who might qualify for some or all of the safety net programs. Young people often do not qualify for unemployment compensation because of their limited work histories. Children qualify for a number of programs on the basis of their parents' or guardians' income or employment, not their own. My first step is therefore to focus on

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[28] On the other hand, Katz (2010) suggests that there has been a secular decline in the propensity of employers to have temporary layoffs, a practice that might be cyclically sensitive to unemployment insurance rules.
[29] By comparison, 14 percent of women dual earner couples earned as much or more than their husbands in 1980 (author's calculations from the CPS Annual Supplement), on the eve of another severe recession.

persons less than age 65 who are either head of household, or spouse of the household head. Table 4 displays some of their characteristics in 2007 and 2009.[30]

Weekly employment fell two percent among married women, and about six percent for the other three demographic categories. Overall, employment fell, and non-employment increased, about five million between 2007 and 2009. Among those employed, weekly work hours fell about three percent. Inflation-adjusted weekly earnings, measured at the mean, median, and 1st quartile were pretty stable, reflecting the increase in earnings per hour.

Between 2007 and 2009, the number of household heads and spouses not working increased 14 percent, which is one estimate of how much aggregate safety net spending would have increased during that time if benefit rules had remained constant. This measure potentially neglects weekly income losses among the employed that might also create more safety net expenditure. The CPS data suggest that real weekly incomes were pretty stable, but even a small percentage decline in weekly earnings among the employed potentially has a large effect on the aggregate earnings lost to underemployment because more than one hundred million heads and spouses are employed. For this reason, and to err on the side of overstating the change in earnings lost to underemployment, I measure employed persons' contribution to underemployment according to the amount by which their weekly work hours fall short of average weekly work hours among heads and spouses employed in 2007. Thus, total underemployment in 2009 is three percent of the number of people employed, plus the number of persons not employed, which is a total of 41.4 million.[31]

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[30] The population of nonelderly heads and spouses has a lot of overlap with the population of persons aged 25-64 (a population that can be isolated for the purpose of measuring unemployment insurance participation): only 5 percent of nonelderly heads and spouses are less than age 25, and 85 percent of persons aged 25-64 are either head or spouse.

[31] Using the 2007 CPS merged outgoing rotation groups, I calculate average hours worked in the reference week among employed heads and spouses less than age 65 (persons employed but not at work are not included in this average), using the CPS weights adjusted so that each month gets equal total weight. For every month 2006-2010, I then measure underemployment as the sum of persons not employed in the reference week plus the product of the number employed and one minus the ratio of average hours among those at work to the 2007 average noted above, using the same adjusted CPS weights. By construction, under-employment is equal to non-employment for 2007 and any other period in which the average hours worked among those at work was the same as in 2007. Otherwise, employed persons also contribute fractionally to under-employment according to hours worked. Given that my purpose is to decompose changes in safety net expenditures based on actual work hours (rather than intended work hours), my underemployment measure is different from Bureau of Labor Statistics measures of labor underutilization.

Figure 4 displays inflation-adjusted quarterly time series for the non-elderly portions of five types of means-tested subsidies: Medicaid benefits, receipts from unemployment insurance, receipts from other means-tested government transfer programs,[32] home retention actions, and consumer loan charge-offs by commercial banks. The Figure expresses the aggregate inflation-adjusted subsidy amounts as a ratio to the number of household heads or spouses less than age 65 who are underemployed in the average week, and measured on the left scale. As such, the ratio is an indicator of the amount of assistance the average household receives in a week in which either its head or spouse is not employed, or underemployed. The ratio increased from an annual rate of about $10,000 per underemployed before the recession began to about $15,000 by the end of 2009.

Program changes that allow a household to receive assistance for more of the weeks that it is not employed, or changes that increase the weekly benefit, tend to increase the ratio. An increase in the number of people who are underemployed does not, by itself, change the ratio because it would both increase program spending under a fixed set of benefit rules (the ratio's numerator), and increase the ratio's denominator. For example, I explained above how Medicaid spending had grown, but Medicaid benefit rules had been fairly constant: as a result the Medicaid part of Figure 4 is also fairly constant over time. Meanwhile, unemployment insurance, other means-tested government subsidies, and loan discharges grew more than the number of household heads and spouses who were underemployed.

A key indicator of the employment incentive effects of means-tested subsidies is the replacement rate: the fraction of lost earnings that the average non-employed person receives in the form of means-tested benefits. Another indicator is the self-reliance rate – the fraction of lost earnings not replaced by means-tested benefits – and is merely one minus the replacement rate. The larger is the self-reliance rate, the more that a household has to rely on its own earnings rather than subsidies in order to maintain its living standard. If none of the means-tested subsidies and discharges went to any household whose head (and, if present, spouse) was continuously employed, then Figure 4 can be used to measure the replacement rate by dividing the dollar amounts in the figure by the amount of earnings lost. Assuming that earnings are lost

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[32] Social security, Medicare, education, veterans' benefits, and various medical, retirement and pension transfers are excluded.

at the rate of $36,000 per year (about $700 per week), the right scale in Figure 4 shows the self-reliance rate.[33] Before the recession began Figure 4's measure of the self-reliance rate was 70 or 75 percent, but by the second half of 2009 it had fallen to almost 55 percent. By any standard, that's a large and sudden change in the self-reliance rate and thereby a large and sudden change in the incentives to work.

The number of non-elderly heads and spouses underemployed in the average week was about 33 million in 2007, and had risen to about 42 million by the end of 2009. If the social safety net had just expanded proportionally – increasing its total annual spending by about $80 million dollars – then the sum total of the program's spending would have appeared constant in Figure 1. Instead, its annual spending increased by $270 billion: the programs' (non-elderly) spending increased by almost $35,000 per non-elderly person-year added to underemployment. This large amount of redistribution to underemployed persons means that, as a group, their net-of-subsidy incomes are not much less than they were before the recession began.

My findings of high replacement rates and low self-reliance rates during the recession are not surprising when benefit expansions since 2007 are put in the context of some of the previous literature on anti-poverty programs. Holt and Romich (2007) look at self-reliance rates from tax and subsidy programs in the year 2000 and find them to be about 50 percent, and potentially much smaller if program participation rates had been greater, as they were since 2007.[34] It is well-known that a large number of households saw their market-incomes fall below the poverty line since 2007, but Sherman (2011, Figure 2) shows that only 0.6 percent of the population saw their living standards fall below the poverty line between 2007 and 2010, thanks to expansions in means-tested subsidy programs. For every 42 people whose market income declines would have put them in poverty, government assistance pulled 36 back out. Roughly speaking, Sherman's results suggest that the government absorbed six sevenths of market income declines, at least for households with income in the neighborhood of the poverty line.

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[33] Because the replacement rate is inversely proportional to the earnings lost during nonemployment, the reader can use the results to calculate self-reliance rates corresponding to annual earnings loss rates different from $36,000. For example, a self-reliance rate of 0.70 shown in Figure 3.4 would be 0.40 with an earnings loss rate of $18,000 (0.4 = 1- (1-0.7)*36/18).

[34] Their 50 percent result cannot be compared directly to mine, because mine does not take taxes into account (tax policy changed less than subsidies did between 2007 and 2010, so the omission of taxes does not significantly affect my findings for changes in self-reliance rates).

