

Simulating the Effect of the “Great Recession” on Poverty

Emily Monea and Isabel Sawhill¹

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The number of people living in poverty in the richest country in the world remains stubbornly high, higher than it was back in the 1970s. The 1960s and 1970s brought considerable progress for the poor but were followed by the lost decade of the 1980s, during which little additional progress occurred. Then in the 1990s the combination of a strong economy, welfare reform, and expanded assistance for low-income working families helped to gradually move more poor families into at least the lower-middle class. Welfare reform in 1996 pushed more low-income mothers into jobs and provided new supports, such as several refundable tax credits, that directly augmented the incomes of the working poor and contributed to this progress. But by the beginning of the current decade, rates began drifting upwards again, and now with a recession in progress – and unemployment rates forecasted to exceed 10 percent – they are likely to go much higher. But how much higher and for how long? Although forecasting the future is always dicey business, this paper presents several scenarios, all based on simulations of what poverty rates for various groups are likely to be over the next decade based on data showing how poverty has responded to changing unemployment rates in the past.

Using data from the Congressional Budget Office (CBO) and others about the likely trajectory of the recession, we find that, absent other changes, the poverty rate will increase rapidly through 2011 or 2012, at which point about 14.4 percent of the country will be in poverty, up from 12.5 percent in 2007. As the recession ends and employment levels increase, the poverty rate will begin to steadily decrease though it will not, at least over the next decade or so, reach its 2007 level. In short, our results show that recessions can have long-term scarring effects for all workers but especially for the most disadvantaged, whose skills and attachment to the work force are already somewhat marginal. A prolonged lack of jobs reduces the amount of on-the-job training or experience that people receive, discourages them from making the effort needed to climb out of poverty, and can even lead to a deterioration in their health or family life that adversely affects opportunity.

There were 37 million people in poverty in 2007, so our results indicate that the recession would increase the number of people in poverty by about 8 million, or 22 percent. Our estimates for the increase in poverty amongst children are even more dramatic. There were about 13 million children living in poverty in 2007, and we estimate that the number of poor children could increase by at least 5 million, or 38 percent.

¹ Emily Monea is a Research Analyst and Isabel Sawhill is a Senior Fellow at the Brookings Institution.

Unemployment Rate Projections

We base our simulations on data projecting the trajectory of the unemployment rate over the next several years. In order to provide a range of results as to the path the poverty rate may follow, we use projections from several sources, including the CBO, the Office of Management and Budget (OMB), and the Economist Intelligence Unit (EIU).

In August of 2009, the CBO updated its budget and economic outlook, projecting the unemployment rate over the 2009 to 2019 period (see Table 1).² For the most part, these projections paint a much more pessimistic picture than the CBO's last set, released in March of 2009, which showed the unemployment rate maxing out at 9 percent in 2010. In one sense, however, they are more optimistic, as the CBO is now projecting that the economy will recover slightly more quickly. While previously forecast to reach full employment – and thus a natural rate of unemployment of 4.8 percent – by 2016, the economy is now forecast to reach that landmark one year earlier, in 2015.

Table 1: Projections of Average Annual Unemployment Rates by the CBO, OMB and EIU, 2009 - 2019			
Year	Scenario 1: CBO, August 2009 (%)	Scenario 2: OMB, August 2009 (%)	Scenario 3: EIU, August 2009 (%)
2007 (actual)	4.6	4.6	4.6
2008 (actual)	5.8	5.8	5.8
2009	9.3	9.3	9.4
2010	10.2	9.8	9.7
2011	9.1	8.6	9.2
2012	7.2	7.7	8.5
2013	5.6	6.8	8.0
2014	4.9	5.9	-
2015	4.8	5.6	-
2016	4.8	5.5	-
2017	4.8	5.3	-
2018	4.8	5.3	-
2019	4.8	5.2	-

Source: CBO (2009a), data for Table A-1; OMB (2009), Table 2; EIU CountryData projections for the United States (updated August 25, 2009).

