

Impacts of Welfare Reform on Recipients of Housing Assistance: Evidence From Indiana and Delaware



U.S. Department of Housing
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Executive Summary

Welfare reform and housing assistance programs have the potential to strongly affect one another, because of the substantial overlap in the populations they serve. Nationally, about 30 percent of families on welfare receive federal housing assistance. Conversely, close to half of all HUD-assisted families with children receive some income from welfare in any given year.¹ This overlap creates the possibility for housing assistance to influence welfare reform efforts and, in the other direction, for welfare reform to affect housing assistance.

How might housing assistance affect welfare reform? Housing assistance could increase the effectiveness of welfare reform through several mechanisms. Housing subsidies can help stabilize the lives of welfare recipients, making it easier for them to go to work or stay employed. Similarly, by limiting the amount of income that families are required to use for rent, housing subsidies may free up funds for work expenses such as child care and transportation, which may lead to increased employment. Vouchers in particular may enable families to move to areas with better job opportunities.

Alternatively, assisted tenants could be less responsive to welfare reform to the extent that housing subsidies act as an income stabilizer. For example, housing subsidies decrease as earnings increase, effectively creating a tax on earnings that could diminish the incentive to work. Similarly, housing subsidies could “cushion the shock” of a decrease in income due to the loss of welfare benefits, also dampening work incentives.

How might welfare reform affect housing assistance? From the other direction, welfare reform can affect housing assistance programs both favorably and adversely. For example, by increasing employment and earnings, welfare reform could decrease subsidy amounts needed for families continuing to live in public housing or Section 8 projects or to use vouchers. Welfare reform could also hasten exits from housing assistance, freeing up units in housing assistance programs for families on waiting lists. On the other hand, to the extent that HUD-assisted families leave welfare because of sanctions or time limits and remain in assisted housing, such decreases in income could increase subsidy costs. Welfare reform can also affect family structure (for example, by increasing marriage rates or increasing the proportion of families on welfare with no parent), which could influence families’ choices about whether to leave a housing assistance program for private, unsubsidized housing. Married couples might be more likely to leave housing assistance, while grandparents might be more likely to remain in public or assisted housing if they have children living with them.

This report deals more with the former question above than the latter, although it does present estimates of welfare reform’s impacts on time spent in public housing and using vouchers.

Prior research. Although the potential for interactive effects between welfare reform and housing assistance has been recognized, relatively little rigorous research evidence is available on the subject.

¹ The proportion of welfare recipients receiving housing assistance is based on 2001 HUD and HHS data, as reported in Sard and Waller (2002). The proportion of HUD-assisted families with children receiving welfare is based on 1996-1997 HUD administrative data and is reported in Sard and Daskal (1998).

For example, this is the first study that uses HUD administrative data to estimate the experimental impacts of welfare reform on exits from housing assistance.² On the other hand, intriguing evidence from welfare reform experiments in three states indicates that welfare reform may have larger impacts on families with housing assistance than on welfare recipients living in private, unsubsidized housing (Miller *et al.* 2000; Riccio and Orenstein 2000). Housing subsidies' potential to improve the effectiveness of welfare reform has implications for how state welfare agencies and housing programs might target resources, and provides a strong rationale for integrating services.

Key research questions. The three principal research questions this report addresses are:

- What are the impacts of welfare reform on welfare recipients who receive federally funded housing assistance?
- Do welfare recipients who receive federally funded housing assistance differ from welfare recipients who do not receive housing assistance in characteristics that might create barriers to employment?
- How is the receipt of housing assistance related to subsequent employment and welfare receipt?

Samples and data sources. We address these questions by analyzing data from random assignment welfare reform evaluations in Indiana and Delaware. The Indiana analysis uses two cohorts of welfare recipients: a statewide group of 66,440 families randomly assigned in 1995-1996 and followed for 5 years, and a 12-county sample of 4,954 families randomly assigned in 1998-1999 and followed for 2 years. The Delaware findings are based on a cohort of 3,812 families randomly assigned in 1995-1996 and followed for 2 years. We matched these samples to HUD administrative records to identify sample members receiving housing assistance, by type of assistance: public housing, vouchers, and Section 8 projects. In both states, data sources for outcomes include the state unemployment insurance systems (for quarterly earnings and employment), state TANF eligibility systems (for TANF and food stamp receipt), and client follow-up surveys.

Methods. This report uses several approaches to address the questions above, including estimation of experimental impacts on subgroups defined by type of housing assistance at random assignment, descriptive comparisons of family characteristics by type of housing assistance, and non-experimental estimates of the effects of housing assistance on employment and welfare receipt.

Contributions of this study. This study builds on previous research in three ways. First, it presents experimental impact estimates of welfare reform for housing assistance subgroups from two states, adding to the existing findings from three other states (Georgia, Ohio, and Minnesota; see Miller *et al.* 2000 and Riccio and Orenstein 2000). Second, this study uses HUD administrative records to identify receipt of housing assistance, a more accurate source than survey measures of housing assistance, the measure used in prior studies. Third, this study presents experimental estimates of welfare reform's impacts on length of time spent receiving housing assistance, using longitudinal measures of housing assistance from HUD administrative records, which has not been done before.

² Connell, Devine, and Rubin (1998) attempt to forecast the impacts of welfare reform on tenant incomes and rental revenues at selected PHAs.

Key Findings

Following are the main findings of this study with respect to the three research questions above.

Impacts of Welfare Reform on Welfare Recipients With Housing Assistance

- In both states, for all three categories of families with housing assistance—families living in public housing, using vouchers, and living in Section 8 projects—welfare reform had similar impacts: increasing earnings and employment and decreasing TANF and food stamp payments (although not all impacts were statistically significant).
- For the most part, impacts on employment and public assistance did not differ significantly for the HUD-assisted and non-assisted subgroups. The main exception was for the later cohort in Indiana, where welfare reform had greater impact on the earnings and employment of welfare recipients with all types of housing assistance compared to families without housing assistance. In addition, in Delaware TANF reductions were larger for HUD-assisted compared to unassisted families.
- Welfare reform increased the rate at which families living in public housing or using vouchers at baseline became “self-sufficient” in the sense that they were employed, no longer received welfare, and no longer had housing assistance. (This analysis was done only for the early Indiana cohort.)

Characteristics and Outcomes of Welfare Recipients With and Without Housing Assistance

A simple comparison of those with and without housing assistance could be misleading if the groups were very different with regard to characteristics that might affect employment and earnings. We examined some of these underlying characteristics and found:

- HUD-assisted recipients did not *consistently* have greater apparent barriers to employment than non-HUD-assisted welfare recipients.
- The most *consistent* difference across cohorts was that families with housing assistance were more likely to be non-white than families without housing assistance.
- Compared to welfare recipients in unsubsidized housing, welfare recipients living in *public housing* were more likely to be non-white, to be long-term welfare recipients, to have larger families, and to be unmarried. On the other hand, the evidence on employment and earnings history was mixed, with public housing residents having lower baseline earnings and employment in only one of the two cohorts for which data were available.
- Welfare recipients who *used housing vouchers* appeared somewhat less disadvantaged in Indiana, and more disadvantaged in Delaware, than non-HUD-assisted welfare recipients. The pattern of characteristics was also mixed for families living in Section 8 projects.
- Families with housing assistance had consistently higher use of welfare and received higher

food stamp payments compared to unassisted families.

- Families living in public housing moved less often and faced less financial strain than families without housing assistance but lived in more distressed neighborhoods. Families using vouchers also faced less financial strain (except for greater problems paying utility bills), but lived in neighborhoods similar to those of families in private, unsubsidized housing.

The Relationship Between Housing Assistance and Subsequent Employment and Welfare Receipt

- Among those welfare recipients who were exposed to welfare reform and also who received housing assistance at baseline, additional time living in public housing or using vouchers (since baseline) was associated with increases in employment and earnings and decreases in welfare receipt.
- Non-experimental analysis of employment and earnings outcomes for treatment and control group members with housing assistance at baseline in the early Indiana cohort suggests that there may be a positive interactive effect between welfare reform and housing vouchers. Because this finding is non-experimental, it should be considered only suggestive.

Implications

The evidence from this study suggests that welfare reform did not, for the most part, have substantially different impacts for welfare recipients with housing assistance in Indiana and Delaware compared to welfare recipients without housing assistance. For both HUD-assisted and non-HUD-assisted recipients in the two states, welfare reform increased employment and earnings and decreased welfare receipt.

These results differ somewhat from the findings of previous studies conducted for three other states, where welfare reform's impacts were found to be generally larger for welfare recipients with housing assistance. Taken together, evidence from the five states suggests that welfare reform's impacts are at least as large for families receiving housing assistance as for families that are not. Impacts are sometimes larger for housing-assisted families, but the conditions under which they are larger are not yet clear. At a minimum, the results presented in this report indicate that HUD-assisted residents are no less likely to be affected by welfare reform and no less able to respond to welfare reform policies.

The non-experimental analysis in this report provides intriguing, though not conclusive, evidence that welfare recipients' additional time in housing assistance may generate positive effects beyond the direct benefit of housing and, in particular, may increase recipients' subsequent employment and decrease their reliance on welfare. These results are consistent with other recent non-experimental research (Newman and Harkness, 2002). A possible explanation is that housing assistance may provide an opportunity for welfare recipients to stabilize their lives, thereby improving their employment outcomes. If correct, this interpretation suggests that the benefits of housing assistance may be broader than previously recognized. This hypothesis merits further investigation through the use of rigorous research designs better suited to address the causal effects of housing assistance.

Chapter 1

Introduction

One of the key goals of welfare reform is to make welfare families more self-sufficient. Since the passage of the 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), a vast amount of research has focused on how replacing the previous welfare system, Aid to Families with Dependent Children (AFDC), with Temporary Aid to Needy Families (TANF) has affected welfare families' ability to become economically self-sufficient. Only recently, however, have researchers and policy makers focused on a major barrier to many welfare recipients' ability to find and keep jobs and successfully transition from welfare to work: the lack of stable and affordable housing. Of particular interest is whether welfare reform has been more successful for welfare recipients who receive housing assistance through programs administered by the U.S. Department of Housing and Urban Development (HUD) than for those who do not. Nationally, about 30 percent of welfare recipients receive housing assistance from HUD.

Many studies that examine welfare families who leave TANF indicate that such families have trouble making ends meet, in part because of the high cost of housing. Sard and Waller (2002), for example, found that housing costs consumed between 52 and 129 percent of estimated family earnings in the 14 jurisdictions with federally funded studies of TANF leavers. Quane, Rankin, and Joshi (2002) similarly documented that welfare recipients in Boston, Chicago, and San Antonio who left TANF but did not receive housing assistance used 64 percent of their income to cover housing costs.

Three major HUD programs provide housing assistance to low-income families: the Public Housing program, the Housing Choice Voucher program, and the project-based Section 8 program.³ Because housing assistance is not an entitlement and the demand for housing assistance far exceeds the supply of available units, a large proportion of welfare families receive no housing assistance. The percentage of welfare families who received housing assistance as of 1996 varied from state to state, from a high of 57 percent in North Dakota to a low of 12 percent in California. In Indiana and Delaware, the two states studied in this report, between one-fourth and one-third of families on welfare received federal housing assistance.⁴

Most states have adopted a Work First approach to welfare reform, emphasizing quick labor force attachment. State TANF policies vary but often include services that help welfare recipients find and sustain work. Evidence from many state evaluations shows that these policies result in substantial

³ "Public housing" refers to rental units owned and operated by public housing authorities (PHAs). The costs of operating and maintaining these units are covered by rents paid by public housing tenants, together with substantial federal operating and capital subsidies. Housing vouchers allow recipients to rent units on the private market. Families with vouchers generally pay 30 percent of their income in rent, and PHAs pay the difference between the tenant-paid rent and the market rent for the unit. Section 8 projects operate similarly. The private owners of these buildings receive a subsidy from HUD for the difference between 30 percent of the tenant's income and the full rent for the unit, as agreed on in a contract between the owner and HUD.

⁴ Tabulations by the Center on Budget and Policy Priorities using the 1996 AFDC Quality Control data. See Sard and Daskal (1998).

increases in low-wage employment. In most cases, family income grows modestly or not at all, because increased earnings are offset to a large extent by decreased welfare benefits. The central purpose of this report is to examine whether the effects of welfare reform have been different for families who receive housing assistance than for those who do not.

The most reliable way to determine the effects of a program or policy intervention is to use experimental data to estimate impacts. Experimental evaluations randomly assign individuals or households to either a treatment group (one that experiences the policy intervention) or a control group (one that does not experience the intervention). Random assignment ensures that the two groups will, on average, possess the same characteristics—observed and unobserved—so that the only difference between the groups is the treatment group’s receipt of the intervention. Outcome differences between the two groups can therefore be attributed to the intervention (provided the difference is statistically significant).

A few recent random assignment studies have shown that welfare reform has had greater positive impacts for families who receive housing assistance. For example, an evaluation of the Minnesota Family Investment Program (MFIP) found that the program increased employment and earnings among families receiving housing assistance (primarily vouchers). In particular, the study found that MFIP caused average earnings for housing-assisted recipients to increase by a statistically significant \$2,041 (over what earnings would have been in the absence of the program) during an 18-month period. The impact on the earnings of recipients living in unsubsidized private housing was only \$426, which was not statistically significant.⁵

In Atlanta, Georgia, the National Evaluation of Welfare-to-Work Strategies (NEWWS) similarly found larger impacts on employment, earnings, and welfare for families living in public housing. For example, labor force attachment programs had an average earnings impact of \$2,115 over a 3-year period for welfare recipients in public housing. The impact for welfare recipients in unsubsidized housing was only \$1,585. Human capital development programs had an earnings impact of \$1,762 for welfare recipients in public housing, more than twice the impact for welfare recipients living in unsubsidized housing (\$863).

In Columbus, Ohio, also part of NEWWS, researchers found the largest impacts for welfare recipients living in public housing. The 3-year increase in average earnings for such recipients was \$2,819, compared to a \$20 decrease in earnings for those living in Section 8 housing (researchers did not have the data to distinguish between those receiving vouchers and those in Section 8 projects) and an increase of \$140 for recipients living in unsubsidized private housing.⁶

This report improves our understanding of how welfare reform affects families that receive housing assistance by examining welfare reform programs in Indiana and Delaware that have been the subject of random assignment welfare reform evaluations.⁷ The study also uses administrative records rather than self-reports to identify welfare recipients with housing assistance, which makes it more accurate. Shroder and Martin (1996) found that survey self-reports of housing assistance are prone to error, and

⁵ See Miller *et al.* (2000) for the MFIP findings.

⁶ See Riccio and Orenstein (2000) for the Atlanta and Columbus housing subgroup findings.

⁷ See Fein *et al.* (2000) for main findings on Delaware’s welfare reform program, and Beecroft *et al.* (forthcoming) for main findings on Indiana’s welfare reform program.

specifically may lead to substantial misclassification of unassisted families as assisted, thereby clouding comparative analysis.

1.1 Methodology for this Report: Samples, Data Sources, and Estimation of Impacts

This section describes the methodology for this report, including samples and data sources and the report’s approach to estimating impacts.