Conceptually the average replacement rate is just what the average non-employed person gains in terms of subsidies as a consequence of not working, expressed as a ratio to what he would have earned if he had been lucky (or willing) enough to have a full-time job. Thus, the replacement rate is underestimated to the degree that the numerator excludes various means-tested subsidies and means-tested loan forgiveness, and to the degree that the denominator exaggerates foregone earnings or the size of the potentially eligible population. The same biases are present in my measures of the self-reliance rate, because it is merely one minus the replacement rate. Nothing about Figure 4's measured self-reliance rate assumes that the most of the recession was caused by subsidy expansion – that depends on the degree to which labor supply is elastic to incentives– and nothing about it denies the fact that subsidy programs automatically spend more when people become unemployed for other reasons.

I have not quantified several other areas of expanding means-tested benefits such as student loan discharges, forgiveness of income tax debts, and tax credits targeted to low income households that presumably reduced self-reliance rates still further during the recession.[35] Moreover, some of the credit market discrimination may have served to reduce replacement rates before the recession began – creditors rewarded high incomes prior to the recession by extending more credit and rewarded low income during the recession by extending more forgiveness. The fact that I omitted the former effect means I underestimated self-reliance rate declines. On the other hand, I may have overestimated self-reliance rates declines to the extent that some of the program expenditures used in Figure 4 are not means-tested. This paper does not consider the safety net for businesses, especially financial businesses (Morgenson 2011).

Aggregate Replacement Rates and Aggregate Distortions

The decline in self-reliance rates is, by definition, a decline in the rewards to time and effort that raise market incomes. In theory, at least some people respond by doing less toward earning their own market income. As people work fewer hours, and fewer businesses attempt to expand, output will be lower, and output per hour will be greater. In other words, as safety net

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[35] On targeted tax credits, see Sherman (2011). Melvin (2009) explains how "IRS agents were given more flexibility in their collection actions, including the ability to reduce or suspend monthly payments on back taxes so those *hit hard by the financial downturn* are not forced to default on their tax payments" (emphasis added).

rules changed to reduce self-reliance rates, economic theory predicts that the gap between productivity and consumers' marginal rate of substitution (MRS) would widen. Moreover, the theory says that the magnitudes of the two changes (self-reliance rates and gap) are identical. With Figure 4 measuring changes in the self-reliance rate, and Mulligan (2011b) measuring the gap between productivity and MRS (conditional on a particular model of the MRS function), we are now in a position to begin to evaluate the theory.

Figure 5 graphs in red the distortion or "labor wedge" series from Mulligan (2011b, Figure 6) together with (minus one times) log changes in the self-reliance rate since 2007-Q4 (green). The green series tends to increase over time because replacement rates increased and self-reliance rates fell. Assuming that Mulligan (2011b) used the correct marginal rate of substitution function, and all of the measurements were exactly correct, the theory says that the two series should be identical. Note that the two series are based on very different data sources – the former comes from data on aggregate consumption and productivity while the latter comes from data on loan discharges and expenditures by government programs[36] – which means the two series are not automatically equal. Nevertheless, the two series follow each other closely. They both increase about 0.05 during the first year of the recession, and had increased a total of 0.15 by the end of 2009. By the end of 2010, both were still about 0.15.

Reasonable alternative measures of either distortions or self-reliance rates could introduce more gaps between the two series than are shown in Figure 5.[37] But a couple of lessons derive from even a rough agreement between the two series. First, the safety net expanded, and then stabilized at a more generous level, at about exactly the times that employment rates dropped, and then stabilized at a lower level. Second, the amount of the safety net expansion was large, and possibly large enough to cause a significant part of the employment drop. Both of these lessons are consistent with the reasonable ideas that the recession motivated

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[36] Employment data go into the construction of both series, but in different directions. Holding constant the other data used, more employment reduces the measured gap between productivity and MRS, while it increases the measured replacement rate (the replacement rate is approximately the ratio of safety net spending to persons not working) and thereby increases the green series shown in Figure 3.5.

[37] So far I have omitted employer-side labor distortions that probably changed since 2007. Changes in these distortions would tend to change Figure 3.5's red series, without changing the green one.

at least some of the safety net expansions,[38] and that the entire recession cannot be attributed to expansions in the safety net.

The Self-Reliance Rate Outlook

I found that self-reliance rates fell significantly between 2007 and 2010 because the social safety net became more generous than it was before the recession began, especially its debt discharge, unemployment insurance, and food stamp components. In order to understand what will happen to the labor market in the years beyond 2010, and in order to fully understand what happened to consumption and investment during the recession, it is important to consider market expectations of self-reliance rates for the years beyond 2010. As I explain in more detail in Mulligan (2011a), people consume less, and businesses invest less, the longer they expect self-reliance rates to remain low.

Some of the subsidy expansions contributing to the changes shown in Figure 4, such as the removal of work requirements for adult food stamp benefits, had lapsed by the end of 2010 and by themselves result in on-going self-reliance rates that are lower than they were in 2009 and 2010. In principle, other expansions such as the extension of unemployment benefits to as many as 99 weeks will lapse too, but Congress has repeatedly renewed them (United States Department of Labor 2011) and only time will tell how long the renewals will continue.

The problem of negative home equity will not forever remain the pervasive problem that it is now, and for this reason the contribution of mortgage discharges to the safety net will eventually decline. However, it seems that little of that decline will occur in the near future: as of the second quarter of 2011 the fraction of home mortgages whose par value exceeded the value of the property securing it was about the same (23%) as it was during 2009 (First American Core Logic September 2011), and needs to decline by a factor of three in order to return to pre-recession levels.

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[38] Landais, Michaillat, and Saez (2010) argue that optimal unemployment benefit duration lengthens as the national unemployment rate rises. Even if actual benefit rule changes were not a reaction to economic conditions, the dynamics of economic conditions could affect the dynamics of the safety net expenditures shown in Figure 3.4.

Other factors suggest that self-reliance rates could indefinitely remain low. Medicaid enrollment and spending are expected to increase significantly beginning in 2014. By 2019, Medicaid's enrollment is expected to increase by 16-22 million and its spending to increase by 13 to 16 percent (Holahan and Headen May 2010). In the future, the government may also be subsidizing private health insurance participation, beyond the Medicaid program as we know it, and means-test those subsidies. According to the methodology of my Figure 4, the 2014 Medicaid expansion alone would add between 2.0 and 2.4 percentage points to the replacement rate, and thereby subtract that amount from the self-reliance rate.

The Obama administration cut the rate of payroll taxation by two percentage points, announced in December 2010 and effective for the calendar year 2011 (Vaughn 2010), which would increase the self-reliance rate by about two percentage points, or about one-seventh of its decline since the recession began. On the other hand, early in 2009, the Obama administration began talking about a tax credit for employers who expanded their payrolls. Along these lines, the Obama administration proposed in September of 2011 "…a full holiday on the 6.2% payroll tax firms pay for any growth in their payroll up to $50 million above the prior year, whether driven by new hires, increased wages or both" (White House 2011). Until such a law is actually takes effect, both the credit and holiday proposals actually serve as an expected employer tax on payrolls, and would have many of the effects of *increasing* the safety net's replacement rate.

