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Redistribution under OASDI: How Much and to Whom?

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This chapter presents the results from a study of redistribution in the Social Security program under current law provisions. The focus is on differences in the redistributive effects between the Old Age and Survivors Insurance (OASI) and the Disability Insurance (DI) programs and how these effects are rolled up into the Old Age Survivors and Disability Insurance (OASDI) program.

The basic findings are presented first, followed by a discussion of the sources of redistribution in Social Security, the data and analytic measures, and the methodology for generating the lifetime earnings upon which payroll taxes and Social Security benefits are based. The results are discussed in detail, looking first at gender, then earnings, education, and finally race/ethnicity, as follows:

—Old Age and Survivors Insurance is progressive in the sense that persons with high lifetime earnings receive lower rates of return than do persons with low lifetime earnings.

—The disability insurance program is even more progressive than the OASI program, but DI is a relatively small program, so that the combined OASDI program is only moderately more progressive than OASI.

—The groups who benefit most when the DI program is added to the OASI program are men, workers in the bottom earnings quintile, high school dropouts, and minorities.

In this chapter *redistribution* is the transfer of Social Security–related monies from one group to another. The main sources of redistribution in Social Security are:

1. *The progressive benefit formula.* This formula provides higher returns for the first dollar contributed than for the last. Payroll taxes are a fixed percent of taxable earnings, but benefits are progressive. Persons with low average monthly earnings receive benefits equal to 90 percent of their monthly earn-

ings, while persons with high monthly earnings receive benefits that replace less than 30 percent of their monthly earnings. This effect is seen when one analyzes the data by quintiles of lifetime earnings.

2. *Forced annuitization.* For most people Social Security benefits are like an annuity. Most beneficiaries receive Social Security benefits until they die. All else being equal, the people who live longer receive more benefits. The influence of lifespan differences is seen when one analyzes redistribution by education since longevity is correlated with education.

3. *Spousal and survivor benefits.* The Social Security benefit formula gives benefits to the beneficiary's qualifying spouse and survivors without additional contributions. Thus Social Security redistributes income to qualified spouses, divorced spouses, and survivors. This effect provides a partial explanation for differences in redistribution by gender and education.

4. *Disability insurance.* All covered workers pay for DI, but only the disabled and their dependents get DI benefits. Thus DI redistributes income to the disabled. DI benefits relative to taxes are more generous than OASI benefits because disabled workers are credited with a full work career.

The Modeling Income in the Near Term (MINT) simulation model is used for this study. It was developed jointly by the RAND Corporation, the Urban Institute, and the Social Security Administration (SSA). MINT starts with respondents in the 1990–93 Survey of Income and Program Participation (SIPP) panels, with matched earnings histories from the SSA. MINT projects future earnings based on the earnings history. The earnings histories are adequate for this purpose only for birth cohorts 1931–64, so this analysis is restricted to those birth cohorts. A preliminary data set that became available in the summer of 2002 is used, and the study is based on 65,369 observations.

Two measures are used to look at redistribution: internal rates of return (IRRs) and lifetime net benefits. The IRR is similar to a return on investment, where the investment is payroll taxes and the revenue stream is Social Security benefits. It is tricky to compute IRRs for individuals because many have erratic work and benefit histories. Therefore the payroll taxes and benefits were first aggregated according to our analysis groups. Even so, it was not possible to compute an IRR for every group in the DI program, so we defined the rate of return in DI to be the difference in rates of return between OASDI and OASI.

The second measure used to evaluate redistribution is the lifetime net benefit. This is the lifetime benefit less the lifetime payroll tax for each individual, with the mean or median evaluated for each analysis group. Unlike the IRR, there were no methodological difficulties with the net benefits.

The IRR and net benefits are measures of equity, not adequacy. High IRRs can be consistent with poverty, but that is a topic for subsequent research.