Projections by the OMB, also released in August of 2009 as part of the Mid-Session Review, differ in important ways from the CBO's: while the OMB's projections of the unemployment rate are less severe than the CBO's over the next few years, starting in 2012 the OMB projects the rate to fall at a slower pace than does the CBO. Under OMB projections, the unemployment rate does not drop below 5 percent within the 10-year period, while the CBO projects the rate to drop below 5 percent as early as 2014.

² Note that the effects of the American Recovery and Reinvestment Act (ARRA), or the stimulus bill, are factored into these projections.

Finally, private-sector projections from the Economist Intelligence Unit (EIU), updated on August 25th of this year, forecast an even less severe scenario than does the OMB for 2010 but also show the unemployment rate falling even more slowly, remaining at 8 percent in 2013 (the latest year for which projections are available).³ In contrast, the OMB projects a rate of 6.8 percent in that year and the CBO, 5.6 percent.

Linking the Unemployment Rate and the Poverty Rate

In order to simulate the poverty rate based on the unemployment projections from above, we use estimates of the relationship between the poverty rate and the unemployment rate from Blank (2009).⁴ In estimating this relationship, Blank controls for the lagged poverty rate, wage inequality, inflation, government anti-poverty spending, and a measure of where the poverty line sits in the overall income distribution.⁵ We also use Blank's estimation of the relationship between the poverty rate and the lagged poverty rate because, as can be seen in Table 2 below, the lagged rate has a significant effect on the poverty rate in a given year.

³ We chose to use projections from the EIU because most other private sector projections forecast only a year or two in the future. Data on the unemployment rate from Goldman Sachs, for example, are only available through 2010, at which point a rate of 10.1 percent is currently forecasted. Similarly, the CBO reports that the *Blue Chip* forecast of the unemployment rate is only available for 2010 (9.9 percent), though they do report a projected average unemployment rate of 5.5 percent between 2015 and 2019, which is more pessimistic than both the CBO and OMB projections. Projections from the EIU are updated on a monthly basis, and they became substantially more optimistic between July and August. One month ago, EIU was projecting the average annual unemployment rate to top 10 percent in 2009 and to remain above that rate in 2010 and 2011.

⁴ There is an extensive literature on the relationship between the poverty rate and the unemployment rate (Aaron 1967; Gottschalk and Danziger 1985; Blank and Blinder 1986; Cutler and Katz 1991; Blank 1993; Powers 1995; Haveman and Schwabish 2000; Hines, Hoynes and Krueger 2001; Freeman 2002; Iceland 2003; Gunderson and Ziliak 2004). We use estimates from Blank (2009) as these are the most recent estimates of which we are aware; her specification is quite similar to those used in previous analyses. Blank uses data through 2007 for all regressions except the one employing the alternative poverty rate, for which she uses data through 2006.

⁵ Specifically, Blank estimates the following model: $P_t = \alpha + \rho P_{t-1} + \beta UR_t + \delta WR_t + \gamma X_t + \varepsilon_t$ where P_t is the poverty rate, P_{t-1} is the lagged poverty rate, UR_t is the unemployment rate, WR_t is the log 50/10 wage ratio, and X_t is a vector of explanatory variables including the consumer price index (CPI), federal expenditures on public assistance programs in each year as a share of GDP, and the poverty line divided by median income. Public assistance spending includes federal payments to cash assistance, energy assistance, food assistance, foster care and adoption, black lung, SSI, and EITC. Blank also estimates another model in which she includes dummy variables for the decades of the 1980s, 1990s, and 2000s as well as interactions between these decadal dummies and the unemployment rate. We focus on her first specification here for two reasons: a) she only uses the first specification for her analysis of the various subgroups and b) Blank concludes that the inclusion of the wage ratio in the first specification has “essentially the same effect as including the dummy variables and their interactions for recent decades” in the second specification (23).