To see this, suppose that the tax holiday law was passed in 2011, to be effective for the calendar year 2012. The law said that, in 2012, employers owed 6.2 percent of their 2012 payroll spending P_{2012} minus the amount (P_{2012}-P_{2011}) of that spending that was an increase from the prior year. In terms of arithmetic, the 2012 payroll tax liability would be 0.062 times [P_{2012}-(P_{2012}-P_{2011})], which is just 0.062 times P_{2011}. In words, the 2012 tax liability depends on 2011 payroll rather than 2012 payroll because increments to payroll go tax free. The 2011 tax liability was, of course, 0.062 times P_{2011}, so 2011 payroll is, in effect, taxed twice: once in 2011 and again in 2012. Employers who anticipate such a tax holiday will understand that payroll spending in the year before the tax holiday (2011 in this example) is almost 12.4 percent more expensive[39] than it will be during the holiday because payroll in the year before is effectively

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[39] The present value tax cost is not quite 12.4 percent, because part of the tax liability accrues in the future. For example, at a seven percent annual discount rate, the present value tax cost would be 12.0 percent. More generally, expectation of a payroll expansion tax holiday inflates the expected present value cost of having employees before

taxed twice and payroll during the holiday is not taxed at all. Just as important, anticipation of the holiday makes payroll prior to the holiday more expensive (a tax rate as large as 12 percent) than it would have been if no holiday were anticipated (a tax rate of 6.2 percent).[40]

Self-reliance rates were greater than 0.70 before the recession began. Those rates fell below 0.60 by early 2010, because non-elderly safety net expenditure increased \$29,000 for every person-year that underemployment of household heads and their spouses under age 65 exceeded underemployment in 2007. The exact future of the self-reliance rate is uncertain: a reasonable guess is that self-reliance rates will increase slowly after 2010, but not return to pre-recession levels.

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the holiday by the discounted tax rate times the probability that the pre-holiday payroll is part of a future tax holiday determination of payroll expansion.

[40] Lucas (1976) explains how factor demand depends on the anticipation of tax credits. Auerbach and Hines (1988) found that the anticipation of tax credits had real effects on the behavior of U.S. corporations.

Table 1. Means-tested Public Subsidies Found in the Personal Income Accounts, 2009

Program	Inclusion Factor[a]	Percentage of Total[b]
Federal		
Unemployment Insurance	0.97	26%
Supplemental Nutrition Assistance Program	0.93	10%
Supplemental Security Income	0.88	8%
State and Local		
Medicaid	0.59	45%
Family Assistance	0.93	4%
Supplemental Security Income	0.88	1%
General Assistance	0.93	3%
Energy Assistance	0.93	1%
Other[c]	0.93	3%

NOTES:

[a]Inclusion factor is an estimate of the fraction of program spending on non-elderly persons. For Medicaid, it is multiplied by an estimate of the relative value of in-kind versus cash subsidies (0.75).

[b]Percentage of total is proportional to a program's transfer amount times its inclusion factor; percentages sum to 100 across programs.

[c]Other consists of expenditures for food under the supplemental program for women, infants, and children; foster care; adoption assistance; and payments to nonprofit welfare institutions.

Table 2. UI and SNAP Spending Growth Attributable to Benefit Rule Changes

	2007 $ per capita			changes from 2007	
	2007	2009	2010	2009	2010
Unemployment Insurance					
actual spending[a]	109	411	427	279%	293%
under 2007 eligibility rules[b,c]	109	251	180	131%	66%
under 2007 eligibility rules, and without ARRA's					
$25 weekly benefit increase[d]	109	235	165	117%	52%
Food Stamps/SNAP					
actual spending[a]	102	173	205	68%	100%
under 2007 eligibility and minimum benefit rules[b]	102	124	137	21%	34%
under 2007 eligibility rules, and without ARRA's					
13% benefit increase[d,e]	102	113	121	10%	18%

NOTES:

[a]Actual spending amounts from the personal income accounts, and thereby exclude program administrative costs.

[b]Hypothetical spending amounts hold unemployment and poverty incidence constant at actual amounts.

[c]Hypothetical UI spending under 2007 eligibility rules estimated as actual spending on the regular state programs.

[d]Actual ARRA benefit increases assumed in effect for all of 2010 and last three quarters of 2009.

[e]Hypothetical SNAP spending (final row) assumes constant real program spending per person in poverty.

Table 3. Consumer Loan Discharges by Type and Year

	2006	2007	2008	2009	2010
"Home Retention" Transactions					
Modification or payment plan			1,652,438	3,248,317	3,384,810
Short Sales + Deed-in-lieu			75,397	185,400	331,032
Total Transactions	NA	NA	1,727,835	3,433,717	3,715,841
Discharge Amount, 2007 $ billion	2.6	6.9	34.0	67.4	71.7
Other Consumer Loans					
Discharge Amount, 2007 $ billion	17.1	22.0	33.1	51.2	70.6

Table 4 Number and Characteristics of Household Heads, Spouses

	Employed			Not Employed		
	2007	2009	chg	2007	2009	chg
	Millions					
Married male	42.6	40.2	-6%	6.3	8.1	28%
Married female	33.6	32.9	-2%	16.4	16.8	3%
Unmarried male	16.0	15.0	-6%	4.1	5.6	36%
Unmarried female	18.5	17.5	-6%	6.7	7.7	15%
Total	110.8	105.6	-5%	33.5	38.2	14%

	Among the Employed					
Weekly hours, average	40.5	39.2	-3%			
Weekly earnings, average, 2007$	846	853	1%			
Weekly earnings, median, 2007$	692	696	1%			
Weekly earnings, 1st quartile, 2007$	438	435	-1%			
Under-employment rate	0	0.030				

Persons under age 65 only. Employment, hours, and earnings refer to the survey reference week. Hours are measured only for persons at work.