Table 9-1. *Social Security Equity across Programs: From OASI to OASDI*

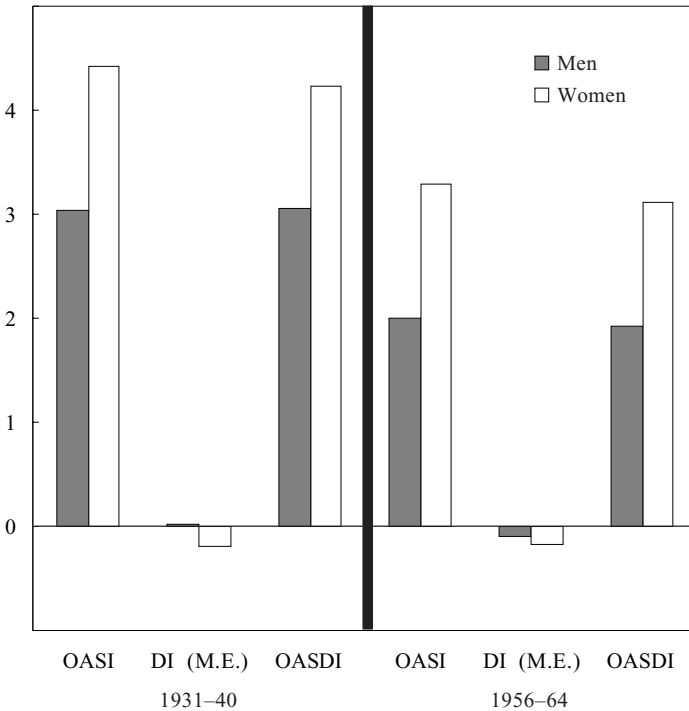
| <i>Redistribution by</i> | <i>OASI</i> | <i>DI</i> | <i>OASDI</i> |
|--------------------------|--|---|--|
| Gender | Women lead men in all categories | Negligible; DI does not change the redistributive pattern | Women continue to lead men in all categories |
| Lifetime earnings | Progressive; lower income quintiles lead higher quintiles in all cases | Progressive; more for men than for women | Progressive; more progressive than OASI across all cohorts |
| Education | Not progressive for men; college men lead high school graduated men, who in turn lead high school dropout men in all cohorts | Progressive; DI transforms increasing returns for men to decreasing returns | Progressive; high school dropouts lead high school graduates, who in turn lead college graduates |
| Race and ethnicity | Very similar; Hispanics lead whites | Very similar; black men and women gain, as do Hispanic men | Very similar; Hispanics and blacks lead whites |

In Social Security, a worker's record can generate benefits for the worker and for various current and former family members. A beneficiary's benefits can come from his or her own record and other people's records. To account for as much of the taxes and benefits as possible in the MINT model, a notion of "shared" payroll taxes and benefits is used. These are, for each person, his or her own taxes and benefits when single and half the combined taxes and benefits when married. Thus, the "shared" measure takes the family context into account. Finally, there are beneficiary populations not included in MINT, notably children and elderly parents. These populations receive about 12 percent of the total benefits, so to keep the payroll taxes consistent with the benefits they purchase, the payroll taxes are reduced by about 12 percent.

This study is not based on stylized earnings patterns but rather on actual earnings histories from SSA records covering 1951–99 for most respondents. Some earnings histories had to be imputed, such as for former spouses. For the earnings projection time period (2000–31), earnings up to age fifty, or if disabled up to age sixty-seven, were spliced onto each record in five-year increments from donors who were five years older. If earnings after age fifty were not observed, a trajectory was made based on prior earnings, and a retirement model then applied. Earnings after retirement were also projected. The resulting redistributions, accounting for both earnings and benefits, are summarized in table 9-1.

Figure 9-1. *Real Internal Rates of Return, by Gender and Birth Cohort*

Percent



Note: M.E. stands for the “marginal effect” of the DI program on this benefit measure.

When one looks at Social Security by gender, in OASI women lead men in rates of return and in net benefits (figure 9-1). If DI is added into the mix, almost no difference is found. That is, DI does not appear to change the redistributive pattern between men and women. In OASDI women continue to have higher IRRs and net benefits than do men.

The left side of figure 9-1 is the Depression cohort born 1931-40, and the right side is the late baby boom cohort born 1956-64. Three programs are charted within each cohort: OASI, DI, and OASDI. The IRRs are declining across cohorts, but that generalization does not hold true for all subgroups, as will be shown later.

Women do better than men in OASI and in OASDI in both cohorts, and it appears that women fare worse than men in DI. But why? Men in general have higher lifetime earnings than do women, so we would expect men to have

lower returns in both OASI and DI on account of the benefit formula progressivity. Men have a higher DI take-up rate than do women, which more than offsets the progressive effect of higher earnings relative to women. Sixteen percent of Depression-cohort males are DI beneficiaries, compared to 10 percent of females. The gap narrows over time to 17 percent male DI take-up, compared to 14 percent female DI take-up in the late baby boom cohort. The net result is that men do better than women in DI. The gender differences in DI are smaller in the late baby boom cohort than in the Depression cohort.