Table 2: The Relationship between the Poverty Rate and the Unemployment Rate		
Population	Coefficient on the Unemployment Rate	Coefficient on the Lagged Poverty Rate
All persons	0.167*	0.612**
Adults (18-64)	0.166*	0.751**
Children	0.389**	0.774**
Elderly	-0.253	0.670**
Whites	0.125	0.688**
Blacks	0.548**	0.662**
Hispanics	-0.008	0.702**
Single-Mother Families	0.668*	0.682**
Married-Parent Families	0.195	0.526**
Single Individuals	-0.122	0.790**
Alternative Poverty Rate: All Persons	0.293**	0.484**

Source: Blank (2009), Table 4. Blank uses definition 14 of the alternative poverty rate, which takes into account both taxes and in-kind benefits before determining an individual's or family's poverty status.

We would expect the relationship between the poverty rate and the unemployment rate to be positive as a general rule: all else equal, an increase in unemployment means that more individuals have less income, the effect of which will push some of them into poverty. Table 2 affirms this hypothesis for all persons: the coefficient on the unemployment rate is 0.167, which means that for every one percentage point increase in the unemployment rate, the poverty rate will increase by 0.167 points.

This is not, however, the case for all of the subgroups that Blank analyzes. For example, the coefficient on the unemployment rate for the elderly (those 65 and older) is -0.253, meaning that a one percentage point increase in the unemployment rate *decreases* poverty amongst the elderly by 0.253 percentage points. While this relationship may not be surprising, given that the poverty status of the elderly is far less dependent on the labor market than that of working-age adults and their children, it is surprising that the coefficient on the unemployment rate for Hispanics is negative, if only slightly so.⁶ Note, however, that this coefficient (and indeed all of the negative unemployment coefficients) is not statistically significant. This means we can not be sure that these relationships are based on anything other than chance. However, this could be due to the smaller sample sizes available for certain subgroups and should therefore not be interpreted to mean that they have not been and will not continue to be affected by the recession.

Method

To generate projected poverty rates, we combine our three sets of unemployment rate projections with the coefficients on the unemployment rate and lagged poverty rate obtained from Blank's analyses, assuming that everything other than the unemployment rate remains the same. If we want to find the poverty rate in 2008 for all persons, for example, we first multiply the change in

⁶ Note that the coefficient on the unemployment rate for single individuals is also negative, but about a quarter of single individuals are elderly.

the unemployment rate between 2007 and 2008 (1.2 percentage points) by the coefficient on the unemployment rate. This yields an increase in the 2008 poverty rate of 0.2 percentage points (1.2×0.167) due to the change in the unemployment rate.

To this we add the effect of the lagged poverty rate. The poverty rate increased by 0.18 percentage points between 2006 and 2007 (from 12.3 to 12.48 percent), so we multiply this increase by the coefficient on the lagged poverty rate. This yields an increase in the 2008 poverty rate of 0.11 percentage points (0.18×0.612). Adding these two effects together, we estimate that the poverty rate in 2008 will increase by 0.31 percentage points ($0.2 + 0.11$), to 12.79 percent.