Among the employed, the underemployment rate is one minus the ratio of average hours to average hours in 2007. Because 2009 employment was 105.6 million, the absolute amount of underemployment was 3.2 million among the employed.
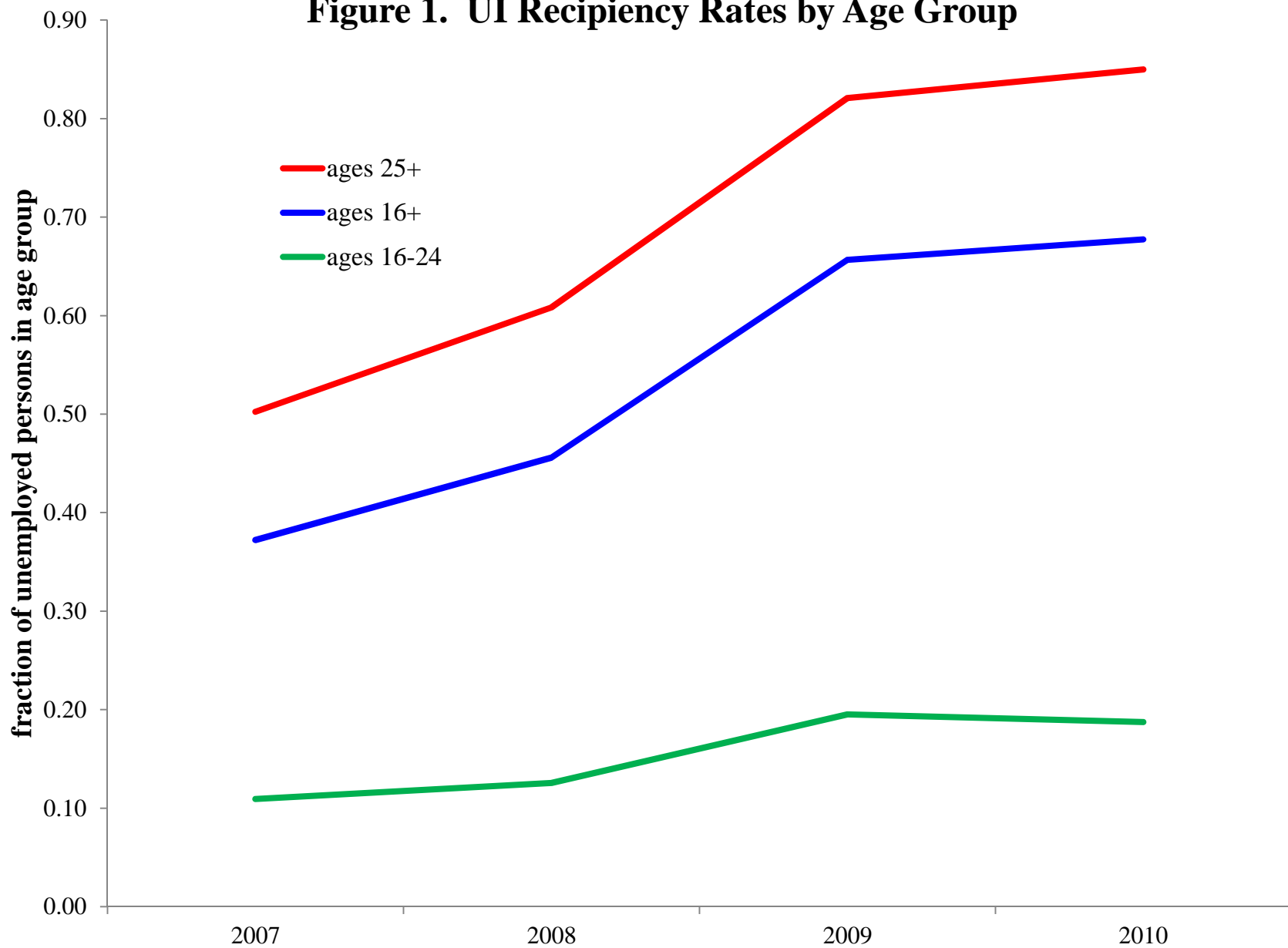
Figure 1. UI Recipiency Rates by Age Group
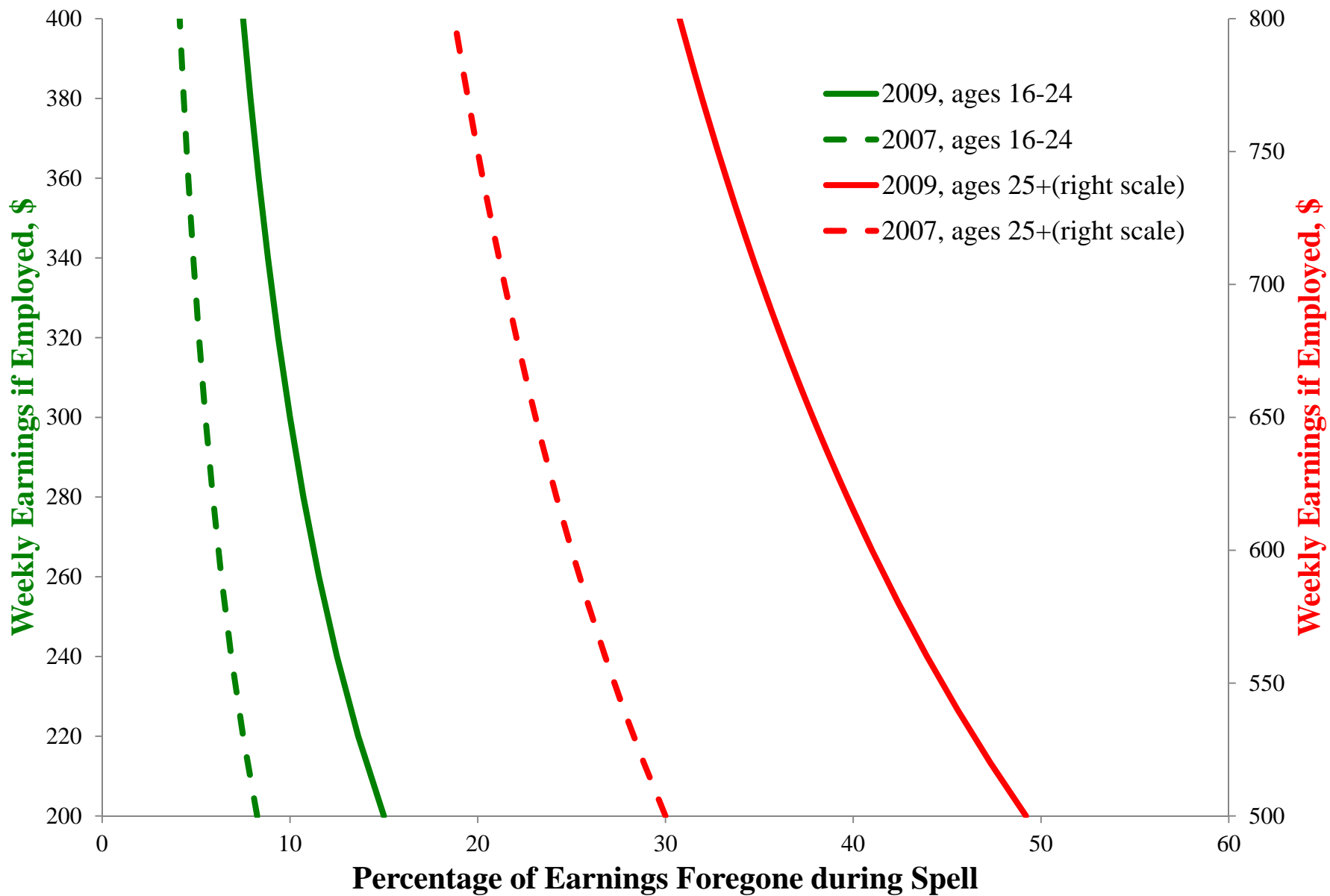
Figure 2. UI Benefits, Anticipated at Separation