The next category is lifetime earnings (figure 9-2 for men and figure 9-3 for women). Real IRRs are shown in the upper graph for the OASI program, by birth cohort for the lowest quintile (Q1), the middle quintile (Q3), and the highest quintile (Q5) of lifetime earners. OASDI is on the lower graph. As expected from the benefit formula, Q1 has higher returns than Q3, and Q3 has higher returns than Q5, so OASI is progressive in lifetime earnings. DI adds to this progressivity, so OASDI is more progressive than OASI across all cohorts. Thus, Social Security is progressive for men.

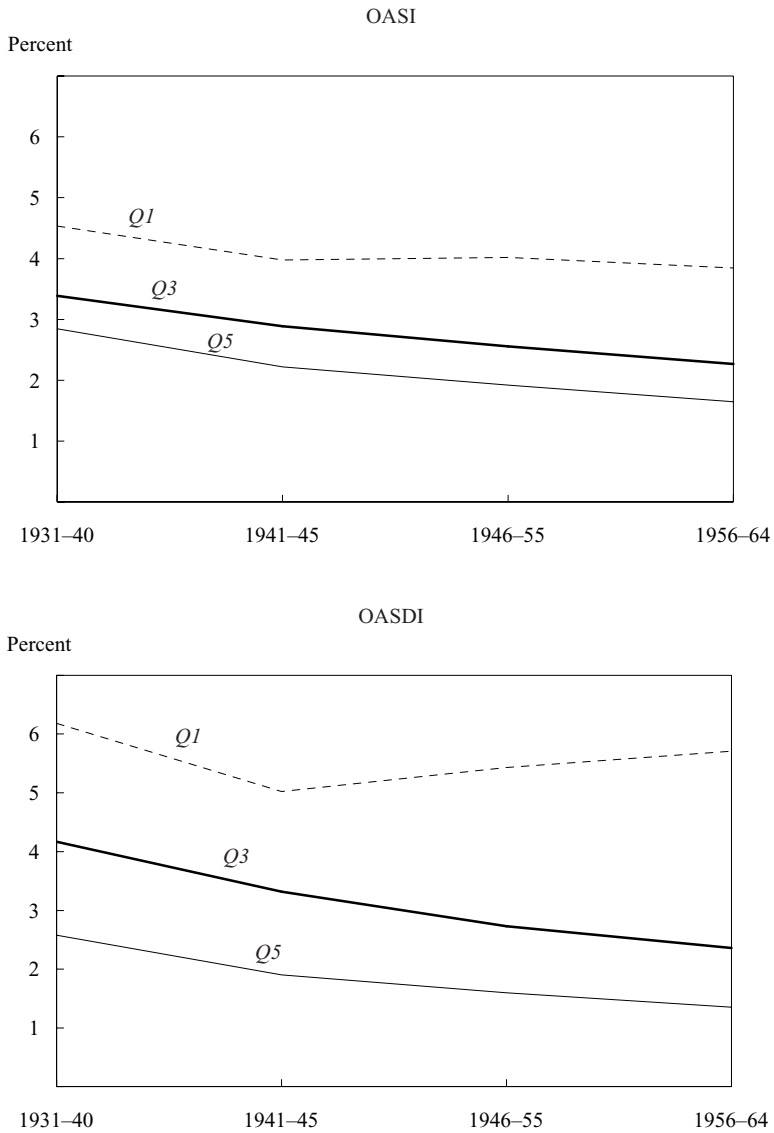
The lines for men in figure 9-2 are close in OASI and more spread out when DI is added. This increased difference in returns between the lowest and highest quintiles means that DI is boosting progressivity in each cohort. The lowest to highest quintile divergence also increases across cohorts, so OASDI (and perhaps OASI also) are becoming more progressive over time.