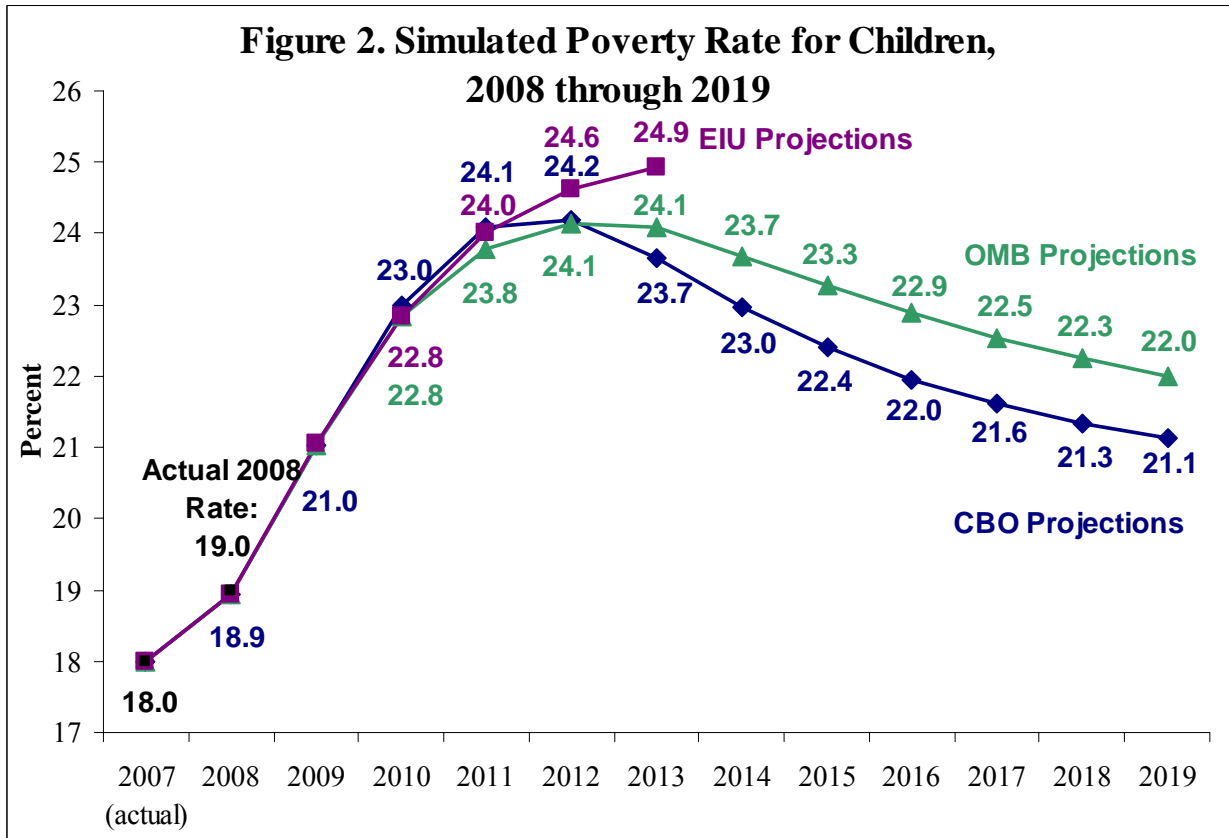
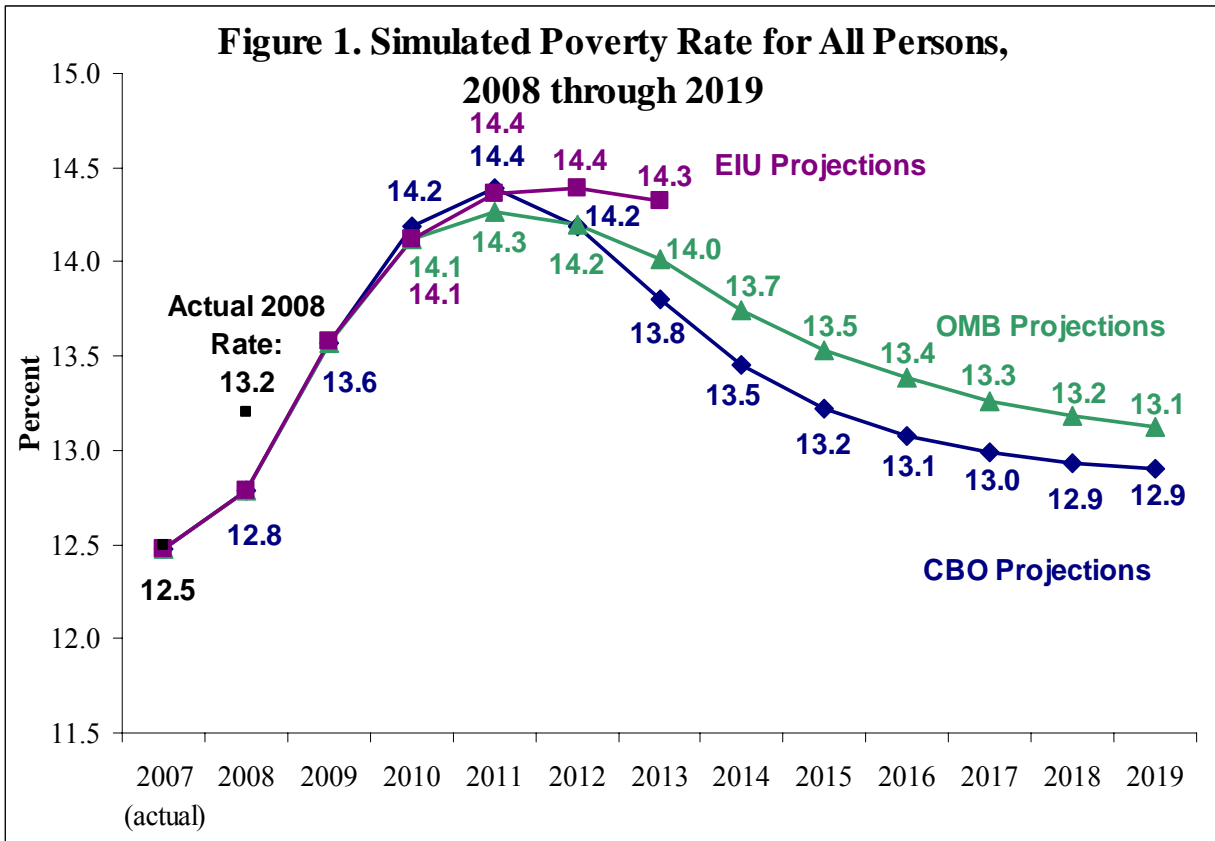
Results