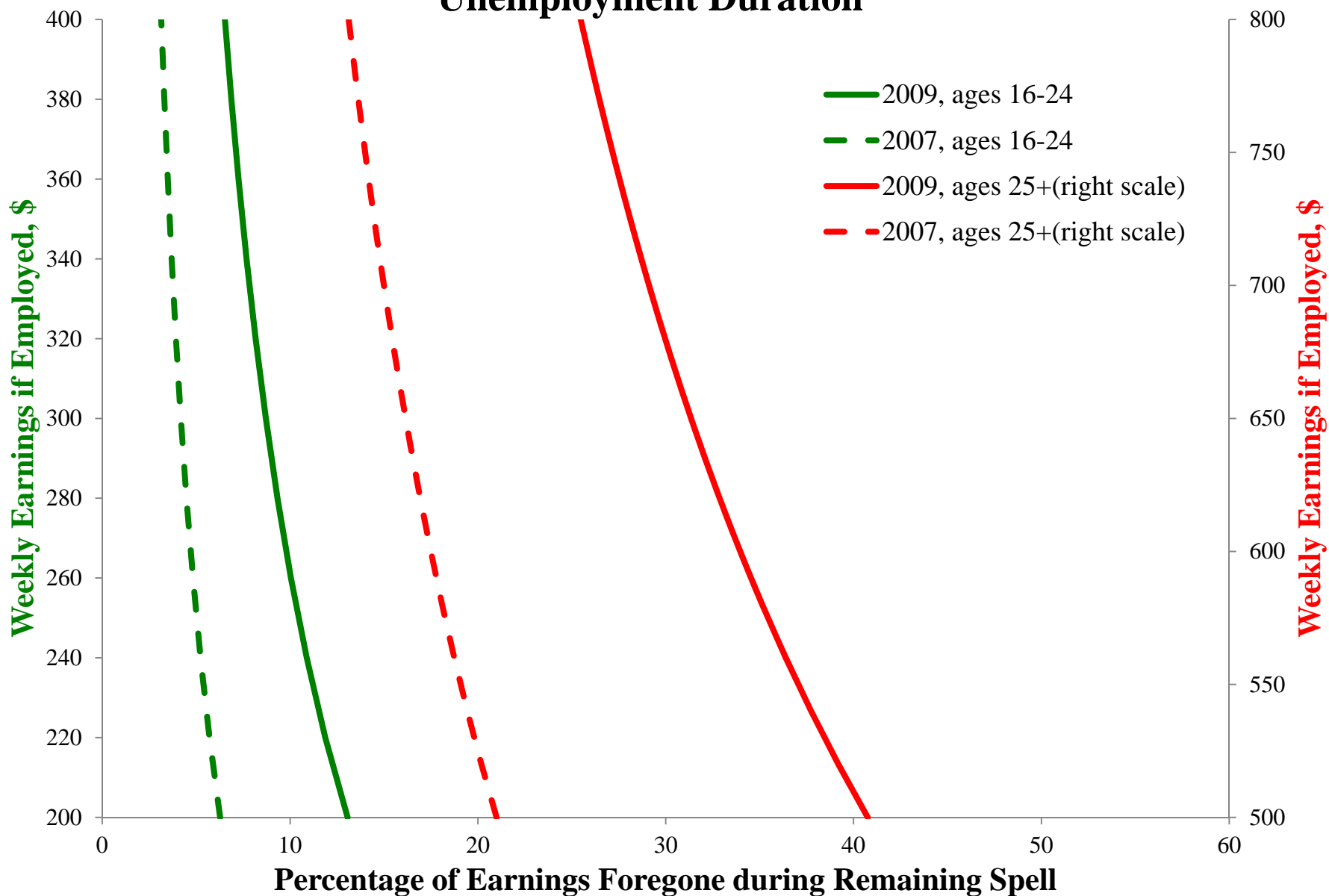# Figure 3. Continuation UI Benefits, Evaluated at Median Unemployment Duration

Legend:
- 2009, ages 16-24
- 2007, ages 16-24
- 2009, ages 25+(right scale)
- 2007, ages 25+(right scale)

Left axis: Weekly Earnings if Employed, $ (200–400)

Right axis: Weekly Earnings if Employed, $ (500–800)

X-axis: Percentage of Earnings Foregone during Remaining Spell (0–60)

Figure 4. Transfers and Loan Discharges for the Non-elderly Unemployed and Financially Distressed

Legend:
- Consumer Loan Charge-offs
- Home Retention Actions
- Other Means-tested Transfers
- UI
- Medicaid

Left axis: 2005 $ per under-employed, seasonally adjusted annual rates (0; 2,500; 5,000; 7,500; 10,000; 12,500; 15,000)

Right axis: self-reliance rate, at $36,000/yr (0.55; 0.60; 0.65; 0.70; 0.75; 0.80; 0.85; 0.90; 0.95; 1.00)