Returns in OASI for Q1, the lowest quintile, seem to have stabilized for persons born after 1941, while in OASDI the returns are increasing. Why is this? In OASI the percent of men in the lowest quintile who are fully insured for benefits has been rising from 70 percent in the Depression cohort to 84 percent in the early baby boom cohort, although it dropped again for the late baby boom cohort. Thus higher proportions of Q1 men from recent cohorts will be getting benefits than Q1 men from earlier cohorts. Similarly, in DI the benefit take-up rates for Q1 men increased from 8 percent in the Depression cohorts to 22 percent in the late baby boom cohorts, so higher proportions of Q1 men from recent cohorts are getting DI benefits than Q1 men from earlier cohorts. In general, higher benefit take-up rates appear to explain the increasing return over time in the lowest earnings quintile for men.

The story for women is simpler. Both OASI and OASDI are progressive, but they look very similar. DI does not appear to change the progressivity between OASI and OASDI (figure 9-3).

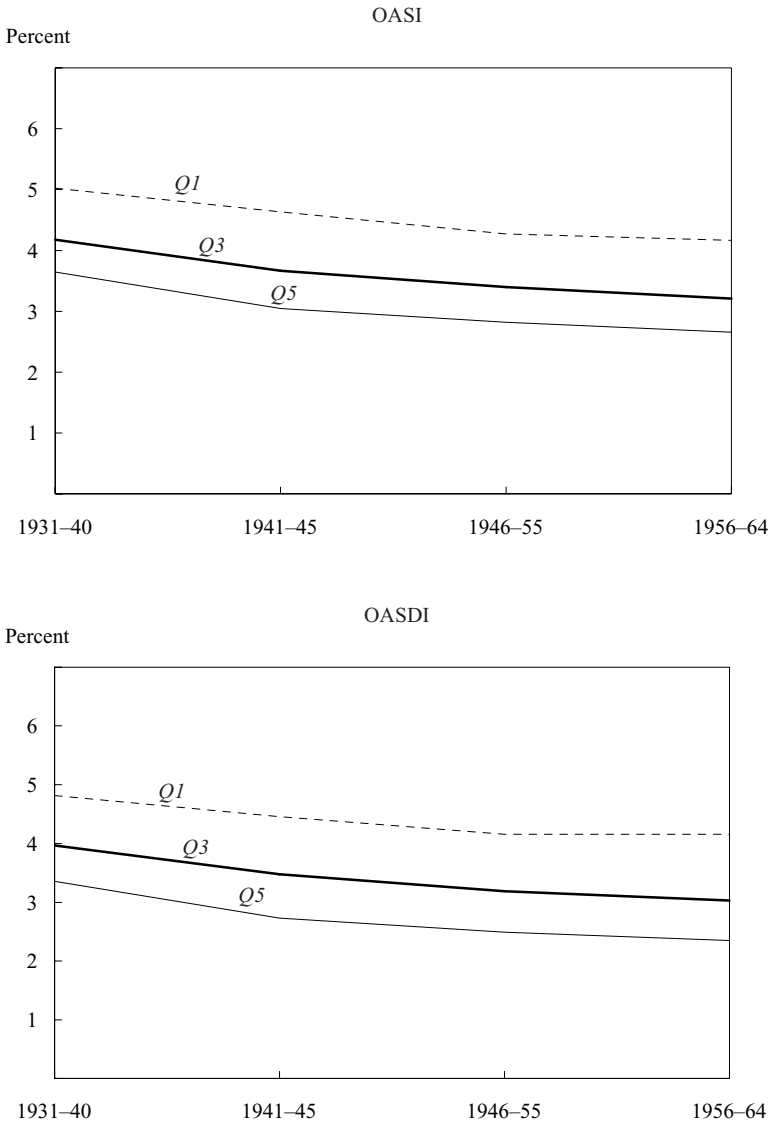
In looking at education, just as men had a curious outcome by earnings quintiles, there is also an unexpected outcome by education (figure 9-4). For women the redistribution is as would be expected, but for men the returns in OASI do not decrease as education increases. College men lead high school

Figure 9-2. *Real Internal Rates of Return for Men's Shared Benefits, by Earnings Quintile and Birth Cohort*