1.1.1 Samples

The analysis undertaken for this report uses three samples of welfare recipients: two cohorts from Indiana (early and later) and one cohort from Delaware. Exhibit 1.1 shows the breakdown of the samples in each of the cohorts by housing status at baseline and by treatment-control group.

Exhibit 1.1
Sample Sizes for the Indiana and Delaware Cohorts
by Housing Status at Baseline and Treatment-Control Group

Early Indiana Cohort	Public Housing	Vouchers	Section 8 Projects	Unsubsidized Housing	Total
Treatment group	3,207	5,525	3,302	51,189	63,223
Control Group	187	294	176	2,560	3,217

Later Indiana Cohort	Public Housing	Vouchers	Section 8 Projects	Unsubsidized Housing	Total
Treatment group	185	264	310	3,104	3,863
Control Group	50	71	102	868	1,091

Delaware Cohort	Public Housing	Vouchers	Section 8 Projects	Unsubsidized Housing	Total
Treatment group	130	218	211	1,490	2,049
Control Group	114	164	165	1,320	1,763

- Early Indiana cohort.** This cohort consists of 66,440 welfare families statewide that were randomly assigned to a treatment or control group during the first year of Indiana’s welfare reform program (the Indiana Manpower and Comprehensive Training program or IMPACT). The program’s first year ran from May 1995 through April 1996, and the sample includes 63,223 treatment group members and 3,217 control group members.

According to HUD administrative data, 19 percent of welfare families in the early cohort had housing assistance at baseline. Five percent lived in public housing (3,394 families), 5 percent received vouchers (3,478 families), and 9 percent lived in Section 8 projects (5,819 families). The remaining 81 percent of the early Indiana cohort (53,749 families) lived at baseline in unsubsidized private housing. The random assignment ratio for this sample is approximately 95 percent treatment group members and 5 percent control group members.⁸

Five years of follow-up data are available for this cohort.

- **Later Indiana cohort.** This cohort consists of 4,954 families in 12 Indiana counties—Allen, Cass, Clark, Gibson, Henry, Jefferson, Madison, Marion, Miami, St. Joseph, Vanderburgh, and Vigo. (Indiana ended statewide random assignment in March 1998, and from then on, it randomly assigned newly entering cases in only 12 selected counties, rather than in all 92 counties.) Families in the later Indiana cohort were randomly assigned between March 1998 and February 1999, with 3,863 families assigned to the treatment group and 1,091 families assigned to the control group. As described below in Section 1.2, the “reforms” or treatment experienced by this later group of Indiana welfare recipients differed from that experienced by treatment group members in the early Indiana cohort.

For the later Indiana cohort, 20 percent of welfare families received housing assistance at baseline: 5 percent lived in public housing (235 families), 7 percent received vouchers (335 families), and 8 percent lived in Section 8 projects (412 families). At baseline, 80 percent of welfare families in the sample (3,972 families) lived in unsubsidized family housing. The random assignment ratio for the later Indiana cohort is approximately 80 percent treatment group members and 20 percent control group members.

Two years of follow-up data are available for this cohort.

- **Delaware cohort.** The Delaware sample consists of 3,812 families randomly assigned to the treatment group (2,049 families) or the control group (1,763 families) during the first year—October 1995 through September 1996—of A Better Chance (ABC), the Delaware welfare reform program operated under HHS-approved waivers from the AFDC program. Delaware initially operated ABC on a demonstration basis in five local AFDC offices—Carroll’s Plaza, Georgetown, Hudson, Thatcher, and Williams. Following the enactment of PRWORA, states no longer were required to maintain random assignment experiments, and Delaware chose to end random assignment of ABC clients. Starting in March 1997, all new applicants in the five pilot offices were enrolled in ABC at application, and control group members still on the rolls were enrolled during their next regularly scheduled office visit.

A match of the Delaware cohort with HUD administrative data shows that 26 percent of welfare families in the sample were receiving housing assistance at baseline: 6 percent lived in public housing (244 families), 10 percent received vouchers (382 families), and 10 percent lived in Section 8 projects (376 families). Seventy-four percent of families in the Delaware cohort (2,810) were not receiving HUD housing assistance at baseline.

⁸ Although the control group sample sizes are small by design, the difference between the treatment and control group means is still an unbiased estimator of the program effect. The drawback of smaller or unbalanced sample sizes is that the standard errors of the program effect are larger.

Two years of follow-up data are available for this cohort.

1.1.2 Data Sources

HUD Administrative Data

- **Multifamily Tenant Characteristics System (MTCS).** MTCS data contain records of families that receive assistance under HUD's public housing, voucher, Section 8 certificate, and Section 8 moderate rehabilitation programs.⁹ Public housing authorities submit records to MTCS.
- **Tenant Rental Assistance Certification System (TRACS).** TRACS includes records of families subsidized under the Section 8 new construction, substantial rehabilitation, and loan-management set-aside programs, along with families who live in privately owned subsidized multifamily projects but do not receive Section 8 assistance. Private owners who have direct contracts with HUD submit records to TRACS.¹⁰

Other Administrative Data

- **Indiana Client Eligibility System (ICES).** ICES contains information on the welfare eligibility, food stamp eligibility, and IMPACT employment and training activities of all welfare recipients in the state. Our analyses are based on longitudinal files created from monthly ICES extracts.
- **Delaware Client Information System (DCIS).** DCIS contains data on the welfare eligibility of all welfare recipients in the state. Our analyses are based on longitudinal files created from monthly DCIS extracts.
- **Unemployment Insurance (UI) Wage System.** Records from the state agencies that administer the Unemployment Insurance system in Indiana and Delaware show total earnings by calendar quarter. These data are independent of welfare status and can be used to examine employment and earnings for the entire sample, both those on and off assistance, over time. For Indiana, data are available from the beginning of the demonstration. For Delaware, data are available from the third quarter of 1996.

Survey Data

- **Indiana Wave 2 Survey.** These data were collected from a mixed mode survey of 2,359 families who received welfare during the first year of Indiana's welfare reform program (May 1995 to April 1996). Approximately three-quarters of the interviews were conducted in respondents' homes; the remaining one-quarter were conducted by telephone. Survey interviews were conducted between March and November 2000, on average 5 years after the families became subject to the state's welfare reform policies.

⁹ Section 8 certificates, a predecessor to vouchers, are treated as vouchers in our analysis. Families in Section 8 moderate rehabilitation projects are grouped with families in other Section 8 projects.

¹⁰ For our analysis, families who live in subsidized projects (e.g., Section 236 projects or Section 221(b)(3) below-market interest rate projects) but who do not receive Section 8 assistance are grouped with families in Section 8 projects.

- **Delaware Wave 2 Survey.** These data were collected from a telephone survey of welfare recipients conducted between September 1999 and July 2000. The 1,599 adults who completed the survey interviews included adults who were approved or reapproved for benefits in the five pilot offices from October 1995 to December 1996.

Appendix A discusses how HUD data were matched to the evaluation sample and how HUD assistance is measured.

1.1.3 Approach to Estimating Impacts

The impacts presented in this report are the difference in average outcomes for members of the treatment (Welfare Reform) group and members of the control (Traditional Welfare) group. Outcomes for Traditional Welfare group members represent what would have happened in the absence of the program. Because random assignment ensures that the treatment and control groups are, on average, alike in all respects other than exposure to the program being studied, any significant differences in outcomes can be attributed to the different policies applied to the two groups.¹¹

To estimate welfare reform's specific impacts on families who do and families who do not receive HUD housing assistance, we used subgroup analysis, defining the subgroups as those receiving assistance through different HUD programs (public housing, vouchers, and Section 8 projects) and those living in private, unsubsidized housing. In an experimental design study, researchers can estimate impacts for any subgroups clearly defined according to baseline characteristics. In this case, we used HUD administrative data to define group members' housing status at baseline.

Impacts can be calculated as the simple difference in average outcomes for Welfare Reform and Traditional Welfare group members. The impacts presented in this report, however, have been adjusted through the use of regressions to account for small, chance differences between the Welfare Reform (treatment) and Traditional Welfare (control) groups.¹²

1.2 Welfare Reform Policies in Indiana and Delaware

Indiana and Delaware had substantially different welfare reform policies. Exhibits 1.2 and 1.3 clarify how treatment and control group members in the three samples were treated differently and summarize the differences in welfare reform and AFDC policies that account for the impacts presented in this report.

¹¹ Control group contamination is a pervasive problem in welfare reform evaluations, given the strong national message on welfare reform. It is difficult to prevent control group members from thinking that they were subject to welfare reform. These issues are complex and we will be unable to address this point satisfactorily in the report. Some work using survey data is currently being done in other projects to determine the extent of this contamination bias.

¹² The impact estimates presented in Chapter 3 adjust for the differences in baseline characteristics described in Chapter 2.

Exhibit 1.2
Indiana Welfare Reform Policies Compared to AFDC

Policy Area	Indiana Welfare Reform	AFDC (applies to Traditional Welfare Group)
Amount of earned income disregarded in calculating cash grant	<p>(May 1995 – June 2000) Traditional AFDC disregard.</p> <p>(July 2000 onwards) All earned income up to federal poverty level.</p>	<p>\$120 and 1/3 of the remainder for four months \$120 for the next 8 months \$90 in subsequent months</p>
Income eligibility ceiling for recipients	<p>(May 1995 – May 1997) Zero grant policy for Placement Track clients: retain TANF eligibility as long as income is below the federal poverty level. But cash grant goes to zero when countable income exceeds the maximum cash grant.</p> <p>(June 1997 – June 2000) Zero grant policy extended to all clients.</p> <p>(July 2000 onwards) Retain eligibility (and receive maximum cash grant) as long as income is below the federal poverty level.</p>	<p>Net monthly income must fall below the maximum benefit for a family of its size.</p>
Exemptions from work requirements for parents with young children	<p>(May 1995 – May 1997) Parent exempt if caring for a child under three years old.</p> <p>(June 1997 – November 1997) Changed to two years old.</p> <p>(December 1997 onwards) Changed to one year old.</p>	<p>Parent exempt if caring for a child under three years old</p>
Work participation: rates, activities, and required hours	<p>(May 1995 – May 1997) Placement Track: 20 hours per week in work activities, mainly unsubsidized employment or job search. Basic Track: 20 hours per week, more flexibility in type of activities.</p> <p>(June 1997 – June 2000) Increased to 25 hours per week.</p> <p>(July 2000 onwards) Increased to 30 hours per week.</p>	<p>Low work participation rates. For unemployed adults, the main Employment and Training activities before welfare reform were vocational training and education. Hours of participation were not strictly monitored.</p>

Exhibit 1.2 (continued)
Indiana Welfare Reform Policies Compared to AFDC

Policy Area	Indiana Welfare Reform	AFDC (applies to Traditional Welfare Group)
Sanctions for noncompliance with work requirements	(May 1995 – May 1997) Placement Track: grant is reduced by adult’s portion (\$90 per month) for 2, 12, or 36 months, depending on whether 1 st , 2 nd , or 3 rd sanction. No full-family sanctions. (June 1997 onwards) Applies to all mandatory clients.	Rarely enforced
Time limit	(May 1995 – May 1997) Placement Track: 24-month lifetime limit for eligible adults; benefits continue to children. (June 1997 onwards) 24-month lifetime limit for all mandatory eligible adults. Federal five-year time limit not in effect (due to waiver inconsistency).	None
Family cap	(May 1995 onwards) No increase in grant for a child born 10 months or more after family began receiving TANF (if child was conceived while mother was receiving TANF)	None
Personal Responsibility Agreement (PRA)	(May 1995 onwards) Parents must ensure that pre-school children are immunized and that school-age children attend school regularly. There are several other provisions.	None
Sanctions for noncompliance with PRA	(May 1995 onwards) Sanction is generally \$90 per month until compliance	None

Exhibit 1.3
Delaware Welfare Reform Policies Compared to AFDC

Policy Area	Delaware Welfare Reform	AFDC (applies to Traditional Welfare Group)
Amount of earned income disregarded in calculating cash grant	(October 1995 onwards) Traditional AFDC disregard. Fill-the-gap budgeting allows recipients to retain roughly half of the grant amount they would have lost under AFDC by subtracting countable income from a standard that is higher than the maximum benefit. (By having a standard of need which is greater than the maximum benefit a “gap” is created.)	\$120 and 1/3 of the remainder for four months \$120 for the next 8 months \$90 in subsequent months
Income eligibility ceiling for recipients	(October 1995 onwards) For applicants, net income must not exceed the maximum benefit for a family of its size. For recipients, net income must not exceed the applicable standard of need (75% of the Federal Poverty Level).	Net monthly income must fall below the maximum benefit for a family of its size.
Exemptions from work requirements for parents with young children	(October 1995 onwards) Parent exempt if caring for a child under 13 weeks of age	Parent exempt if caring for a child under three years old
Work participation: rates, activities, and required hours	(October 1995 onwards) Participation in work activities – mostly job search and placement – is mandatory for employable adults. Related services include job readiness classes, job retention services, and basic skills remediation.	Low work participation rates. For unemployed adults, the main Employment & Training activities before welfare reform were vocational training and education. Hours of participation were not strictly monitored.
Sanctions for noncompliance with work requirements	(October 1995 onwards) Sanction for non-compliance with work or employment and training requirements is a 1/3 reduction in benefits for the 1 st occurrence, 2/3 reduction for the 2 nd occurrence and permanent loss of all benefits for the 3 rd occurrence. The duration for the first and second occurrence will be two months, or until compliance.	Rarely enforced

Exhibit 1.3 (continued)
Delaware Welfare Reform Policies Compared to AFDC

Policy Area	Delaware Welfare Reform	AFDC (applies to Traditional Welfare Group)
Time limit	<p>(October 1995 – December 1999) Eligible for 24 months of cash assistance. Families can receive an additional 24 months of benefits only if working or participating in ABC’s pay-after-performance work experience program. After exhausting 48 months, families are ineligible for cash assistance for 96 months.</p> <p>(January 2000 onwards) Family lifetime maximum reduced to 36 months. Clients reaching time limits will be barred from assistance for the rest of their lives.</p>	None
Family cap	<p>(October 1995 onwards) No increase in grant for a child born 10 months or more after family began receiving TANF (if child was conceived while mother was receiving TANF)</p>	None
Personal Responsibility Agreement (PRA)	<p>(October 1995 onwards) Parents must ensure that pre-school children are immunized and that school-age children attend school regularly. There are several other provisions.</p>	None
Sanctions for noncompliance with PRA	<p>(October 1995 onwards) Sanction for non-compliance with enhanced family functioning requirements is an initial \$50, which increases by \$50 every month until compliance.</p> <p>Sanction for non-compliance with teen responsibility requirements is to remove the teen’s ABC benefit; subsequently the caretaker’s benefit ends if the caretaker does not remedy the situation.</p>	None

Indiana’s Work Requirements and Sanctions. Indiana requires the majority of adult TANF recipients to participate in work activities, defined primarily as working or looking for employment. Most clients met the work participation requirements by working. Parents responsible for the care of a child under 3 years old were initially exempt from Indiana’s work requirement. In December 1997, the exemption was narrowed to apply only to parents with children younger than age 1. The narrower exemption applied to all families in the later cohort and to those in the early cohort still on AFDC in December 1997 (approximately half of the early cohort).