The poverty rate in 2007 (the last year for which data are available) was 12.5 percent, and the unemployment rate was 4.6 percent. As Blank tells us, if the unemployment rate were to increase from 4.6 percent to 10 percent, all else equal, poverty could increase by 2.3 percentage points in the long run, to 14.8 percent.⁷ But what will the poverty rate look like in 2010, for example? In what year will the poverty rate max out before starting to come down again? And how long will it take for the effect of the recession to wear off and for the poverty rate to come back down to its 2007 level of 12.5 percent?

As Figure 1 indicates, the effect of the increase in unemployment as a result of the recession could have a substantial impact on the overall poverty rate in the U.S. Despite the differences in the unemployment rate projections of the CBO, OMB, and EIU, the trajectory for the poverty rate under the three different scenarios is largely similar: it will increase rapidly through 2011 or 2012, at which point about 14.4 percent of the country will be in poverty. As the recession ends and employment levels increase, the poverty rate will begin to steadily decrease, though it will not, at least within the 11-year window, reach its 2007 level of 12.5 percent, instead settling at around 13 percent (see Figure 1).

This paper was originally written – and the underlying analyses performed – before the release of the 2008 poverty numbers by the Census Bureau on September 10, 2009. We now know that we underestimated the increase in poverty for the entire population in 2008. While we projected a rate of 12.8 percent, the official poverty rate was 13.2 percent (see Figure 1). We will discuss possible reasons for this underestimation later. However, note that our projection for children is almost identical to the official rate: 18.9 percent versus 19 percent (see Figure 2).

⁷ The long-term effect of a one percentage point increase in the unemployment rate is equal to $\beta/(1-\rho)$ where β is the coefficient on the unemployment term and ρ is the coefficient on the lagged poverty term.



Further results for several of the subgroups that Blank analyzes are enumerated in Table 3 below. Poverty rates increase substantially across the board, though at a slower pace for those groups who started out with a lower rate to begin with, most likely due to the strong effect of the lagged poverty rate. In contrast, poverty rates for the most disadvantaged groups – children, blacks, and single-mother families – skyrocket. If we assume that the unemployment rate will follow the trajectory projected by EIU, arguably the most pessimistic of the three scenarios, poverty rates could increase by nearly 7 percentage points for children, rising to 24.9 percent; for blacks, by 6.4 percentage points, to 30.9 percent; and for single-mother families, by 8.3 percentage points, to 45.3 percent.