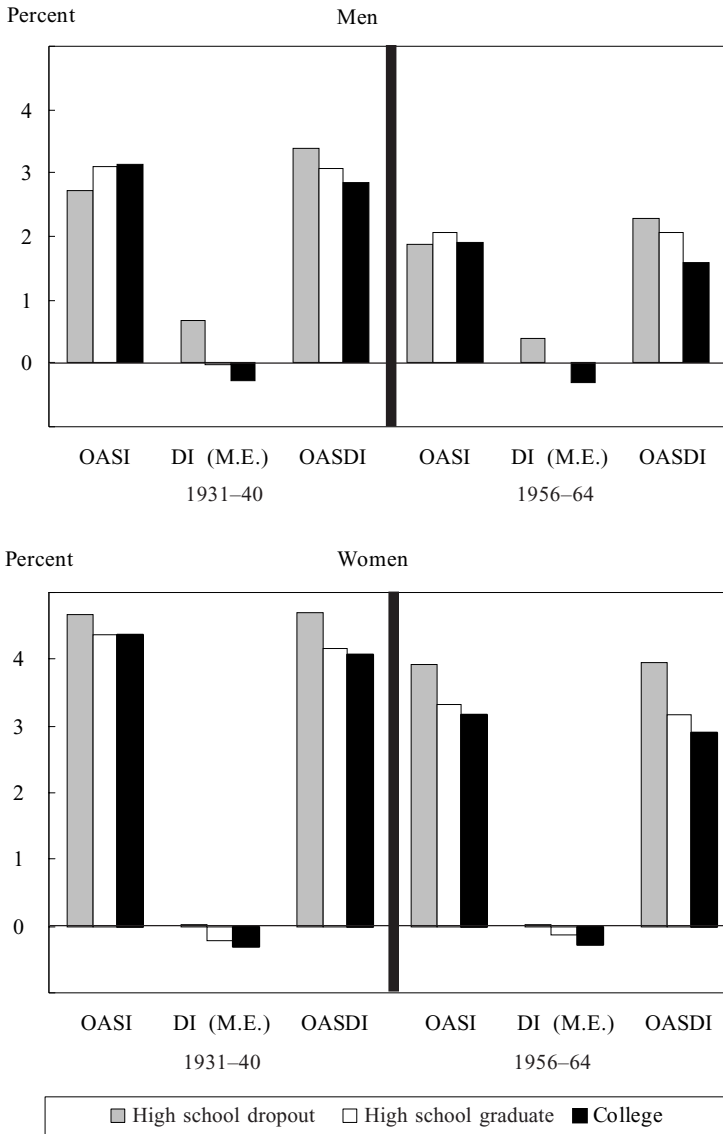
Source: Authors' calculations (January 2003).

Figure 9-3. *Real Internal Rates of Return for Women's Shared Benefits, by Earnings Quintile and Birth Cohort*



Source: Authors' calculations (January 2003).

Figure 9-4. *Real Internal Rates of Return for Shared Benefits, by Education, Gender, and Birth Cohort*



Source: Authors' calculations (January 2003).

Note: M.E. stands for the "marginal effect" of the DI program on this benefit measure.

graduate men, who in turn lead high school dropout men in all cohorts. The effect of DI, though, is to transform OASI for men into an OASDI program that has the expected “progressivity” by education.

Among women, OASI is mildly progressive in education for the Depression cohort, and DI reduces the returns as education increases, so that OASDI is more progressive than OASI. The effect of DI is similar in the late baby boom cohort of women.

But what causes this non-intuitive OASI pattern for men? It would be expected that the lower earnings for high school dropouts would generate the highest returns in the benefit formula. The answer, we think, is that less educated men do not live as long as more educated men. High school dropouts typically die three to five years younger than high school graduates and five to seven years younger than college graduates. The regressive effect of mortality differentials outweighs the progressive effect of the benefit formula.

High school dropout women also have relatively short life spans, and a pattern similar to men might have been expected, where returns decline in relation to educational advancement in OASI. But spousal benefits make up a larger portion of benefits among high school dropout women than among more educated women. These extra benefits raise the returns of high school dropouts above those of more educated women.