Unlike most states, Indiana does not have a full-family sanction policy for those who fail to comply with work participation requirements.¹³ Instead, for a first violation, the TANF grant is reduced by the adult’s portion (\$90 per month) for 2 months; for the second violation, it is reduced by the adult’s portion for 12 months; and for the third violation, it is reduced by the same amount for 36 months. Adult TANF recipients randomly assigned to the control group received lower priority for referral to the mandatory work component of Indiana’s welfare reform program than those assigned to the treatment group.

Delaware’s Work Requirements and Sanctions. Delaware’s work participation requirement initially applied only to employable adults. Before January 1997, clients under age 25 with low basic skills were referred to basic skills training rather than being required to work or look for work. Starting in January 1997, Delaware made job search the primary required activity for all TANF recipients. For ABC, an exemption from work requirements has always applied to parents with children under 13 weeks of age.

ABC sanctions fall into three categories: adult responsibility, work training, and teen responsibility sanctions. The first two types of sanctions are progressive and, if noncompliance continues, include case closure (i.e., termination of benefits). Adults randomly assigned to the Traditional Welfare group were rarely sanctioned.

Indiana’s Earnings Disregard. Until July 2000, Indiana retained the traditional AFDC earnings disregard, under which, after a small work expense allowance, each additional dollar of earnings reduced AFDC benefits by one dollar.¹⁴ This disregard applied to both treatment and control group families. Starting in July 2000, the State introduced a more generous earnings disregard, which applied only to treatment group members. Under the new policy, 100 percent of a recipient’s earnings are disregarded until the individual’s earnings reach the federal poverty level. The expanded disregard is intended to strengthen work incentives and enable families to increase their income by working. The early Indiana cohort effectively experienced only the traditional disregard (because only a small proportion of those families were still receiving TANF in July 2000). In the later cohort, however, treatment group members still on TANF in July 2000 (approximately half of the treatment group) became subject to the expanded disregard 2 to 3 years after random assignment (depending on when they were randomly assigned).

Delaware’s Earnings Disregard. Delaware also retained the traditional AFDC earnings disregard. However, the State had a “fill-the-gap” budgeting policy that allowed families to keep additional

¹³ A full-family sanction policy terminates all TANF benefits to a family for the case head’s noncompliance.

¹⁴ For the first 4 months of employment, the traditional AFDC disregard ignored the first \$120 in earnings and one-third of additional earnings in calculating the AFDC benefit amount. For the next 8 months, a flat \$120 in earnings was disregarded. After a year, the disregard in earnings was reduced to \$90.

income up to the federal poverty line. Only treatment group members benefited from the fill-the-gap policy.

Indiana’s Time Limit. Indiana has a 24-month lifetime limit on TANF receipt for adults who are required to participate in work activities. The time limit affects only the adult’s portion of a grant; children remain eligible for assistance even if their parent has exceeded the 24-month limit. Initially, Indiana defined the number of months an adult was receiving TANF as the number of calendar months that elapsed after the individual was assigned to the Placement Track. That is, the “clock” started running immediately upon assignment to the Placement Track and did not stop, regardless of the number of months the client actually remained on welfare during the 24-month period. Upon reaching the time limit, the adult’s portion of the grant was eliminated for 36 months (even though the adult remained eligible for Medicaid). In June 1997, Indiana extended the time limit to all mandatory clients, not just those who had been assigned to the Placement Track. At the same time, Indiana changed the way it calculated the number of months an adult was receiving TANF by counting only months in which the client received TANF benefits. In addition, in June 1997, the time limit became a lifetime limit. Therefore, adults could no longer resume TANF eligibility after 36 months. Indiana did not implement the federal 5-year time limit until 2002.¹⁵ Clients in the control group are not subject to a time limit.

Delaware’s Time Limit. In Delaware, families headed by employable adults are eligible for cash assistance for only 24 months. Families may be eligible to receive up to 24 additional months of benefits by working in an unsubsidized job or participating in ABC’s pay-after-performance work experience program. After 48 months of benefits, families are ineligible for cash assistance for 96 months. Clients in the control group are not subject to a time limit.

1.3 Overview of Remaining Chapters

Chapter 2 examines the baseline characteristics of welfare recipients in the Indiana and Delaware samples to determine whether those with housing assistance are more disadvantaged than those without housing assistance. Chapter 3 turns to the central question of the study: What are the impacts of welfare reform for those with and those without housing assistance? We examine welfare reform’s effects on not only the standard outcomes of employment and public assistance receipt, but also its effect on housing assistance itself—that is, the extent to which welfare reform has affected the rate of exit from housing assistance.

In Chapter 4, we perform some non-experimental analysis to shed further light on the interaction between housing assistance and welfare reform. In the first section, we turn from the impact of welfare reform to an examination of how families’ time in housing assistance affects their subsequent employment, earnings, and welfare receipt. Although informative, the results of this non-experimental analysis cannot be considered as reliable as the experimental impacts presented in Chapter 3. In the second section of this chapter, we compare employment and welfare outcomes for treatment and control group families with and without housing assistance at the time of random assignment. The third section of Chapter 4 compares certain survey outcomes—relating to financial

¹⁵ Under the federal welfare reform law, states may continue to apply preexisting waivers, even if they are inconsistent with the federal law. Such “waiver inconsistencies” are limited to the duration of the waiver. Indiana’s waiver expired in April 2002.

strain and neighborhood characteristics—for families with and without housing assistance at the time of the survey. In other words, we compare outcomes based on contemporaneous housing assistance status.

Appendix A describes how HUD data were matched to the evaluation sample and how baseline housing subgroups were defined. Appendices B–D provide the results of the impact analysis discussed in Chapter 3 in tabular form.

Chapter 2

Are Welfare Recipients with Housing Assistance More Disadvantaged than Welfare Recipients without Housing Assistance?

This chapter compares the characteristics at baseline of welfare recipients in Indiana and Delaware who were and who were not receiving housing assistance to determine whether HUD-assisted welfare families are more disadvantaged than other welfare recipients. In particular, it examines characteristics that could be barriers to employment, such as employment history, family size, age of youngest child, and race. Understanding how such characteristics differ according to the housing status of welfare recipients provides a context for the results presented in subsequent chapters. For example, if welfare families with housing assistance in Indiana and Delaware were more disadvantaged than other welfare recipients, they might be expected to have experienced larger gains in employment and more significant reductions in welfare dependency as a result of welfare reform. Other research has shown that welfare reform impacts are sometimes larger for more disadvantaged families.¹⁶

In addition, knowing whether and in what ways HUD-assisted families differ from other welfare recipients could help policy makers coordinate housing assistance programs with the welfare-to-work efforts of welfare agencies and state departments of labor. If welfare recipients with housing assistance are more disadvantaged, welfare agencies might want to target resources or particular services to them.

Previous studies have not shown consistent patterns of differences in characteristics across housing subgroups. In the Atlanta study, researchers found that welfare recipients living in public housing were the most likely of all subgroups to experience substantial barriers to employment, while those in unsubsidized housing were the least likely (Riccio and Orenstein 2000). Welfare recipients with Section 8 subsidies (both families receiving vouchers and in Section 8 projects) fell between these two groups, experiencing somewhat greater barriers to employment than welfare recipients living in private unsubsidized housing.

However, in the Columbus and Minnesota studies, researchers found considerable variation in the extent to which welfare recipients in public and assisted housing were more or less advantaged than those in unsubsidized housing. In Columbus, residents of Section 8 housing were somewhat more disadvantaged than those in either public or unsubsidized housing, although the differences were neither large nor consistent (Riccio and Orenstein 2000). In Minnesota, researchers found some differences in background characteristics, attitudes, problems, and situations of welfare

¹⁶ Analyses presented in our forthcoming report on Indiana's welfare reform program, for example, show the largest impacts for clients with no recent work history as of random assignment. For an extensive examination of subgroup impacts of welfare reform, see Michalopoulos and Schwartz (2001).

recipients, but the data did not consistently show that housing-assisted welfare recipients were any less job-ready than recipients living in private unsubsidized housing (Miller *et al.* 2000).

This chapter examines the baseline characteristics of sample households in Indiana and Delaware.¹⁷ In particular, it compares three subgroups of housing-assisted welfare recipients—those living in public housing, those using housing vouchers, and those in Section 8 projects—with welfare recipients in the same cohorts who do not receive HUD housing assistance.

2.1 Baseline Characteristics for Indiana Cohorts, by Housing Status at Baseline

This section compares baseline characteristics of both Indiana cohorts, by housing status at baseline.

Early Indiana Cohort

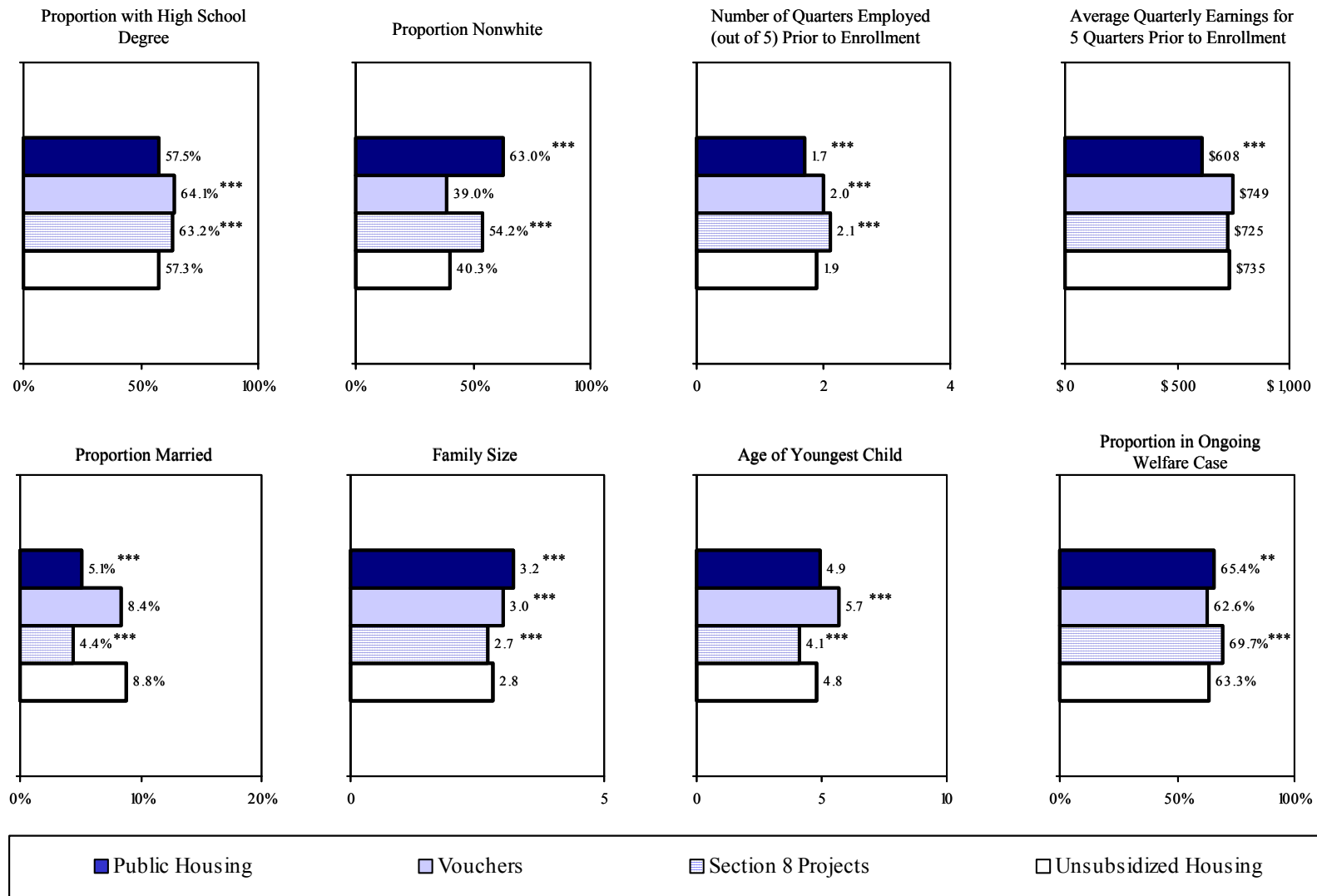
Public housing residents appeared to have greater barriers to employment than non-HUD-assisted welfare recipients. As shown in Exhibit 2.1, welfare recipients in the early Indiana cohort living in public housing were more likely than those living in private unsubsidized housing to be members of racial or ethnic minority groups (63 percent versus 40 percent) and less likely to be married (5 percent versus 9 percent). On average, they also had larger families (3.2 versus 2.8 persons) and were slightly more likely to be ongoing welfare recipients (65 percent versus 63 percent).¹⁸ Public housing residents were employed for only 1.7 of the 5 quarters prior to enrollment, compared to 1.9 for unassisted families, a small but statistically significant difference. Average quarterly earnings (for the 5 quarters preceding random assignment) were \$608 for public housing residents, compared to \$735 for families living in unsubsidized housing.

Families using vouchers or living in Section 8 projects had fewer apparent barriers to employment than non-housing-assisted families. Both voucher users and residents of Section 8 projects in the early Indiana cohort were more likely to have a high school degree than recipients living in unsubsidized housing (64 percent and 63 percent, respectively, versus 57 percent). The average age of the youngest child in families using vouchers was 5.7 years, almost a year older than the youngest child in families without housing assistance. Although families living in Section 8 projects were more likely than unassisted families to be non-white (54 percent compared to 40 percent), families using vouchers or living in Section 8 projects also had higher recent levels of employment. During the 5 quarters prior to random assignment, families with vouchers and residents of Section 8 projects were employed for 2.0 and 2.1 quarters, while unassisted recipients were employed for only 1.9 quarters (Exhibit 2.1).

¹⁷ The range of available characteristics for each of the three cohorts—early and later Indiana cohorts and the Delaware cohort—is slightly different.

¹⁸ “Ongoing” welfare recipients are those who were on welfare when the welfare reform program began, in contrast to families who applied for and began receiving welfare *after* the program began. Because the caseload *at a point in time* will have a larger proportion of long-term welfare recipients than the caseload *over time*, ongoing families are more likely than applicants to be long-term welfare recipients.

Exhibit 2.1 Selected Characteristics of the Early Cohort in Indiana by Housing Status at Baseline



Data Sources: Administrative records from the Indiana Client Eligibility System and Indiana Unemployment Insurance Records. Housing assistance data are from the US Department of Housing and Urban Development’s (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS). Note: Two-way statistical tests were conducted to determine if percentage distributions or means differ significantly from those of welfare recipients in unsubsidized private housing. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent.