Table 3: Simulations of the Poverty Rate								
	All persons (%)	Adults (%)	Children (%)	Whites* (%)	Blacks (%)	Single-Mother Families (%)	Married-Parent Families* (%)	Alternative Poverty Rate (%)
CBO Unemployment Projections, August 2009								
2007 (actual)	12.5	10.9	18.0	8.2	24.5	37.0	6.7	8.3
2008	12.8	11.1	18.9	8.3	25.4	38.1	7.1	8.2
2009	13.6	11.8	21.0	8.8	27.8	41.2	7.9	9.1
2010	14.2	12.5	23.0	9.3	30.0	43.9	8.6	9.9
2011	14.4	12.8	24.1	9.5	30.8	45.0	8.7	9.9
2012	14.2	12.8	24.2	9.4	30.3	44.5	8.4	9.4
2013	13.8	12.5	23.7	9.1	29.0	43.1	7.9	8.6
2014	13.5	12.1	23.0	8.9	27.9	41.7	7.5	8.1
2015	13.2	11.9	22.4	8.7	27.0	40.6	7.3	7.8
2016	13.1	11.6	22.0	8.5	26.5	39.9	7.2	7.6
2017	13.0	11.5	21.6	8.4	26.1	39.4	7.1	7.6
2018	12.9	11.4	21.3	8.4	25.9	39.1	7.1	7.5
2019	12.9	11.3	21.1	8.3	25.7	38.9	7.1	7.5
OMB Unemployment Projections, August 2009								
2007 (actual)	12.5	10.9	18.0	8.2	24.5	37.0	6.7	8.3
2008	12.8	11.1	18.9	8.3	25.4	38.1	7.1	8.2
2009	13.6	11.8	21.0	8.8	27.8	41.2	7.9	9.1
2010	14.1	12.4	22.8	9.3	29.7	43.7	8.5	9.8
2011	14.3	12.7	23.8	9.4	30.3	44.5	8.6	9.7
2012	14.2	12.8	24.1	9.4	30.3	44.5	8.4	9.4
2013	14.0	12.7	24.1	9.3	29.7	43.9	8.2	9.0
2014	13.7	12.4	23.7	9.1	28.8	42.9	7.9	8.5
2015	13.5	12.2	23.3	8.9	28.1	42.0	7.6	8.2
2016	13.4	12.0	22.9	8.8	27.6	41.3	7.5	8.1
2017	13.3	11.9	22.5	8.7	27.1	40.7	7.4	7.9
2018	13.2	11.7	22.3	8.6	26.8	40.3	7.3	7.8
2019	13.1	11.6	22.0	8.5	26.5	40.0	7.3	7.8
EIU Unemployment Projections, August 2009								
2007 (actual)	12.5	10.9	18.0	8.2	24.5	37.0	6.7	8.3
2008	12.8	11.1	18.9	8.3	25.4	38.1	7.1	8.2
2009	13.6	11.8	21.1	8.9	27.9	41.3	8.0	9.2
2010	14.1	12.4	22.8	9.3	29.7	43.6	8.5	9.7
2011	14.4	12.8	24.0	9.5	30.7	44.9	8.7	9.9
2012	14.4	13.0	24.6	9.6	30.9	45.3	8.6	9.7
2013	14.3	13.0	24.9	9.5	30.8	45.3	8.5	9.5

**The coefficients for these groups were not statistically significant, so their results should be interpreted with caution.*

To put these projections in a historical context, the overall poverty rate surpassed 14.4 percent as the result of recent recessions, reaching 15.2 percent in 1983 and 15.1 percent in 1993. The rates that we have forecasted for children and single-mother families, however, have not been seen since the early to mid 1960s.