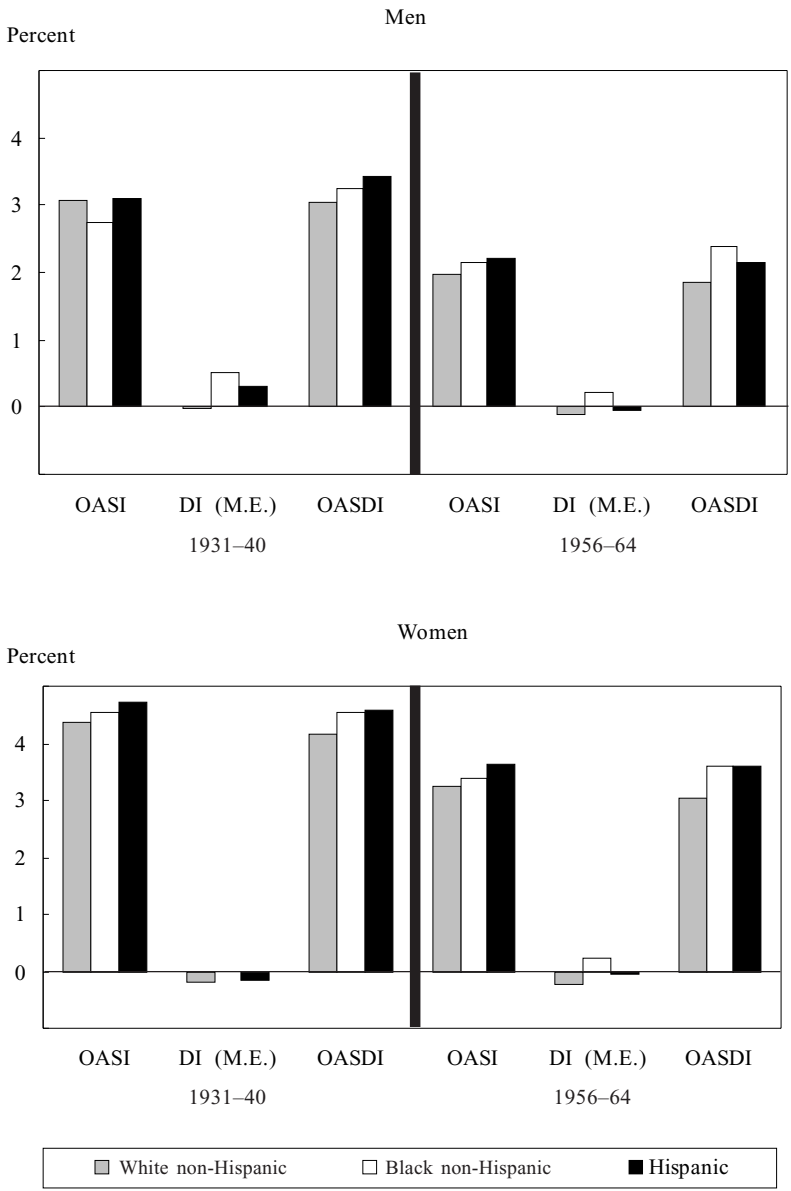
Figure 9-5 focuses on rates of return from the perspective of race and ethnicity. In OASI Hispanics lead non-Hispanic whites. In DI non-Hispanic black men and women gain, as do Hispanic men, so that in OASDI minorities lead non-Hispanic whites in rates of return.

In this perspective the differentials between minorities are less substantial. Perhaps this reflects a limitation of the MINT model while race and Hispanicity are not used consistently in all the demographic projections. Initial mortality projections in MINT use race but not Hispanic ethnicity as predictors of mortality. The earnings splicing that is used to project earnings for some people in MINT also splices mortality, in which case the nearest-neighbor match accounts for Hispanic ethnicity. But a further adjustment to mortality among the disabled does not account for race or Hispanic ethnicity. The bottom line is to not overinterpret these results. Hispanics lead non-Hispanic whites, and non-Hispanic blacks usually do also. DI raises returns for minorities, more so for men than for women. DI also lowers returns for non-Hispanic whites, more so for women than for men.

Why does DI favor minorities? There are two reasons:

1. Minorities are more likely to be in lower earnings quintiles than non-Hispanic whites.

Figure 9-5. *Real Internal Rates of Return for Shared Benefits, by Race/Ethnicity, Gender, and Birth Cohort*



Source: Authors' calculations (January 2003).
 Note: M.E. stands for the "marginal effect" of the DI program on this benefit measure.

2. The DI take-up rate among minorities is higher than among nonminorities. The differences in rates of return between minorities and nonminorities are probably significant, but among minorities the differences are probably not significant.

In summary, we arrived at these principal findings:

1. DI increases overall progressivity modestly, primarily because DI is small relative to OASI.
2. DI boosts IRRs for select lower-return groups, making them the highest return groups in each cohort: men, workers in the bottom earnings quintile, high school dropouts, and minorities.