Later Indiana Cohort

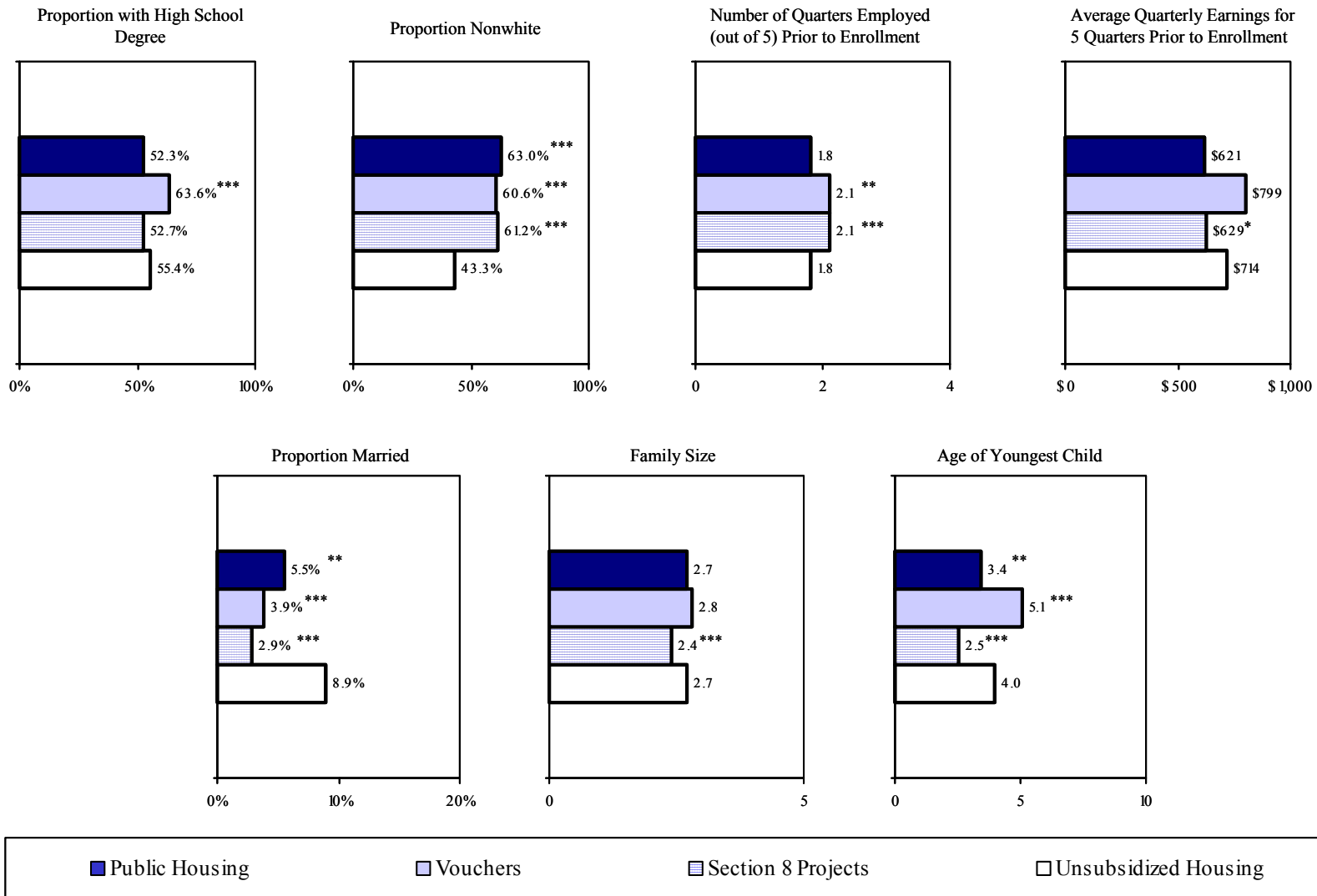
There are two key differences in characteristics between the early and later Indiana cohorts. The early cohort was made up mostly of ongoing cases (see footnote 18), while the later cohort included only new applicants to TANF. Second, the early cohort is a statewide sample, while the later cohort was drawn from 12 counties. Although the 12-county sample is intended to be representative of the state, it does not include Lake County (with Gary, Indiana), a large county with relatively high TANF receipt rates and low employment rates. It is possible that differences in findings between the early and the later cohorts are due in part to these differences in characteristics.

Although welfare recipients living in public housing are more likely to be non-white than unassisted families, there were no significant differences in apparent barriers to employment between the two groups. Public housing residents in the later Indiana cohort were more likely than non-housing-assisted welfare recipients to be non-white (63 percent versus 43 percent) and less likely to be married (6 percent versus 9 percent). On average, they also had younger children than unassisted families—the age of their youngest child was 3.4 years, compared to 4.0 for unassisted families (Exhibit 2.2). Notwithstanding these characteristics, the employment and earnings history of public housing residents did not differ significantly from that of non-housing-assisted welfare recipients in the later Indiana cohort. During the 5 quarters prior to random assignment, public housing residents had 1.8 quarters of employment, the same as for unassisted families. Differences in earnings prior to random assignment for the two groups were not statistically significant.

Families with vouchers had fewer apparent barriers to employment than welfare families living in unsubsidized housing. Nearly two-thirds (64 percent) of voucher users in the later Indiana cohort had a high school degree, compared to 55 percent of families in the same cohort without housing assistance (Exhibit 2.2). During the 5 quarters prior to random assignment, voucher families were employed for 2.1 quarters on average, compared with 1.8 quarters for welfare recipients living in unsubsidized housing.

No large or consistent differences were found between families living in Section 8 projects and non-housing-assisted welfare families. A larger percentage of welfare recipients living in Section 8 projects were non-white, fewer were married, and they had younger children, on average, than non-housing-assisted recipients. Nonetheless, the proportion of recipients with high school degrees was essentially the same for the two groups (53 percent for Section 8 families versus 55 percent for non-housing-assisted families). While residents of Section 8 projects were more likely than welfare recipients without housing assistance to be employed prior to random assignment (2.1 quarters compared to 1.8 quarters), they also had lower average quarterly earnings (\$629 versus \$714).

Exhibit 2.2 Selected Characteristics of the Later Cohort in Indiana by Housing Status at Baseline



Data Sources: Administrative records from the Indiana Client Eligibility System and Indiana Unemployment Insurance Records. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS). Note: Two-way statistical tests were conducted to determine if percentage distributions or means differ significantly from those of welfare recipients in unsubsidized private housing. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent.

2.2 Baseline Characteristics for Delaware Cohort, by Housing Status at Baseline

Welfare recipients living in public housing had greater apparent barriers to employment than those living in unsubsidized private housing. The contrast in race/ethnicity between welfare recipients living in public housing and those in private unsubsidized housing was greater in the Delaware cohort than in either of the Indiana cohorts. In Delaware, 87 percent of welfare recipients living in public housing were non-white, compared with 56 percent of those in private unsubsidized housing (Exhibit 2.3). Public housing residents also had more children than unassisted families (2.7 versus 2.1) and spent considerably more time on welfare than recipients living in unsubsidized housing. The percentage of families who had spent 36–60 months of the previous 5 years on welfare was 61 percent for public housing residents, compared to 35 percent for unassisted families.

Welfare recipients who used housing vouchers had greater apparent barriers to employment than those living in unsubsidized private housing. In Delaware, a lower proportion of voucher users had high school degrees (48 percent versus 53 percent for families without housing assistance), and a higher proportion were non-white (79 versus 56 percent). Voucher users had even longer welfare histories than welfare recipients living in public housing. Sixty-eight percent had spent 36–60 months of the previous 5 years receiving welfare, almost twice the percentage for families in unsubsidized housing (35 percent).

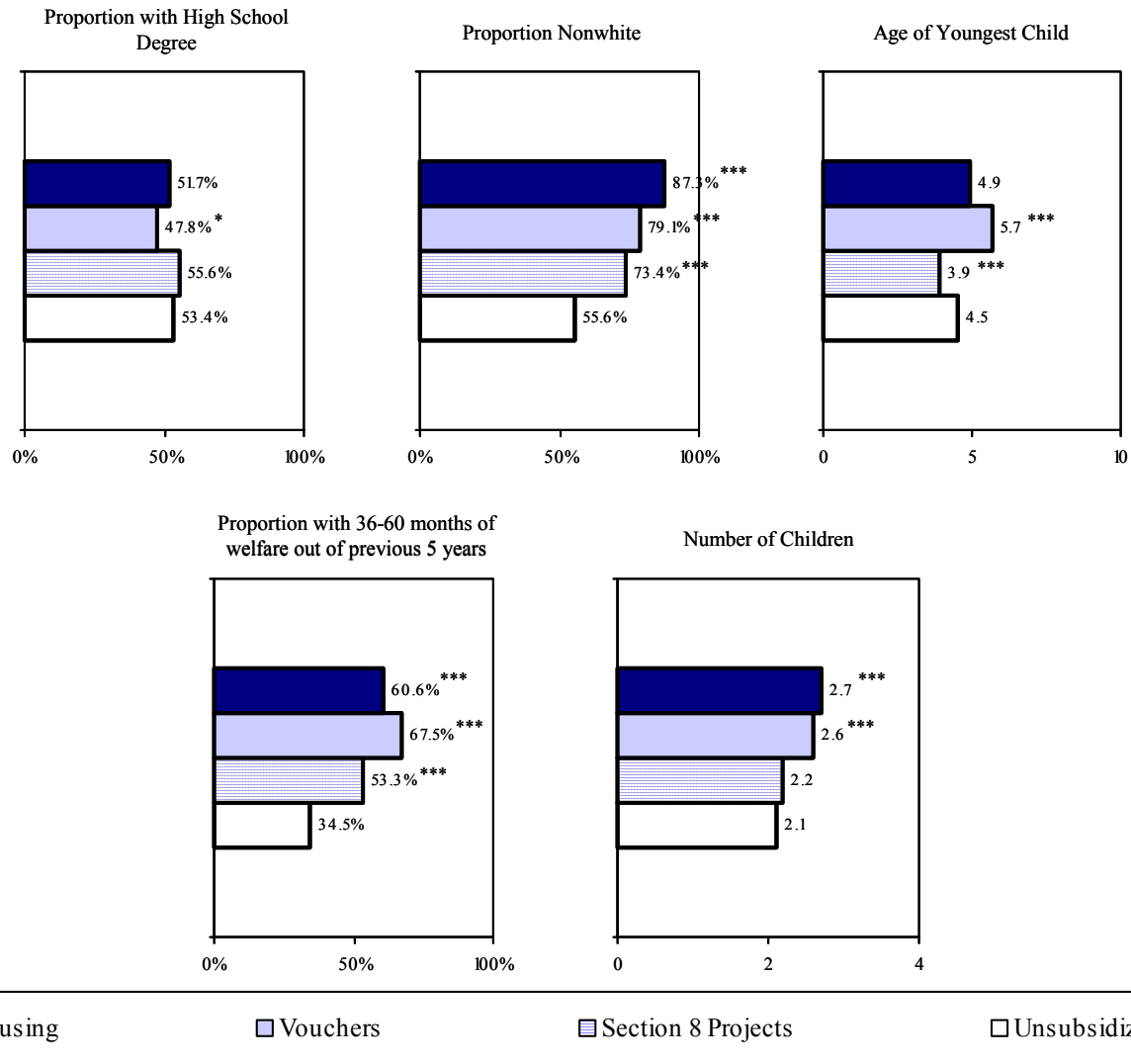
Welfare recipients living in Section 8 projects in Delaware had somewhat greater barriers to employment than those not receiving housing assistance. Welfare recipients living in Section 8 projects in Delaware were more likely than those in unsubsidized housing to be non-white (73 percent compared to 56 percent), had a younger child, and had longer welfare histories than those living in unsubsidized housing. Fifty-three percent had received welfare income for 36–60 months of the previous 5 years, compared to 35 percent for non-housing-assisted families. On the other hand, no significant differences between the two groups were found—in terms of either number of children or the proportion of family heads with a high school degree.

2.3 Conclusion

As the findings in this chapter reflect, public housing residents in the early Indiana cohort and the Delaware cohort had greater barriers to employment than families in those cohorts that did not receive housing assistance. Public housing residents in the later Indiana cohort, on the other hand, had some demographic disadvantages but did not have lower rates of employment or lower earnings.

In both Indiana cohorts, welfare recipients using vouchers had fewer barriers to employment than non-housing-assisted welfare recipients in the same cohorts. In Delaware, on the other hand, voucher users were more disadvantaged than welfare families living in private, unsubsidized housing.

Exhibit 2.3 Selected Characteristics of the Delaware Cohort by Housing Status at Baseline



Data Sources: Administrative records from the Delaware Client Information System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS). Note: Two-way statistical tests were conducted to determine if percentage distributions or means differ significantly from those of welfare recipients in unsubsidized private housing. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent.

In the early Indiana cohort, welfare recipients living in Section 8 projects had fewer barriers to employment than non-housing-assisted recipients in the cohort. For the later Indiana cohort, welfare recipients living in Section 8 projects did not differ consistently from those living in unsubsidized housing. For the Delaware sample, welfare families living in Section 8 projects had somewhat larger barriers to employment than unassisted welfare recipients.

An exception to this sample-to-sample variation between welfare families receiving various types of housing assistance is the consistent difference in race/ethnicity for housing-assisted and non-housing-assisted welfare recipients—across samples and regardless of the type of assistance. For both Indiana cohorts and, to an even greater extent, the Delaware cohort, welfare families that received any type of housing assistance were more likely than those not receiving assistance to be non-white.

The findings from this chapter have implications for the subgroup analysis performed in Chapter 3. Because we do not see a consistent pattern of differences in characteristics across families in different types of housing assistance, it is unlikely that HUD-subgroups are simply serving as proxy measures of characteristics—a concern whenever subgroup analysis is performed.

Chapter 3

The Impacts of Welfare Reform on Welfare Recipients Who Receive HUD Assistance

A substantial body of experimental evidence has established that welfare reform has, on average, increased recipients' employment and earnings and decreased their receipt of public assistance (Bloom and Michalopoulos 2001). This research often has examined impacts on subgroups of welfare recipients, such as different racial and ethnic groups and groups that at baseline had different levels of education, welfare histories, or employment histories to see whether welfare reform affects families with different characteristics differently. As described in Chapter 1, some studies of welfare reform have found greater impacts of welfare reform for welfare recipients who also have housing assistance. This chapter presents the results of subgroup analysis of the experimental samples from the Indiana and Delaware welfare reform studies and examines the following questions:

- What were the impacts of welfare reform on welfare recipients who also received housing assistance in Indiana and Delaware?
- Were the impacts of welfare reform different for welfare recipients who received housing assistance from impacts for welfare recipients who did not receive housing assistance?
- Did welfare reform affect the rate of exit from housing assistance?
- Did welfare reform affect the proportion of families with housing assistance at baseline who became "self-sufficient," where self-sufficiency is defined as being employed, being off welfare, and no longer receiving housing assistance?

For the third and fourth of these questions, the impacts of welfare reform are presented only for the early cohort of the welfare reform study in Indiana and only for the public housing and voucher subgroups. For the first two questions, we present impacts for both Indiana cohorts and for Delaware, and we present them for all three types of housing assistance: public housing, vouchers, and Section 8 projects.