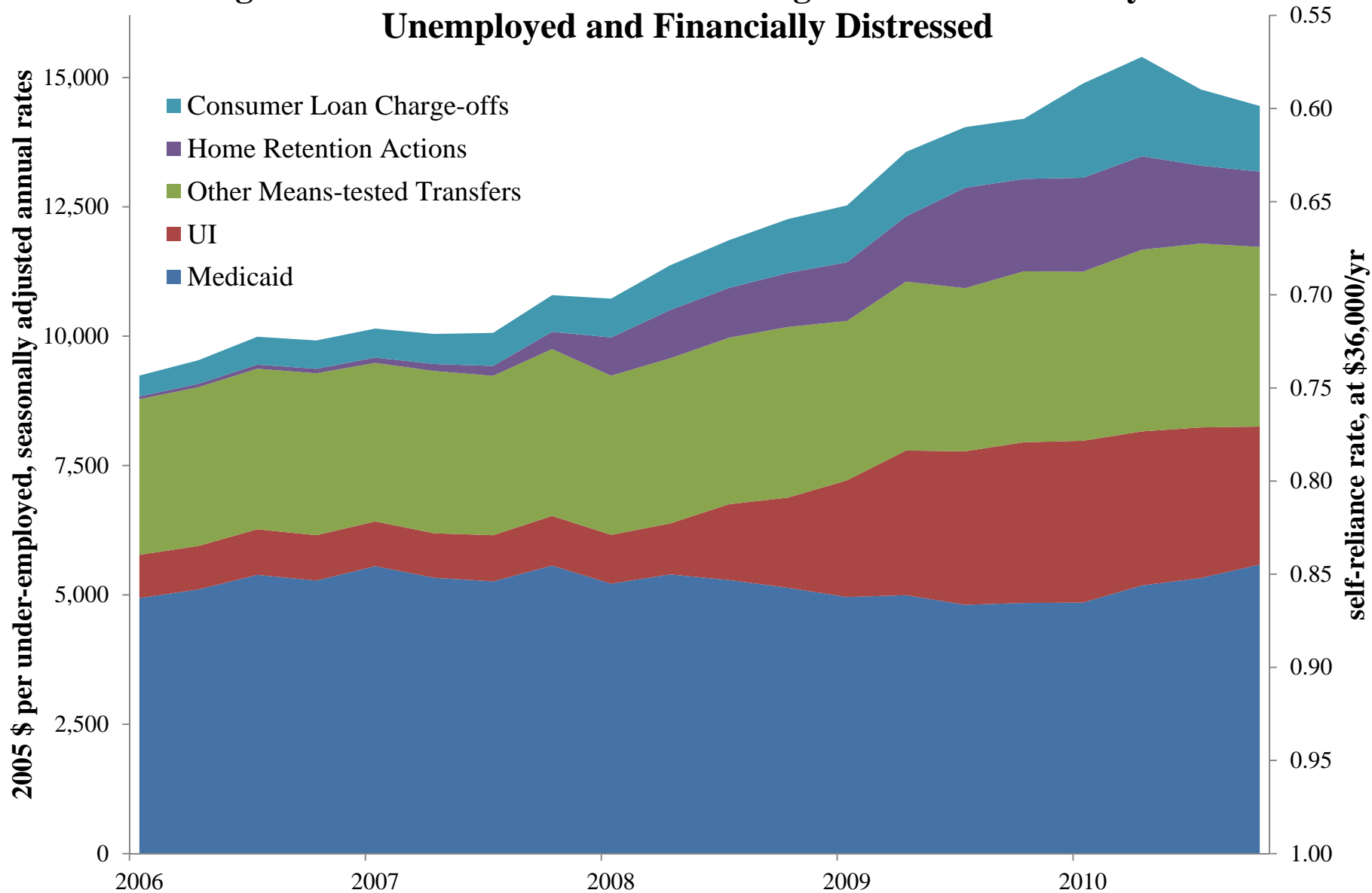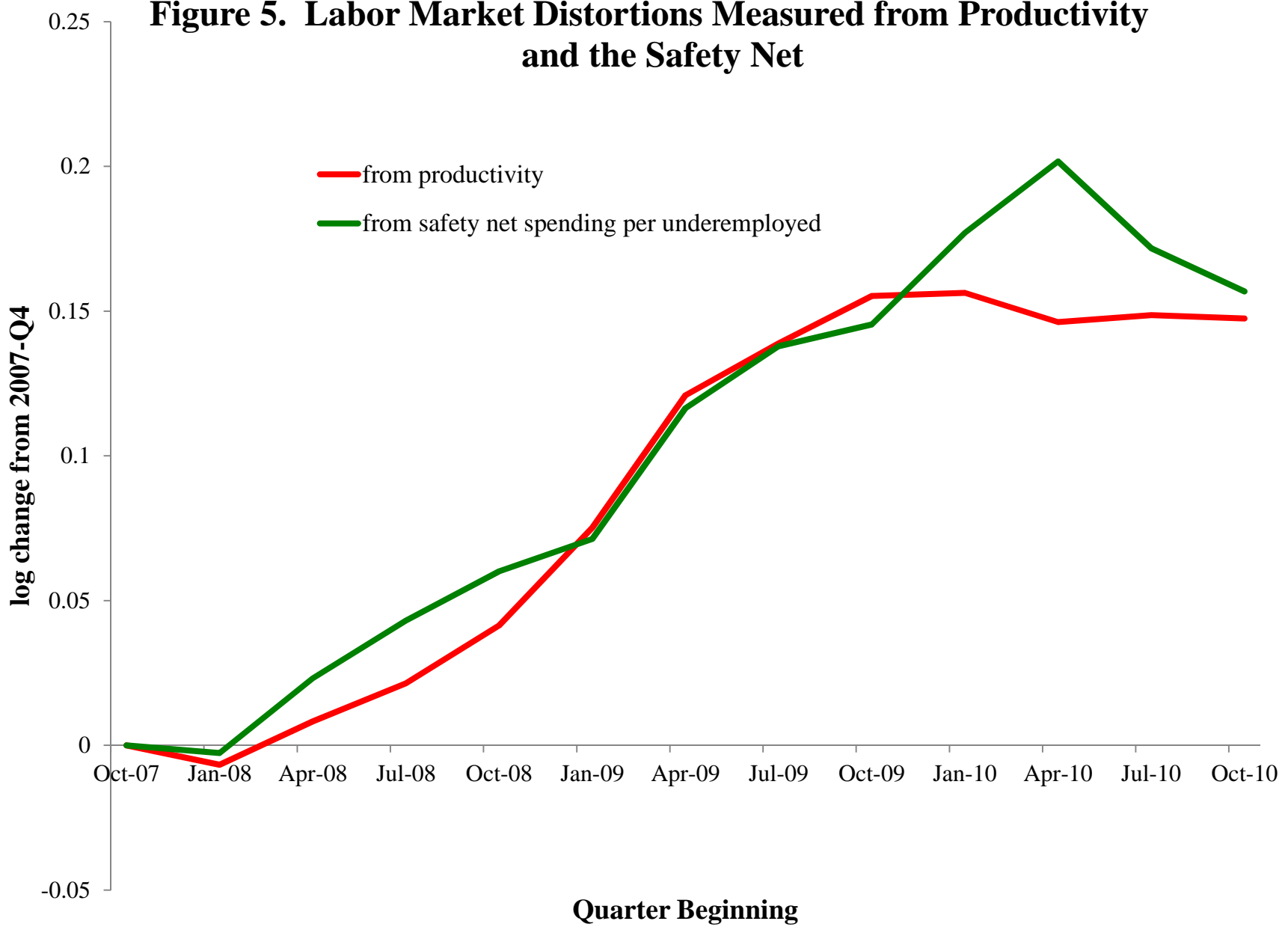X axis: 2006, 2007, 2008, 2009, 2010

Figure 5. Labor Market Distortions Measured from Productivity and the Safety Net

Bibliography

AARP Illinois. *The Social Security "Offset" Rule: What is it and how could it affect you?* March 19, 2010. http://www.aarp.org/work/social-security/info-03-2010/the-social-securityoffset.html (accessed November 5, 2011).

Anderson, Patricia M., and Bruce D. Meyer. "Unemployment Insurance Takeup Rates and the After-tax Value of Benefits." *Quarterly Journal of Economics* 112, no. 3 (August 1997): 913-37.

Auerbach, Alan J., and James R., Jr. Hines. "Investment Tax Incentives and Frequent Tax Reforms." *American Economic Review* 78, no. 2 (May 1988): 211-16.

Bernet, Mary. *Unemployment Insurance Recipiency.* August 23, 2011. http://www.qualityinfo.org/olmisj/ArticleReader?itemid=00007744 (accessed November 11, 2011).

Braun, R. Anton. "Tax Disturbances and Real Economic Activity in the Postwar United States." *Journal of Monetary Economics* 33, no. 3 (June 1994): 441-62.

Burtless, Gary. "Why is Insured Unemployment so Low?" *Brookings Papers on Economic Activity* 1 (1983): 225-49.

Centers for Medicare and Medicaid Services. *Medicaid Program - General Information.* June 16, 2011. https://www.cms.gov/medicaidgeninfo/ (accessed November 14, 2011).

Council of Economic Advisers. *The Economic Impact of Recent Temporary Unemployment Insurance Extensions.* Executive Office of the President, December 2010.

Crimmel, Beth Levin. "Employer-Sponsored Single, Employee-Plus-One, and Family Health." *Medical Expenditure Panel Survey.* July 2010. http://www.meps.ahrq.gov/mepsweb/data_files/publications/st285/stat285.pdf (accessed November 10, 2011).

Dague, Laura. "Effects of Medicaid Premiums and Copayments on Insurance Coverage, Utilization, and Health: A Regression Discontinuity Approach." *manuscript* (University of Wisconsin, Madison), October 2011.

Dugas, Christine. "Graduates saddled with debt, student loans can't easily turn to bankruptcy." *USA Today*, May 15, 2009.

Dynan, Karen E., and Donald L. Kohn. "The Rise in U.S. Household Indebtedness: Causes and Consequences." *Finance and Economics Discussion Series* (Federal Reserve Board), no. 2007-37 (August 2007).