How long will it take to recover from the recession? Even under incredibly optimistic scenarios, our estimates indicate that it will take many years for the poverty level to come back down to its 2007 level. If, for example, we follow the CBO's projections and assume that the unemployment rate reaches its full employment level of 4.8 percent in 2015 and stays there indefinitely, our calculations show that the poverty level would not even be able to reach its 2007 level but instead would bottom out somewhere between 12.8 and 12.9 percent. The same is true for the various subgroups we've examined.⁸

So what level of unemployment would we need to reach in 2015 and maintain indefinitely in order for the poverty rate to reach its 2007 level? The answer varies greatly by subgroup. For all persons, the unemployment rate would have to drop to 3.9 percent, a level not seen since the mid to late 1960s. For adults to fully rebound from the recession, however, the unemployment rate would only have to reach 4.5 percent in 2015, still a daunting task but something that the economy experienced in recent history. In contrast, for children to recover from the recession, the unemployment rate would have to drop to an amazing 3.3 percent. And even were the economy to reach these low levels of unemployment, it would still take until the mid to late 2020s for these poverty rates to drop to their 2007 levels.

Comparison with other Published Results

In her analysis of the effect of the recession on poverty in the U.S., Sharon Parrott, formerly with the Center on Budget and Policy Priorities, estimated that the number of people in poverty would rise by between 7.5 and 10.3 million by the end of the recession.⁹ This analysis was performed in November of 2008, at which time Goldman Sachs was projecting that the unemployment rate would reach 9 percent by the end of 2009. Thus Parrott's scenario is slightly more conservative than any of ours, all of which forecast that the average annual unemployment rate for 2009 will be 9.3 or 9.4 percent. So while not directly comparable, we believe the scenarios are close enough that a comparison between our results and Parrott's is a valuable exercise.

Under the CBO projections, the poverty rate reaches its zenith in 2011 at 14.4 percent; under the OMB projections, in 2011 at 14.3 percent; and under the EIU projections, in 2011 and 2012 at 14.4 percent. Taking all of these scenarios into consideration, we will assume that the poverty rate will reach its zenith in 2011 at 14.4 percent, meaning that there would be about 45 million people in poverty in that year.¹⁰ There were 37 million people in poverty in 2007 (the most recent year for which data are available), so our results indicate that the recession would increase

⁸ The one exception here is the alternative poverty rate, which we project to return to its 2007 level by 2014 or 2015. Part of this swift return is due to the fact that the alternative poverty rate decreased substantially between 2006 and 2007, from 9.3 to 8.3 percent. (We follow Blank and use definition 14 of the alternative poverty rate, which takes into account both taxes and in-kind transfers before a family or individual's poverty status is determined). Given the strong effect of the lagged poverty rate on the current poverty rate, this reduction will partially offset the effect of an increase in unemployment, thereby moderating the increase in the poverty rate and facilitating a faster decrease in the rate as employment increases in the future.

⁹ Parrott (2008). To generate these figures, the author measured the ratio of the increase in the poverty rate to the increase in the unemployment over the past three recessions. Assuming that the unemployment rate would reach 9 percent in this recession and that the poverty rate would be equally responsive to rising unemployment as it was in each of the last three recessions, she generated a range of estimates for how much poverty would increase.

¹⁰ According to Table 1 of the Census Bureau's national population projections released in 2008, the population will be about 313 million in 2011 (U.S. Census Bureau 2009).

the number of people in poverty by about 8 million. Thus we estimate a slightly more conservative increase in poverty overall than does Parrott.