Key Findings

- In both Indiana and Delaware, welfare reform increased employment and earnings and decreased TANF and food stamp payments for welfare recipients with all three types of housing assistance.
- For the most part, impacts on employment and public assistance did not differ significantly for the HUD-assisted and non-assisted subgroups. The main exception was for the later cohort in Indiana, where welfare reform had greater impact on the earnings and employment of welfare recipients with all types of housing assistance compared to families without housing assistance. In addition, in Delaware TANF reductions were larger for the HUD-assisted than for the unassisted families.

- Welfare reform decreased receipt of public housing and vouchers, but the timing of the impacts differed. Welfare reform reduced the proportion of treatment group members in public housing, but the impact faded after two years. Welfare reform also decreased the proportion of recipients using vouchers, but the impact did not materialize until the fifth year of follow-up.
- When exposed to welfare reform, welfare families living in public housing or using vouchers at baseline were more likely than families not exposed to welfare reform to become “self-sufficient,” defined as having a job, not receiving welfare, and no longer using housing assistance.

3.1 Impacts of Welfare Reform on Employment, Earnings, and Receipt of Public Assistance

This section examines the impact of welfare reform on employment and welfare outcomes for each of the three cohorts.

Early Indiana Cohort

The early phase of Indiana’s welfare reform program helped to increase earnings and employment and to decrease TANF and Food Stamp payments for all families, regardless of their housing situation. Impacts for the early Indiana cohort are depicted in Exhibits 3.1 to 3.4. The distance between the two lines on each graph represents the impact of welfare reform.

Impacts were not as often statistically significant for families with housing assistance as they were for other families, in part because of smaller sample sizes. While there were 53,749 families in the unsubsidized housing group, there were only 3,394 families in public housing, 3,478 families using vouchers, and 5,819 families in Section 8 projects. The likelihood that an impact of a given size will be statistically significant increases with sample size.¹⁹

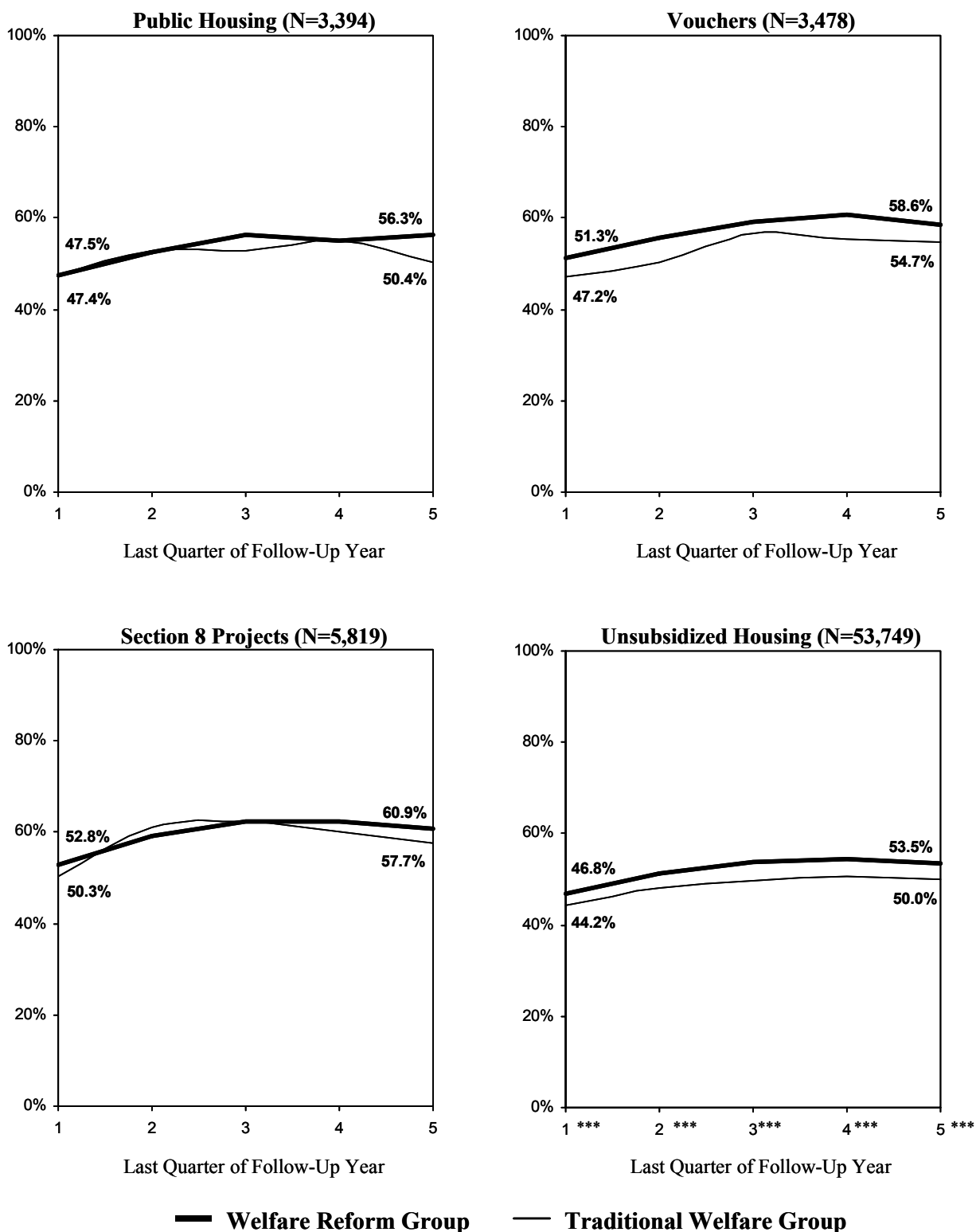
The graphs show that impacts were generally of comparable magnitudes for each housing assistance subgroup and for families living in unsubsidized housing. We used F-tests to determine whether the size of impacts between families with each type of housing assistance and families living in unsubsidized housing were significantly different.²⁰ *Impacts on employment and public assistance did not differ significantly between families with each of the three types of housing assistance and families without housing assistance.* For example, the impact on average total earnings over the five-year follow-up period ranged from \$2,003 to \$2,640, and the impact on total TANF payments over five years ranged from \$980 to \$1,346 (not shown directly on exhibits). Within these ranges, differences between impacts for those with and without housing assistance were not statistically significant.

¹⁹ Impacts were still not as often statistically significant for assisted families when we combined the three assisted subgroups.

²⁰ In other words, we did three two-way tests of differences in impacts: public housing compared to unsubsidized housing; Section 8 projects compared to unsubsidized housing; and vouchers compared to unsubsidized housing.

Exhibit 3.1

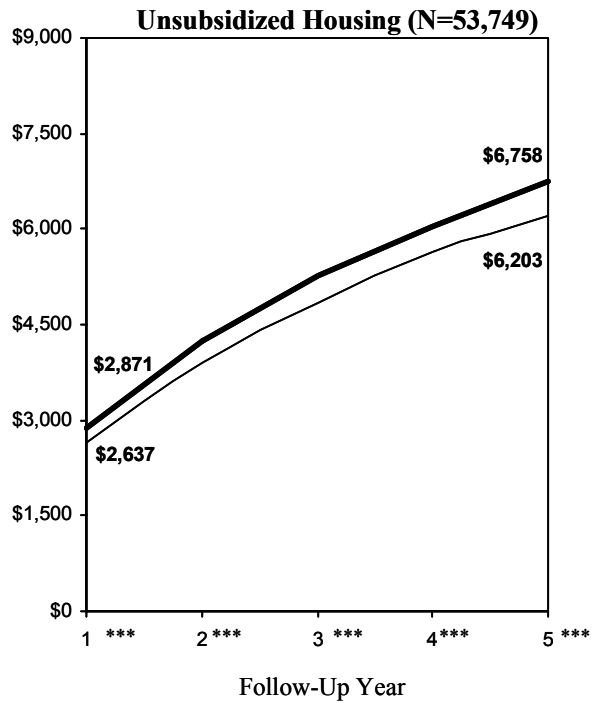
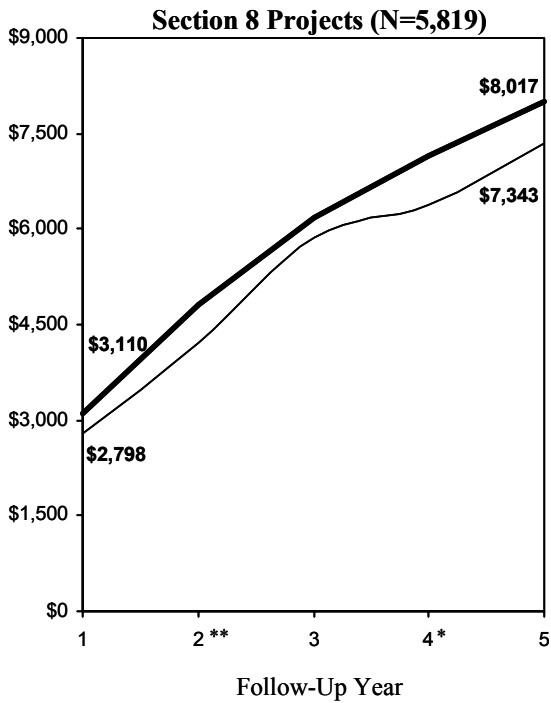
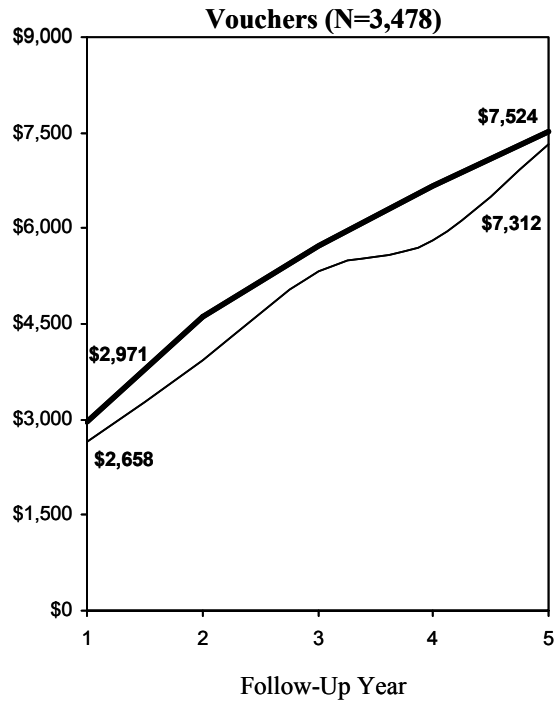
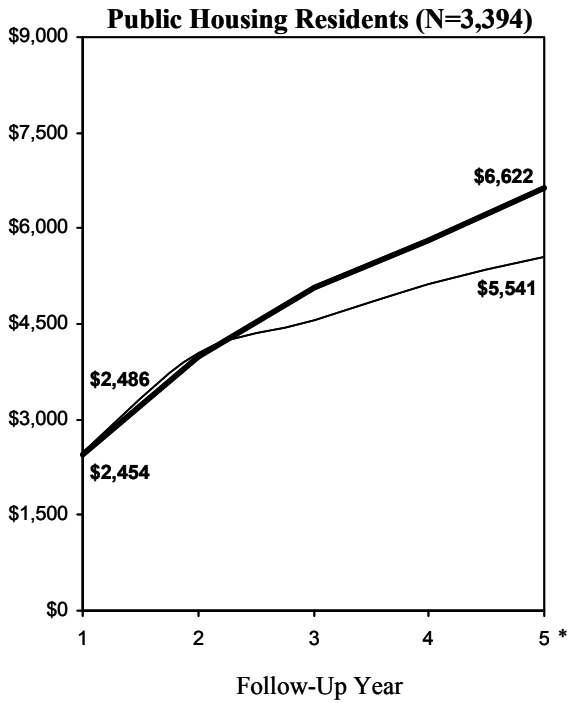
Average Percentage Employed by Welfare Reform/Traditional Welfare Group and Housing Status at Baseline, Early Indiana Cohort



Data Sources: Administrative records from the Indiana Client Eligibility System and Indiana Unemployment Insurance Records. Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 3.2

Average Annual Earnings by Welfare Reform/Traditional Welfare Group and Housing Status at Baseline, Early Indiana Cohort

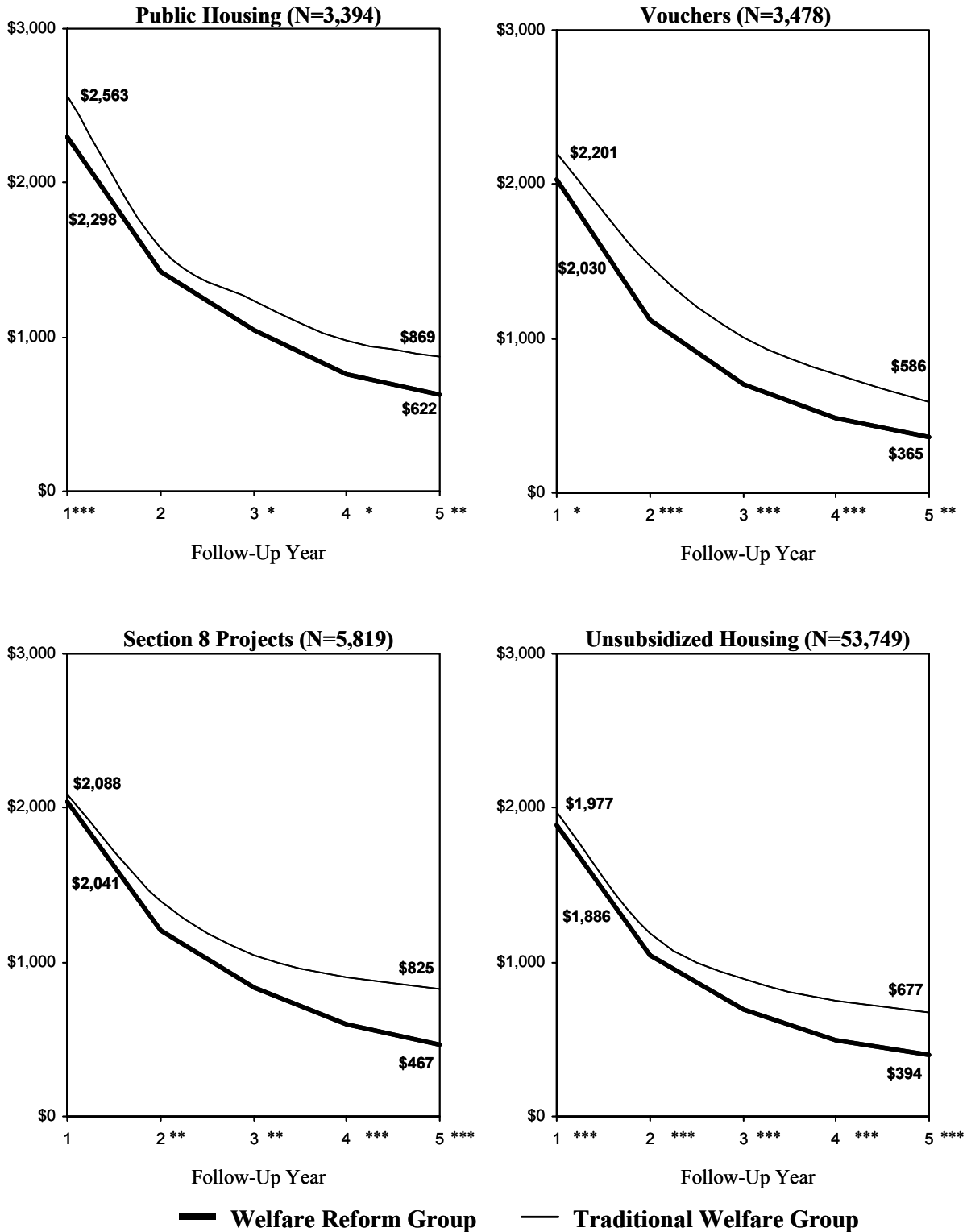


— Welfare Reform Group — Traditional Welfare Group

Data Sources: Administrative records from the Indiana Client Eligibility System and Indiana Unemployment Insurance Records. Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 3.3