Elsby, Michael W., Bart Hobijn, and Aysegul Sahin. "The Labor Market in the Great Recession." *Brookings Papers on Economic Activity*, Spring 2010: 1-48.

Eslami, Esa, Kai Filion, and Mark Strayer. "Characteristics of Supplemental Nutrition Assistance Program Households: Fiscal Year 2010." *Supplemental Nutrition Assistance Program (SNAP) Studies.* September 2011. http://www.fns.usda.gov/ora/menu/Published/snap/FILES/Participation/2010Characteristics.pdf (accessed November 5, 2011).

Federal Reserve Bank of St. Louis. "Series ATAIEALLGCLCRACB." *Federal Reserve Economic Data.* 2011. http://research.stlouisfed.org/fred2/series/ATAIEALLGCLCRACB (accessed November 26, 2011).

First American Core Logic. "Core Mortgage Risk Monitor, Q42008." November 21, 2008. http://www.facorelogic.com/uploadedFiles/Newsroom/Mortgage/CMRM-Q4_final_112108(1).pdf (accessed 26 2011, November).

First American Core Logic. *New Corelogic Data Reveals Q2 Negative Equity Declines in Hardest Hit Markets and 8 Million Negative Equity Borrowers Have Above Market Rates.* press release, First American CoreLogic, September 2011.

First American Core Logic. *Underwater Mortgages On the Rise According to First American CoreLogic Q4 2009 Negative Equity Data.* press release, First American CoreLogic, February 2010.

Food and Research Action Center. *National and State Program Data.* 2011. http://frac.org/reports-and-resources/reports-2/ (accessed November 10, 2011).

Franco, Celinda. "Unemployment Benefits Reduced by Pensions and Social Security: A Fact Sheet." *Federal Publications* 216 (January 2004).

Ghent, Andra C., and Marianna Kudlyak. "Recourse and Residential Mortgage Default: Evidence from US States." *Review of Financial Studies* 24, no. 9 (September 2011): 3139-86.

Han, Song, and Wenli Li. "Fresh Start or Head Start? The Effects of Filing for Personal Bankruptcy on Work Effort." *Journal of Financial Services Research* 31 (2007): 123-152.

Hanson, Kenneth, and Margaret Andrews. *State Variations in the Food Stamp Benefit Reduction Rate for Earnings.* EIB-46, United States Department of Agriculture, Economic Research Service, March 2009.

Henry J. Kaiser Family Foundation. *Medicaid Payments per Enrollee, FY 2008.* 2011.
     http://www.statehealthfacts.org/comparemaptable.jsp?ind=183&cat=4 (accessed
     November 14, 2011).

—. *Monthly Medicaid Enrollment.* 2011.
     http://www.statehealthfacts.org/comparemaptable.jsp?ind=774&cat=4 (accessed
     November 14, 2011).

—. *Premium and Copayment Requirements for Children, January 2011.* 2011.
     http://www.statehealthfacts.org/comparereport.jsp?rep=85&cat=4 (accessed November
     14, 2011).

Herkenhoff, Kyle F., and Lee E. Ohanian. "Labor Market Dysfunction During the Great
     Recession." *NBER working paper*, no. 17313 (August 2011).

Holahan, John, and Irene Headen. *Medicaid Coverage and Spending in Health Reform.* Henry J.
     Kaiser Family Foundation, May 2010.

Holt, Stephen D., and Jennifer L. Romich. "Marginal Tax Rates Facing Low - and Moderate -
     Income Workers Who Participate in Means-tested Transfer Programs." *National Tax
     Journal* 60, no. 2 (June 2007): 253-77.

HOPE NOW. "Industry Extrapolations and Metrics." *www.homenow.com.* September 2011.
     http://www.hopenow.com/industry-
     data/HOPE%20NOW%20Data%20Report%20(September)%2011-10-2011.pdf (accessed
     November 28, 2011).

Jermann, Urban J, and Vincenzo Quadrini. "Macroeconomic Effects of Financial Shocks." *NBER
     working paper*, no. 15338 (September 2009).

Kantrowitz, Mark. *Total College Debt Now Exceeds Total Credit Card Debt.* August 11, 2010.
     http://www.fastweb.com/financial-aid/articles/2589-total-college-debt-now-exceeds-
     total-credit-card-debt (accessed November 21, 2011).

Katz, Lawrence F. "The Labor Market in the Great Recession: Comment." *Brookings Papers on
     Economic Activity*, Spring 2010: 49-56.

Kotlikoff, Laurence J., and David Rapson. "Does it pay, at the margin, to work and save?" In *Tax
     Policy and the Economy*, edited by James M. Poterba, 83-144. Cambridge, MA: National
     Bureau of Economic Research, 2007.

Kydland, Finn, and Edward C. Prescott. "Time to Build and Aggregate Fluctuations."
     Econometrica 50, no. 6 (November 1982): 1345-70.

Landais, Camille, Michaillat Pascal, and Emmanuel Saez. "Optimal Unemployment Insurance over the Business Cycle." *NBER working paper*, no. 16526 (November 2010).

Leftin, Joshua, Andew Gothro, and Esa Eslami. "Characteristics of Supplemental Nutrition Assistance Program Households: Fiscal Year 2009." *Supplemental Nutrition Assistance Program (SNAP) Studies.* October 2010. http://www.fns.usda.gov/ora/menu/Published/snap/FILES/Participation/2009Characteristics.pdf (accessed November 5, 2011).

Lower-Basch, Elizabeth. *Hearing on TANF s Role in Providing Assistance to Struggling Families.* Testimony for the Record, Committee on Ways and Means, Subcommittee on Income Security and Family Support, 2010.

Lucas, Robert E., Jr. "Econometric Policy Evaluation: A Critique." *Carnegie-Rochester Conference Series on Public Policy* 1, no. 1 (January 1976): 19-46.

McCarthy, Kevin E. "Unemployment Compensation Offsets." *Office of Legislative Research - Connecticut General Assembly.* February 13, 2002. http://www.cga.ct.gov/2002/rpt/2002-R-0188.htm (accessed November 5, 2011).

McGrattan, Ellen R. "The Macroeconomic Effects of Distortionary Taxation." *Journal of Monetary Economics* 33, no. 3 (June 1994): 573-601.

Melvin, Jasmin. *More Americans Wary of Tax Man this Year.* April 14, 2009. http://www.reuters.com/article/2009/04/14/us-usa-taxes-recession-idUSTRE53D01M20090414 (accessed November 25, 2011).

Morgenson, Gretchen. *Reckless Endangerment: How Outsized Ambition, Greed, and Corruption Led to Economic Armageddon.* New York: Henry Holt and Company, 2011.

Mulligan, Casey B. "A Depressing Scenario: Mortgage Debt Becomes Unemployment Insurance." *NBER working paper*, no. 14514 (November 2008).

Mulligan, Casey B. "Means-tested Mortgage Modification: Homes Saved or Income Destroyed." *NBER working paper*, no. 15821 (August 2009).

Mulligan, Casey B. "Means-tested Subsidies and Economic Performance since 2007." *NBER working paper*, no. 17445 (September 2011a).

Mulligan, Casey B. "Rising Labor Productivity during the 2008-9 Recession." *NBER working paper*, no. 17584 (November 2011b).