Our estimates for the increase in poverty amongst children, however, are more dramatic. Parrott estimates that the number of poor children will increase by between 2.6 and 3.3 million. Given that there were about 13 million children living in poverty in 2007, our estimates, in contrast, indicate that the number of poor children could increase by between 5.4 and 6.1 million.¹¹

Discussion

What confidence can we have in these forecasts? Blank's analysis is based on historical data from as long ago as 1959, and this recession – the so-called “great recession” – will likely prove to be worse than any recession we have seen throughout the intervening years. As such, our results may prove to be too optimistic. And indeed, with the release of the official Census Bureau poverty numbers, we have seen that our projection for the poverty rate for the entire population for 2008 was too conservative. In order to address this concern, we performed the same analysis as above for the 1981-1982 recession, arguably the most severe recession other than the current one, comparing our simulation results with the actual poverty rates that prevailed in the early to mid 1980s. We found that our results underestimated the poverty rate throughout those years. While we can't be sure of the exact reason for this, one possible explanation may be that the lagged poverty rate overshadows the effect of the unemployment rate during recessions.

Let's consider a world in which there are two groups of poor people – the structurally poor and the cyclically poor. The structurally poor more or less remain in poverty throughout their lives due to their inherent characteristics: they may have mental illnesses, disabilities, low skills, or the like. The cyclically poor, on the other hand, are those who are temporarily thrown into poverty during a downturn due to increasing unemployment and who are likely to quickly rebound and rise out of poverty once the economy begins to recover. One could argue that the large coefficient on the lagged poverty rate is due to the effect of the structurally poor, who, in the average year, exert the most influence on the poverty rate, while the effect of the cyclically poor is captured in the coefficient on the unemployment rate. In Blank's model, it may be the case that in deep recessions, the structurally poor exert too much influence on the actual poverty rate, when we would expect the cyclically poor to play the biggest role. In this way, the lagged poverty rate may overshadow the effect of the unemployment rate during deep recessions, thereby making it possible that our forecast of the poverty rate over the next several years may be, if anything, too optimistic.

Conclusions and Policy Implications

This analysis has demonstrated that the recession is likely to have a severe and long-lasting impact on poverty in the United States. Given the wide consensus among forecasters about the

¹¹ Year-by-year projections of the population under 18 years of age are not available; however, Table 2 of the Census Bureau's national population projections shows that there will be 75 million children in 2010 and 78 million children in 2015. We therefore assume that the child population will increase by about 600,000 for every year in between. Given that the CBO and OMB project the child poverty rate to be 24.2 percent in 2012 and EIU projects the rate to be 24.9 percent in 2013, we project the number of children to be max out somewhere between 18.4 million and 19.1 million.

trajectory of the unemployment rate, there is strong evidence that the national poverty rate could reach close to 14.5 percent in 2011, leaving an additional 8 million people in poverty. Poverty rates would increase even more for the most disadvantaged groups, potentially reaching nearly 25 percent for children, 31 percent for blacks, and over 45 percent for single-mother families.

In light of these expected increases, more attention needs to be paid to the adequacy of the safety net, and to health care, education, job training, or other means of insuring that more Americans are able to benefit from the opportunities that a growing economy will eventually provide. It is not enough to simply beef up the safety net during the recession itself. As this analysis suggests, this recession will cast a long shadow on those at the bottom of the ladder – a group that was not doing well before the recession arrived and which will be disproportionately affected long after it has ended.¹² In this context, the American Recovery and Reinvestment Act (the stimulus package) included extra funds for Food Stamps, TANF, and Medicaid. Estimated outlays for these programs are \$54 billion in fiscal year 2009, \$52 billion in fiscal year 2010, and \$17 billion in fiscal year 2011.¹³ Add to this the expiration of various tax provisions, such as the Making Work Pay Tax Credit, at the end of 2010, and it should be clear that under current policy, most of the extra funds aimed at less-advantaged families will fade away long before the poverty rate is expected to peak.

¹² For more details on what needs to be done, see Haskins and Sawhill (2009).

¹³ These data are from the CBO (2009b). The figures for TANF include funding for economic recovery payments and child support, and the figures for Medicaid are based on CBO's estimated outlays for state fiscal relief, 97 percent of which are due to the increase in the federal share of Medicaid. Note that they cover fiscal and not calendar years and that the fiscal year ends three months before the calendar year, so some spending extends into fiscal year 2011, which begins on Oct. 1, 2010.

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