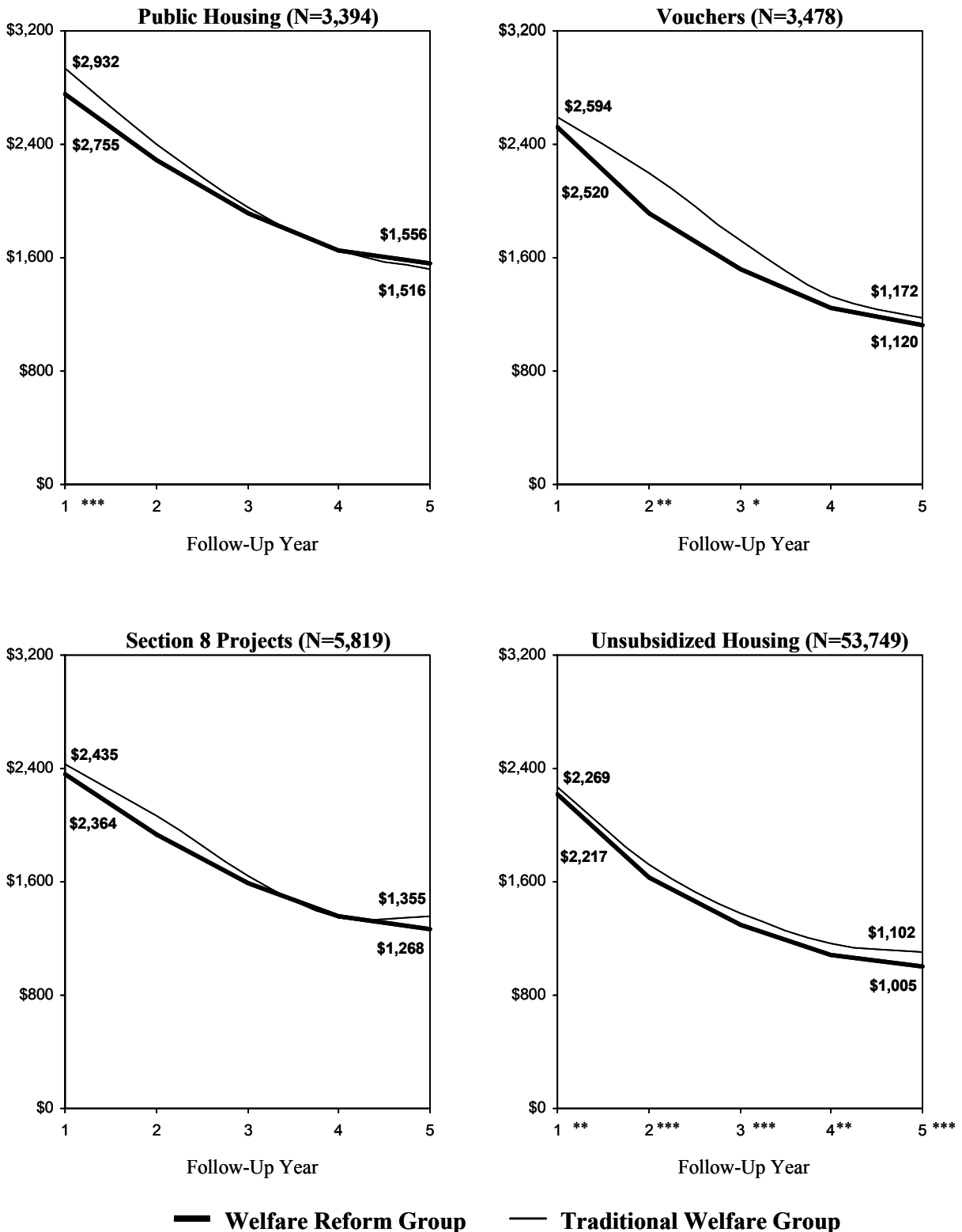
Average Annual TANF Payments by Welfare Reform/Traditional Welfare Group and Housing Status at Baseline, Early Indiana Cohort



Data Sources: Administrative records from the Indiana Client Eligibility System. Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 3.4

Average Annual Food Stamp Payments by Welfare Reform/Traditional Welfare Group and Housing Status at Baseline, Early Indiana Cohort



Data Sources: Administrative records from the Indiana Client Eligibility System. Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Later Indiana Cohort

In the later Indiana cohort, welfare reform increased employment and earnings for the assisted housing subgroup, and decreased TANF payments for both the assisted and unsubsidized housing subgroups. Exhibits 3.5 and 3.6 show the impacts over two follow-up years for the later cohort.²¹ For housing-assisted families, welfare reform increased employment and earnings and decreased TANF payments.²² For the unassisted subgroup, the only statistically significant impacts were reductions in TANF payments.

Welfare reform had larger impacts on employment and earnings for families with housing assistance than for families living in private, unsubsidized housing. For example, welfare reform increased earnings for families with housing assistance by \$868 in year 2, while the impact for families without housing assistance was \$322. In the last quarter of year 2, welfare reform increased employment by 7 percentage points for families with housing assistance, compared with a 2 percent decrease in employment for those without housing assistance. Both of these differences in the size of impacts for families with and without housing assistance were statistically significant. Differences in impacts on TANF payment between the two subgroups were not statistically significant.

Delaware

In Delaware, welfare reform increased employment and earnings, and decreased TANF payments, for families both with and without housing assistance. For both the assisted and unassisted subgroups, welfare reform increased employment and earnings in year 1 but not year 2 (see Exhibit 3.7).²³ The fade-out of impacts in year 2 likely results from Delaware's decision to phase out random assignment during that year. On the other hand, the negative impacts on TANF payments were statistically significant in both years for both subgroups (Exhibit 3.8). Because Delaware's tough sanction policy affected TANF payments directly but earnings and employment only indirectly, TANF payment impacts were more likely than employment and earnings impacts to persist through year 2.

Welfare reform had larger impacts on the TANF payments of those with housing assistance than the TANF payments of those living in unsubsidized housing. TANF payment impacts in year 2 were -\$534 for families with housing assistance compared to -\$317 for families without housing assistance, a statistically significant difference between the two subgroups. Subgroup impact differences were not statistically significant for employment or earnings.

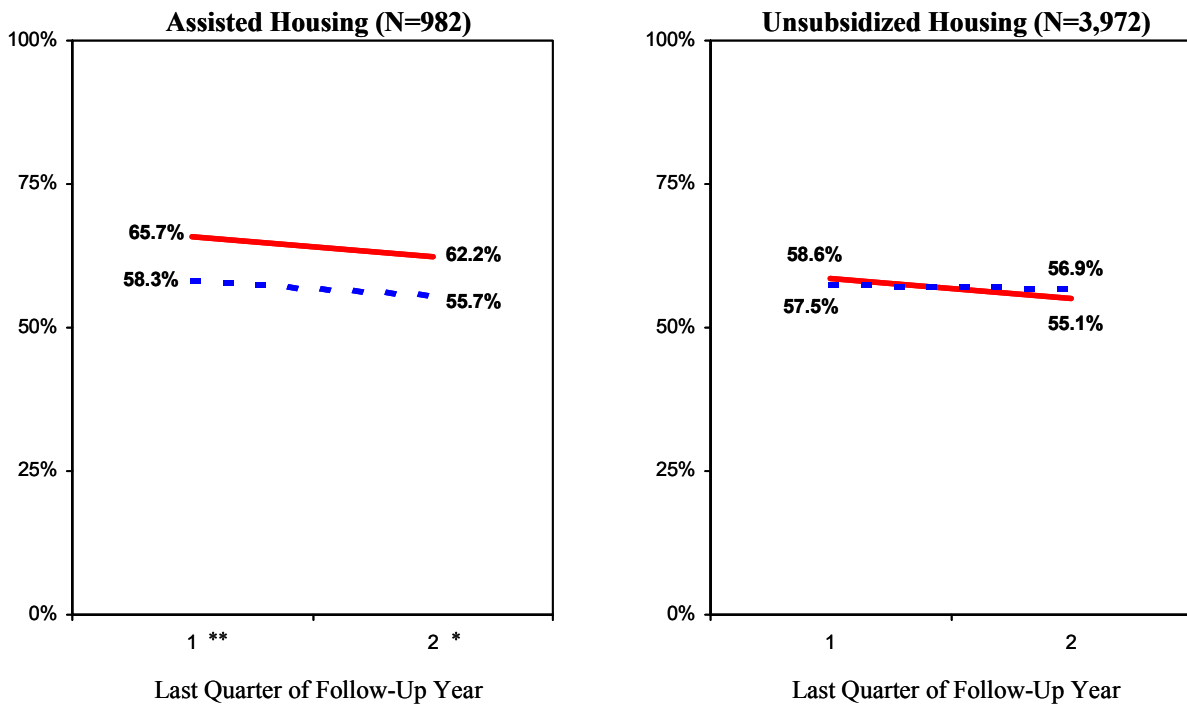
²¹ For the later Indiana cohort, the three types of housing assistance are combined because of small sample sizes.

²² A possible explanation for the slight reduction in employment rates for the later Indiana cohort between years 1 and 2 is that the later cohort experienced a relatively intensive Work First welfare reform program, in which a significant number of recipients were pushed into the workforce quickly. Note, for example, that the employment rates in the last quarter of year 1 were roughly 15 percentage points higher for the later cohort compared to the early cohort. It may be that the relatively high initial employment rates were not completely sustainable. Alternatively, migration out of state could cause a slight decline in employment rates over time.

²³ Earnings and employment for the Indiana and Delaware samples were measured somewhat differently. In Indiana, employment and earnings are individual-level and pertain to the head of the household. In Delaware, employment and earnings data were aggregated at the household level.

Exhibit 3.5
Average Percentage Employed and Annual Earnings by Welfare Reform/Traditional Welfare Group and Housing Status at Baseline, Later Indiana Cohort

Percentage Employed



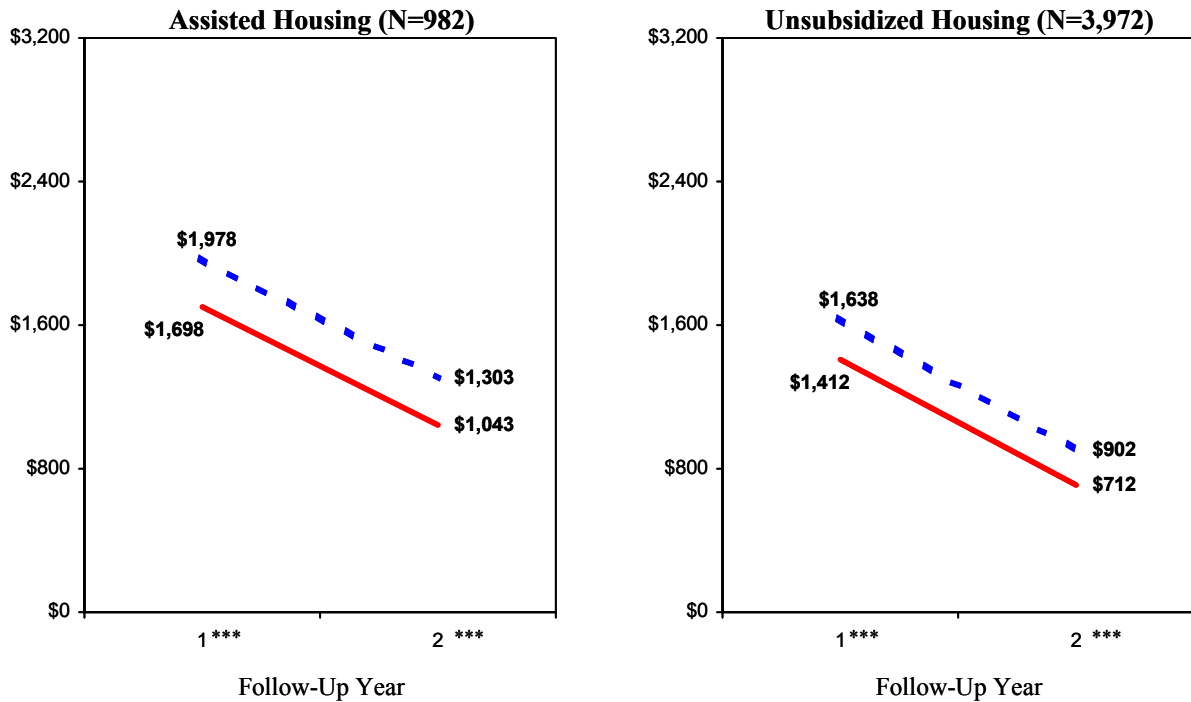
Average Annual Earnings



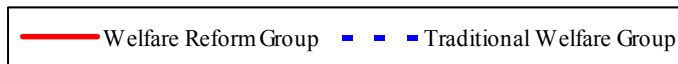
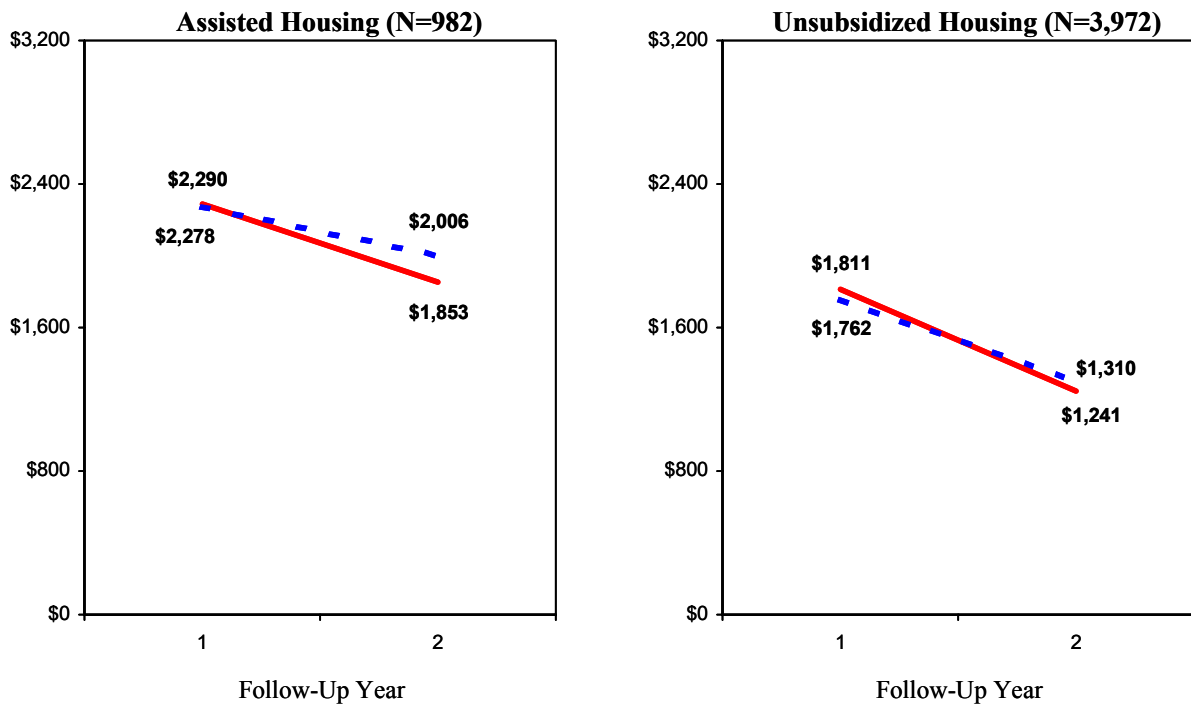
Data Sources: Administrative records from the Indiana Client Eligibility System and Indiana Unemployment Insurance Records. Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 3.6
Average Annual TANF and Food Stamp Payments by Welfare Reform/Traditional Welfare
Group and Housing Status at Baseline, Later Indiana Cohort