National Employment Law Project. *Development of State Laws Regarding Social Security Retirement.* November 5, 2007. http://www.nelp.org/page/-/UI/Development_of_social_security_offsets_Nov_2007.pdf (accessed November 2011).

—. "Recovery Act's Unemployment Insurance Modernization Incentives Produce Bipartisan State Reforms in Eight States in 2010." *National Employment Law Project.* September 3, 2010. http://nelp.3cdn.net/ebbff6219d7fb6acb4_ksm6bcaec.pdf (accessed November 14, 2011).

—. *Unemployment Insurance and Social Security Retirement Offsets.* December 2003. http://nelp.3cdn.net/f96d84de63766102b2_8rm6b99ab.pdf (accessed November 5, 2011).

Office of Thrift Supervision. *OCC and OTS Mortgage Metrics Report*, various issues.

Rogerson, Richard, and Randall Wright. "Involuntary unemployment in economies with efficient risk sharing." *Journal of Monetary Economics* 22, no. 3 (1988): 501-515 .

Rosen, Harvey S. *Public Finance.* 7th. McGraw-Hill Companies, Inc., 2005.

Ross, Donna Cohen, and Sharon Parrott. *Medicaid and CHIP Eligibility Is Protected For Jobless Families That Receive Boost in Unemployment Benefits* . March 20, 2009. http://www.cbpp.org/cms/index.cfm?fa=view&id=2723 (accessed November 16, 2011).

Rothstein, Jesse. "Unemployment Insurance and Job Search in the Great Recession." *NBER working paper*, no. 17534 (October 2011).

Sack, Kevin. "Recession Drove Many to Medicaid Last Year." *New York Times*, October 1, 2010: A16.

Sherman, Arloc. "Poverty and Financial Distress would have been Substantially Worse in 2010 without Government Action, New Census Data Show." *Center on Budget and Policy Priorities.* November 7, 2011. http://www.cbpp.org/files/11-7-11pov.pdf (accessed November 21, 2011).

Shimer, Robert. "The Labor Market in the Great Recession: Comment." *Brookings Papers on Economic Activity*, Spring 2010: 57-65.

Smith, Charles Hugh. *Real Estate: The Worrying Numbers Behind Underwater Homeowners.* August 10, 2010. http://www.dailyfinance.com/2010/08/07/real-estate-underwater-homeowners/ (accessed November 26, 2011).

Smith, Vernon K., Kathleen Gifford, Ellis Eileen, Robin Rudowitz, and Laura Snyder. "Moving Ahead Amid Fiscal Challenges: A Look at Medicaid Spending, Coverage and Policy Trends." *Medicaid/CHIP.* October 2011. http://www.kff.org/medicaid/8248.cfm (accessed November 11, 2011).

Social Security Administration. *Food Stamp Facts.* May 2008. http://ssa.gov/pubs/10101.html (accessed November 12, 2011).

Social Security Administration. *SSI Annual Statistical Report, 2010.* Washington, DC: Office of Research, Evaluation, and Statistics, 2011.

State of California, Employment Development Department. "California System of Experience Rating." *2010 UI, ETT, and SDI Rates.* June 2011. http://www.edd.ca.gov/payroll_taxes/rates_and_withholding.htm (accessed November 3, 2011).

Texas Education Agency. *Student Loan Forgiveness for Teachers.* September 2011, 2011. http://www.tea.state.tx.us/loan.aspx (accessed November 21, 2011).

Townsend, Robert M. "Microcredit and Mechanism Design." *Journal of the European Economic Association* 1, no. 2/3 (April 2003): 468-77.

United States Bureau of Labor Statistics. *Labor Force Statistics from the Current Population Survey.* October 7, 2011. http://www.bls.gov/cps/ (accessed November 3, 2011).

—. "Wives who earn more than their husbands, 1987–2008." *Women in the Labor Force: A Databook (2010 Edition).* March 16, 2011. http://www.bls.gov/cps/wlftable25-2010.htm (accessed November 26, 2011).

United States Census Bureau. *2006 American Community Survey Table B25096.* 2007. factfinder.census.gov (accessed November 26, 2011).

United States Department of Agriculture, Food and Nutrition Service. *Employment Requirements.* 2011. http://www.fns.usda.gov/snap/applicant_recipients/employ_require.htm (accessed November 12, 2011).

United States Department of Labor. *Characteristics of the Insured Unemployed.* 2011. http://www.ows.doleta.gov/unemploy/chariu.asp (accessed November 2, 2011).

—. "Monetary Entitlements." *Comparisons of State Unemployment Laws.* 2007. http://workforcesecurity.doleta.gov/unemploy/uilawcompar/2007/comparison2007.asp (accessed November 2, 2011).

—. "Nonmonetary Eligibility." *Comparisons of State Unemployment Laws.* 2009. http://workforcesecurity.doleta.gov/unemploy/pdf/uilawcompar/2009/nonmonetary.pdf (accessed November 5, 2011).

—. "Persons Claiming UI Benefits in Federal Programs." *Unemployment Insurance Program Statistics.* October 7, 2011. http://www.ows.doleta.gov/unemploy/docs/persons.xls (accessed October 25, 2011).

——. "Unemployment Compensation: Federal-State Partnership." *Unemployment Insurance Laws.* April 2011. http://www.ows.doleta.gov/unemploy/pdf/partnership.pdf (accessed October 28, 2011).

——. *Unemployment Insurance Data Summary.* September 6, 2011. http://www.ows.doleta.gov/unemploy/content/data.asp (accessed November 3, 2011).

——. "Unemployment Laws and Insurance." *Chronology of Federal Unemployment Compensation Laws.* May 3, 2011. http://workforcesecurity.doleta.gov/unemploy/pdf/chronfedlaws.pdf (accessed October 28, 2011).

Vaughn, Martin. "Payroll Tax Cut: A Short Primer." *Wall Street Journal*, December 7, 2010.

White House. *Fact Sheet: The American Jobs Act.* September 8, 2011. http://www.whitehouse.gov/the-press-office/2011/09/08/fact-sheet-american-jobs-act (accessed November 28, 2011).

Wolkwitz, Kari, and Carole Trippe. "Characteristics of Supplemental Nutrition Assistance Program Households: Fiscal Year 2008." *Supplemental Nutrition Assistance Program (SNAP) Studies.* September 2009. http://www.fns.usda.gov/ora/menu/Published/snap/FILES/Participation/2010Characteristics.pdf (accessed November 5, 2011).

Wolkwitz, Kari, and Joshua Leftin. "Characteristics of Supplemental Nutrition Assistance Program Households: Fiscal Year 2007." *Supplemental Nutrition Assistance Program (SNAP) Studies.* September 2008. http://www.fns.usda.gov/ora/menu/Published/snap/FILES/Participation/2010Characteristics.pdf (accessed November 5, 2011).

Zedlewski, Sheila. "The Role of Welfare during a Recession." December 2008. http://www.urban.org/UploadedPDF/411809_role_of_welfare.pdf (accessed November 13, 2011).

——. "What Role Is Welfare Playing in This Period of High Unemployment?" *Unemployment and Recovery Project.* August 2011. http://www.urban.org/UploadedPDF/412378-Role-of-Welfare-in-this-Period-of-High-Unemployment.pdf (accessed November 13, 2011).