Average Annual TANF Payments



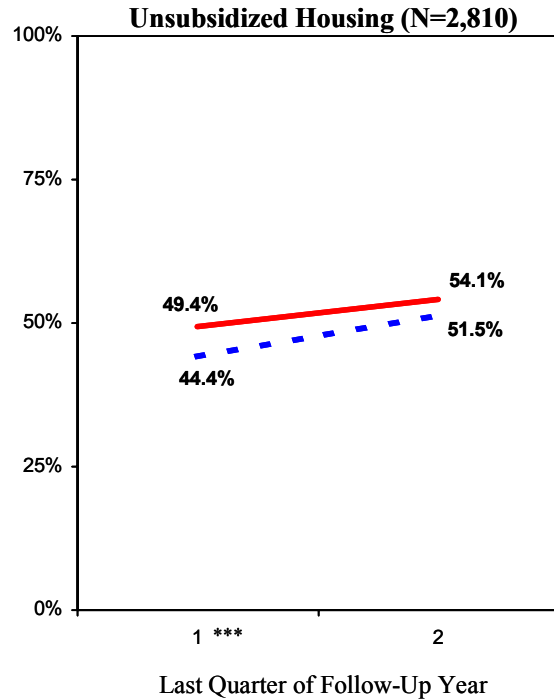
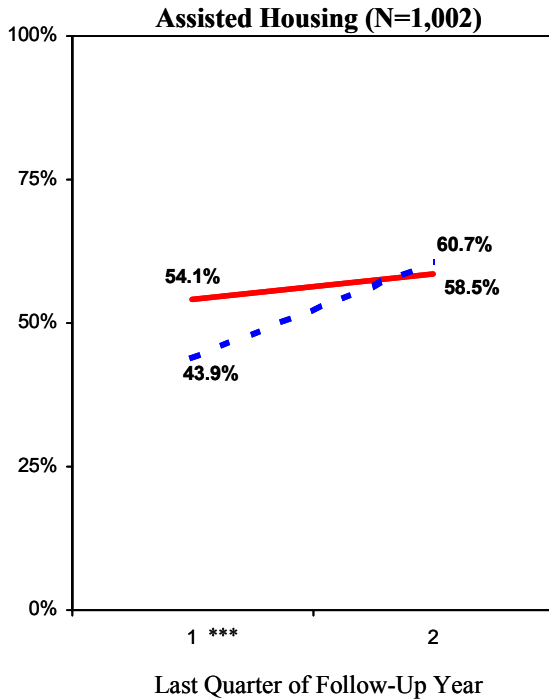
Average Annual Food Stamp Payments



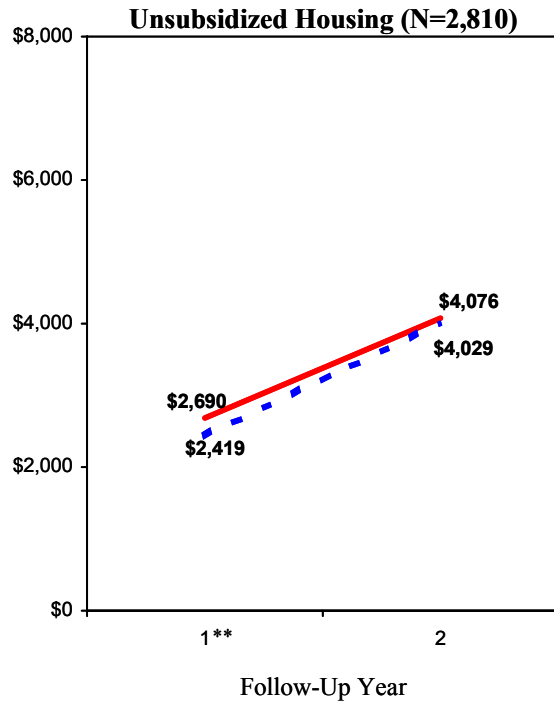
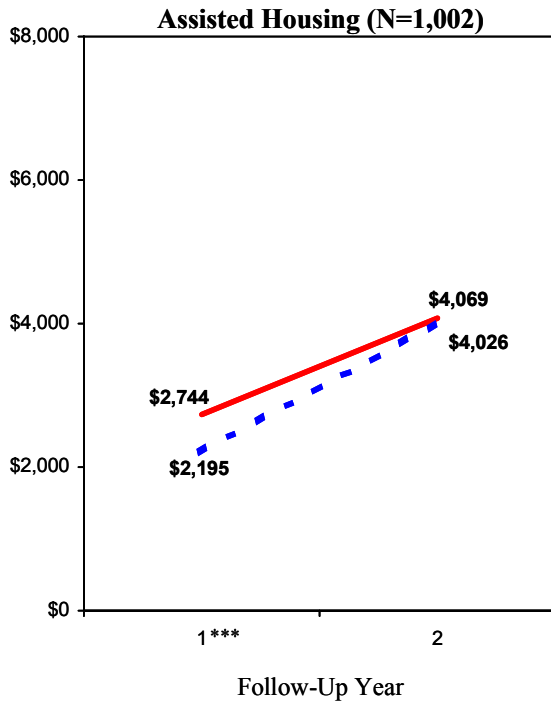
Data Sources: Administrative records from the Indiana Client Eligibility System and Indiana Unemployment Insurance Records. Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 3.7
Average Percentage Employed and Annual Earnings by Welfare Reform/Traditional Welfare Group and Housing Status at Baseline, Delaware

Percentage Employed

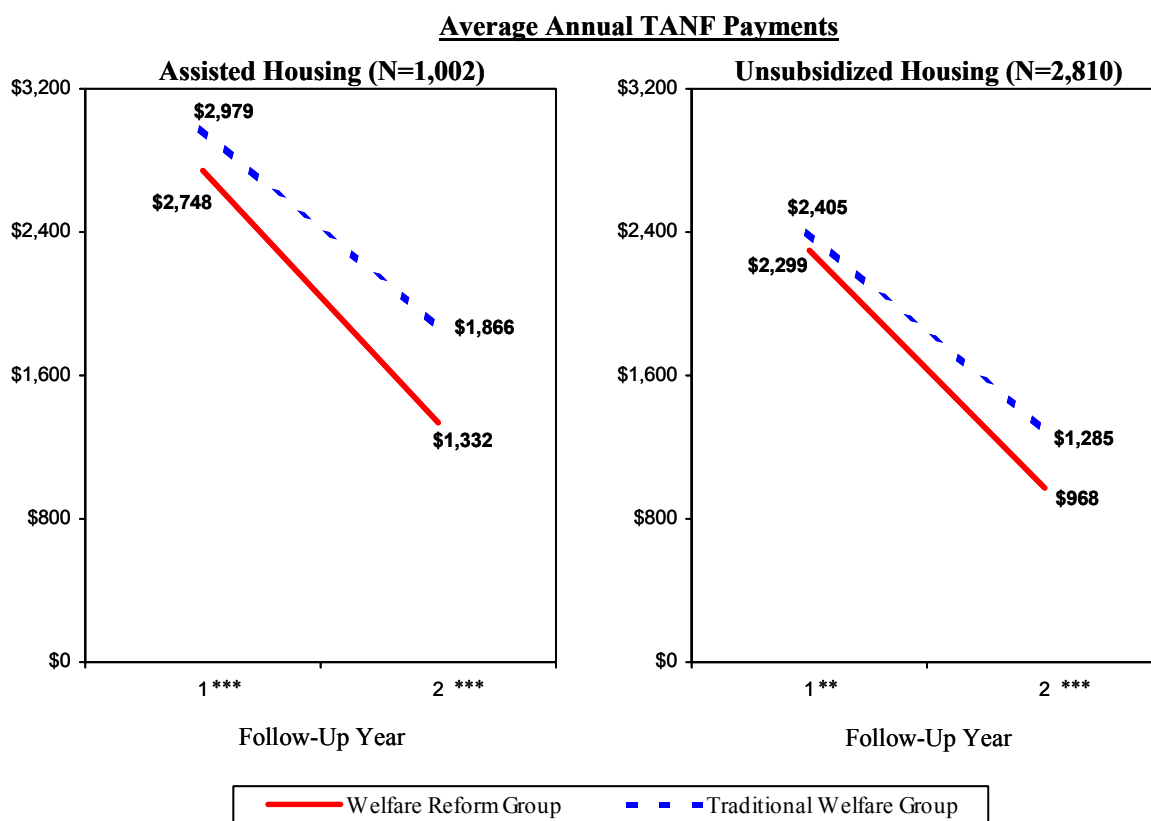


Average Annual Earnings



Data Sources: Administrative records from the Delaware Client Information System and Delaware Unemployment Insurance Records. Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 3.8
Average Annual TANF Payments by Welfare Reform/Traditional Welfare Group and Housing Status at Baseline, Delaware



Data Sources: Administrative records from the Delaware Client Information System and Delaware Unemployment Insurance Records. Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

3.2 Impacts of Welfare Reform on Time Spent in Public Housing or Using Vouchers

The previous section examined how welfare reform affected families in different housing situations in terms of their employment, income, and receipt of public assistance. In this section, because of the availability of longitudinal MTCS data, we are able to estimate the impacts of welfare reform on the use of public housing and vouchers.²⁴ In addition, we explore welfare reform’s impact on “self-sufficiency” for families with housing assistance at baseline; that is, the extent to which welfare reform increased the proportion of families whose case head is employed and who leave both welfare and housing assistance.

²⁴ We do not examine how welfare reform affects the incomes of those households that *remain* in public housing, which is relevant to the costs of the public housing subsidy system. See Connell, Devine and Rubin (1998).

This section presents results only for the early cohort in Indiana because it has the longest follow-up period available. To create the longitudinal file for this analysis, we matched Indiana welfare records by social security number to six files of MTCS data (December 1996, May 1997, May 1998, May 1999, May 2000, and May 2001) to determine whether, for each year of the follow-up period, the sample member was receiving housing assistance. Because TRACS data were not available over the same time period, the analysis is restricted to estimating the effects of welfare reform on time spent in public housing or using vouchers, and does not include the effects on time spent in Section 8 projects.²⁵

It is difficult to predict how welfare reform might affect the decision about whether to continue receiving housing assistance. Welfare reform policies are designed to increase employment rates and earnings among welfare recipients. Higher earnings increase the likelihood that a family will have sufficient income to obtain private unsubsidized housing.²⁶ Increased pressure to get and keep a job could also cause welfare recipients to leave public housing developments to move closer to sources of employment.²⁷

Welfare reform could cause changes in family structure that could lead to changes in housing arrangements.²⁸ For example, if welfare reform increases marriage or cohabitation rates, the consequent increase in income might cause some families to move from subsidized to unsubsidized housing. Although the issue has not been thoroughly studied, there are indications that family structure has a substantial effect on exits from housing assistance. For example, married couples are more likely to leave assisted housing than households headed by a single adult (Buron *et al.* 2002).

On the other hand, welfare reform increases the risk that a recipient will be without a source of income in future years. Sanctions and time limits both could cut off recipients from a previously stable income stream. This decreased income security could lead to lower rates of exit from housing assistance among welfare recipients anxious about entering the private housing market, where decreases in income are not offset by decreases in rent.

²⁵ The procedure for defining follow-up years for the early Indiana cohort using the MTCS files is very similar to how baseline definitions of housing assistance was defined. Appendix A describes this procedure. We only considered movements in and out of public housing, or using vouchers, but did not account for switches from public housing to vouchers and vice versa.

²⁶ Quane, Rankin, and Joshi (2002) report that a majority of survey respondents in Boston, Chicago and San Antonio in every housing assistance category—not just public housing—would likely change neighborhoods, provided they had the financial means to do so.

²⁷ This point is less applicable to families who use vouchers.

²⁸ Bitler, Gelbach, and Hoynes (2002) find that welfare reform has had large effects on some important measures of living arrangements, including household size, parental co-residence among children, and marital status among women.

Impacts on Time Spent in Public Housing

Exhibit 3.9 shows the percentage of public housing residents from the early cohort in Indiana who were still living in public housing one to five years after random assignment. Welfare reform appears to accelerate the rate of exit from public housing. In the first two years after random assignment, more treatment than control group members leave public housing. But by year five, control group members have caught up: 76 percent of both groups have exited by this point. Nevertheless, the faster rate of exit among the Welfare Reform group decreases the average length of time this group spends in public housing.

To determine how exits from public housing were combined with employment and exits from welfare, we examined two joint outcomes—leaving both public housing and welfare, and leaving public housing and being employed. Exhibits 3.10 and 3.11 show the results of these analyses. Welfare reform increased the proportion of Welfare Reform group members who left both welfare and public housing. Welfare reform also appeared to increase the proportion of Welfare Reform group members who had left public housing and were employed, although impacts were not statistically significant.

We then examined all three impacts together—leaving public housing, leaving welfare receipt, and being employed. Exhibit 3.12 shows that, among welfare recipients living in public housing at the time of random assignment, welfare reform increased the proportion who were simultaneously employed, not receiving welfare, and no longer living in public housing—a proxy measure of self-sufficiency.²⁹ This difference emerges in the first year of follow-up and appears to persist over all five years, although it is statistically significant only in the first and third years of follow-up.

Impacts on Time Spent Using Vouchers

A parallel analysis was performed for families using vouchers in the early Indiana cohort. For families using vouchers at baseline, we examined how long they continued to use vouchers and whether they combined leaving the voucher program with leaving welfare and being employed. No significant differences in exits from the voucher program between the Welfare Reform group and Traditional Welfare group were found for years 1 to 4. In year 5, however, welfare reform caused a significant decrease in voucher use: only 34 percent of Welfare Reform group members used vouchers, compared to 41 percent of Traditional Welfare group members (Exhibit 3.13).

It is difficult to pinpoint the reason behind the year 5 impact on voucher use. Because there were no large increases in earnings or employment impacts for this group between years 3 and 5, it is unlikely that exits from housing assistance were caused by parallel changes in earnings or employment. One possibility is that treatment group members took some time to feel that they were “back on their feet” and were ready to leave housing assistance only after they considered

²⁹ Given that for the early Indiana cohort, no group has annual average earnings above \$8,000, including at year 5, the term “self-sufficient” could be potentially misleading. However, it is worth noting that an average earnings of \$8,000 does not preclude the possibility of some “self-sufficient” families from earning much more, as many families earn close to \$0.

their lives more stabilized. Without such stability, low-income families may use housing assistance as a buffer against periodic dips in income. Another possibility is the effect of the welfare program's increased earned income disregard, which would have taken effect for those members of the early Indiana cohort still on TANF in year 5. The disregard could have increased the voucher program's effective tax rate on earnings, inducing some families to decide to discontinue using vouchers.³⁰

The analysis of welfare reform's impacts on joint outcomes over time—off welfare and not using vouchers, and working and not using vouchers—revealed that welfare reform increased the proportion of families who left welfare and gave up their vouchers, and the proportion of families who were employed and gave up their vouchers. This can be seen in Exhibits 3.14 and 3.15, which show the gap between the Welfare Reform group and the Traditional Welfare group widening steadily over time. Although impacts on these two joint outcomes are not significant in years 1 to 4, they are significant in year 5.

Using as our proxy measure of self-sufficiency—the joint outcome of being employed, having left welfare, and not using vouchers—welfare reform increased the proportion of families who became “self-sufficient” (Exhibit 3.16). By year 5, the impact of welfare reform was 8 percentage points and statistically significant.

³⁰ When the effective tax on earnings from the welfare program is very high, the additional tax from housing assistance is negligible. The disregard sharply reduced the TANF tax on earnings, thereby increasing the voucher program's effective tax on earnings (Khadduri, Shroder, and Steffen forthcoming).

Exhibit 3.9

Percentage of Families Still in Public Housing by Years since Random Assignment, for Families in Public Housing at Random Assignment, Early Indiana Cohort (N=3,394)

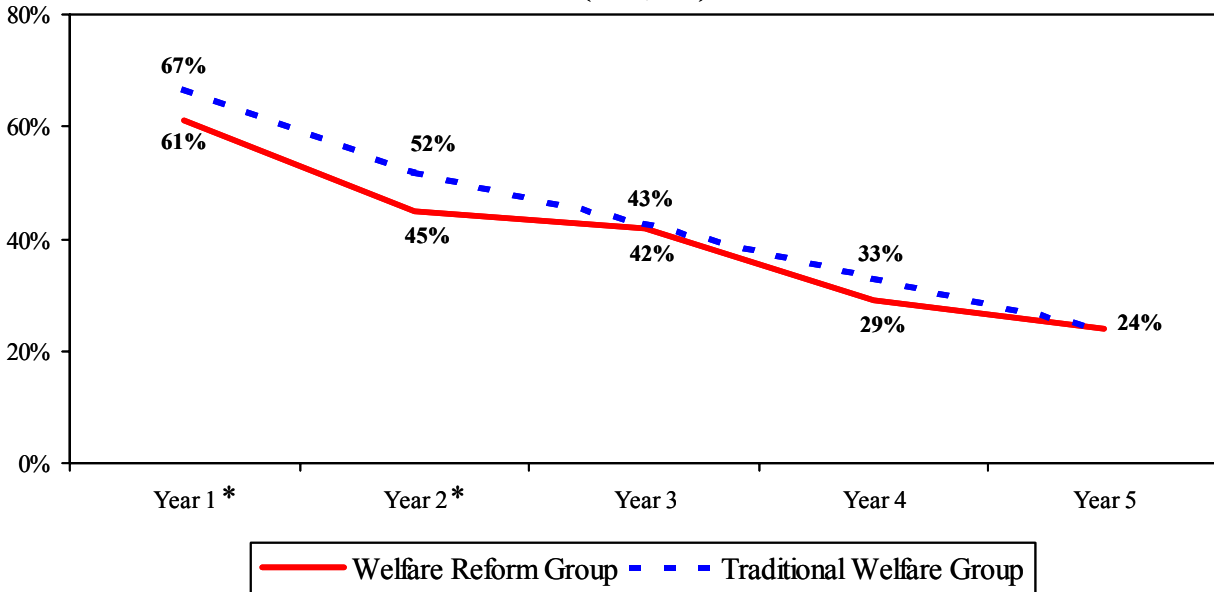
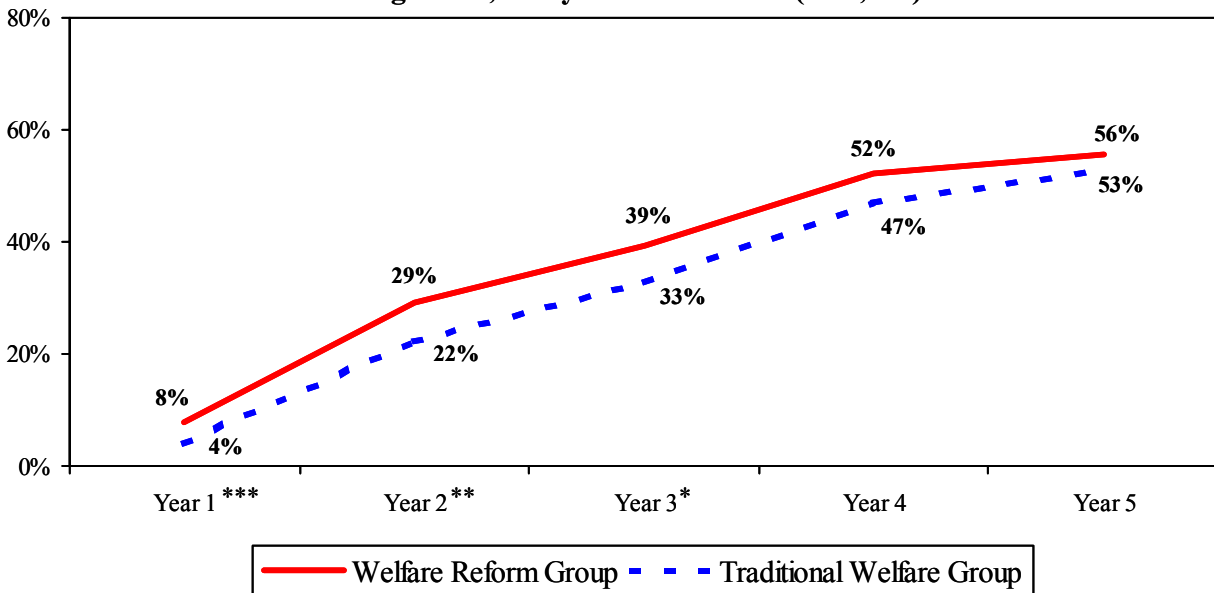


Exhibit 3.10

Percentage of Families without AFDC/TANF and Not Living in Public Housing by Years since Random Assignment, for Families in Public Housing at Random Assignment, Early Indiana Cohort (N=3,394)



DATA SOURCES: Administrative records from the Indiana Client Eligibility System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS). Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 3.11

Percentage of Families Employed and Not Living in Public Housing by Years since Random Assignment, for Families in Public Housing at Random Assignment, Early Indiana Cohort (N=3,394)

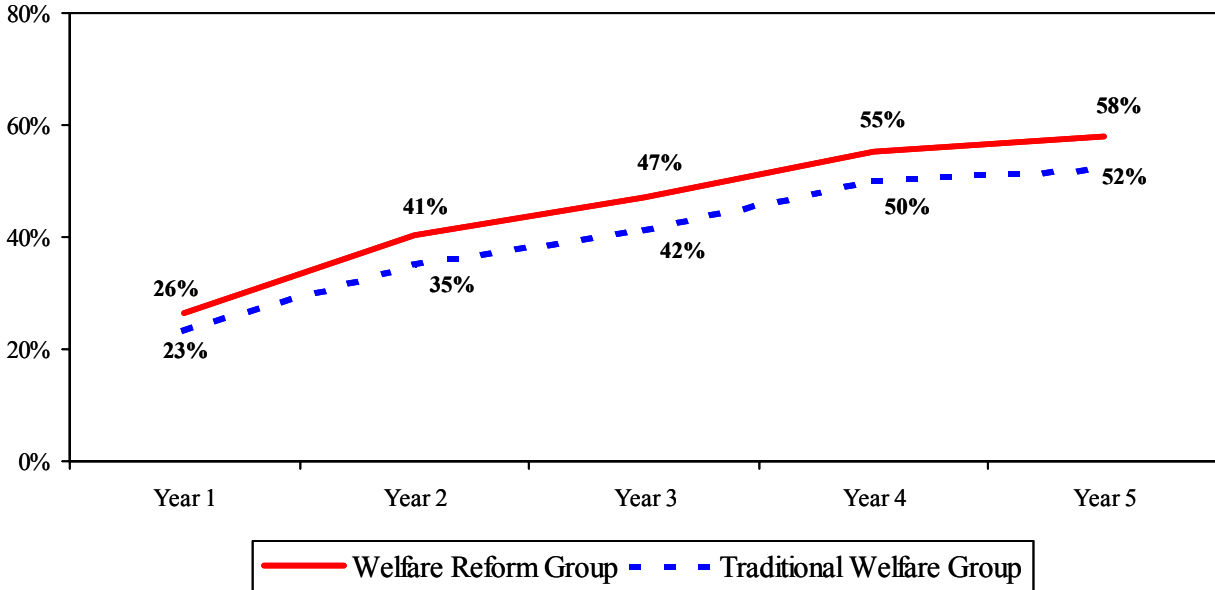
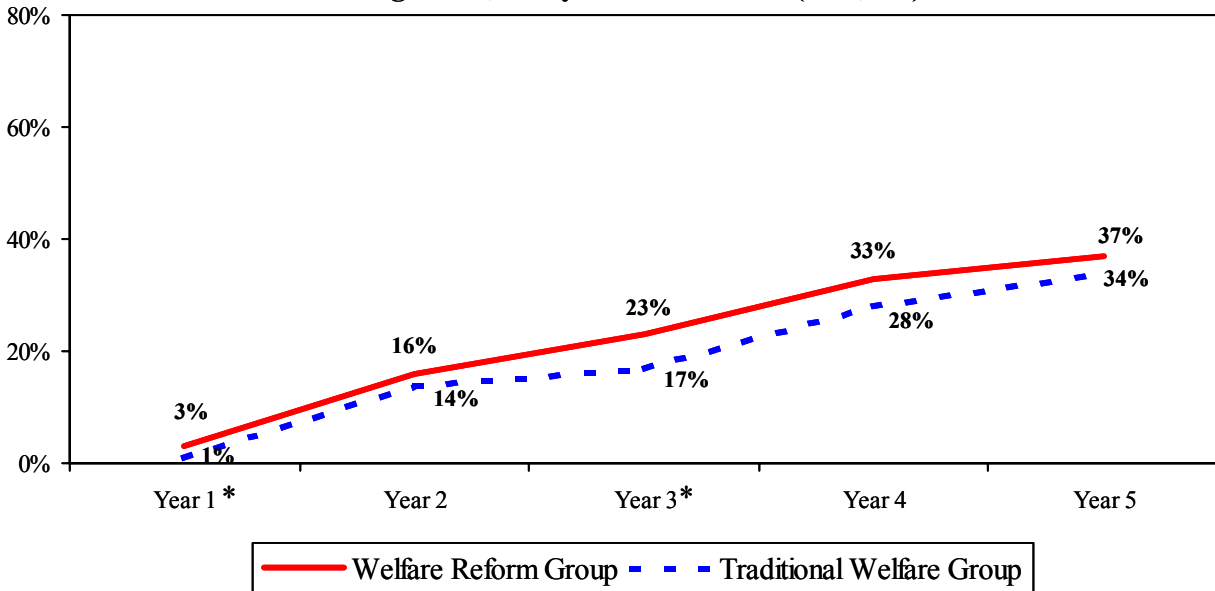


Exhibit 3.12

Percentage of Families Employed, without AFDC/TANF and Not Living in Public Housing by Years since Random Assignment, for Families in Public Housing at Random Assignment, Early Indiana Cohort (N=3,394)



DATA SOURCES: Administrative records from the Indiana Client Eligibility System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS). Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 3.13

Percentage of Families Still Using Vouchers by Years since Random Assignment, for Families Using Vouchers at Random Assignment, Early Indiana Cohort (N=3,478)

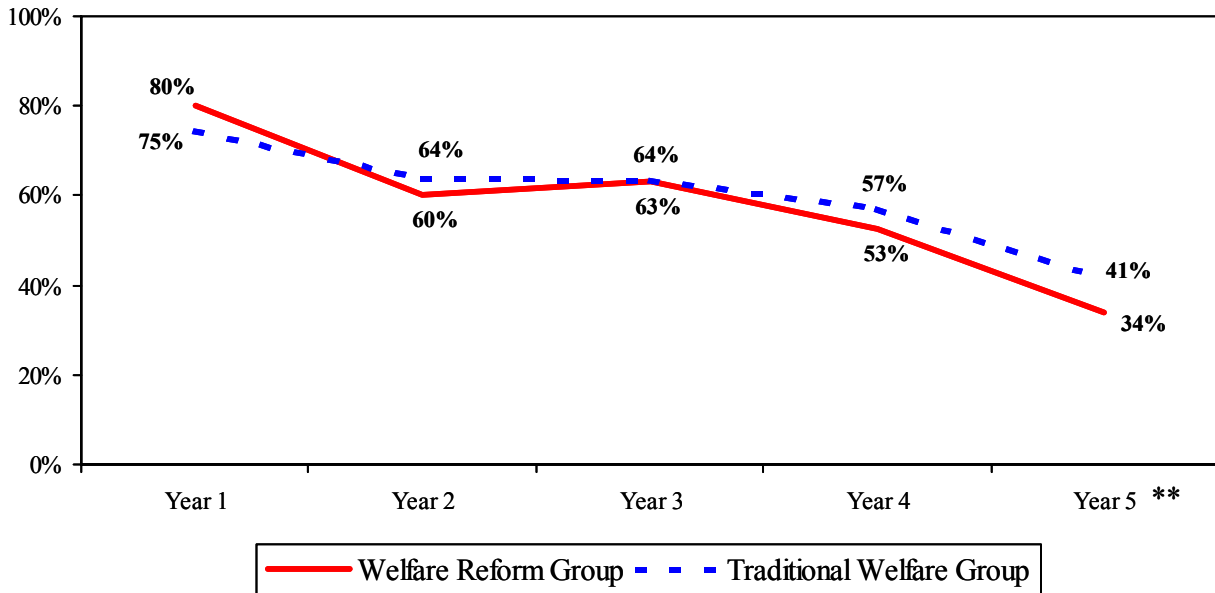
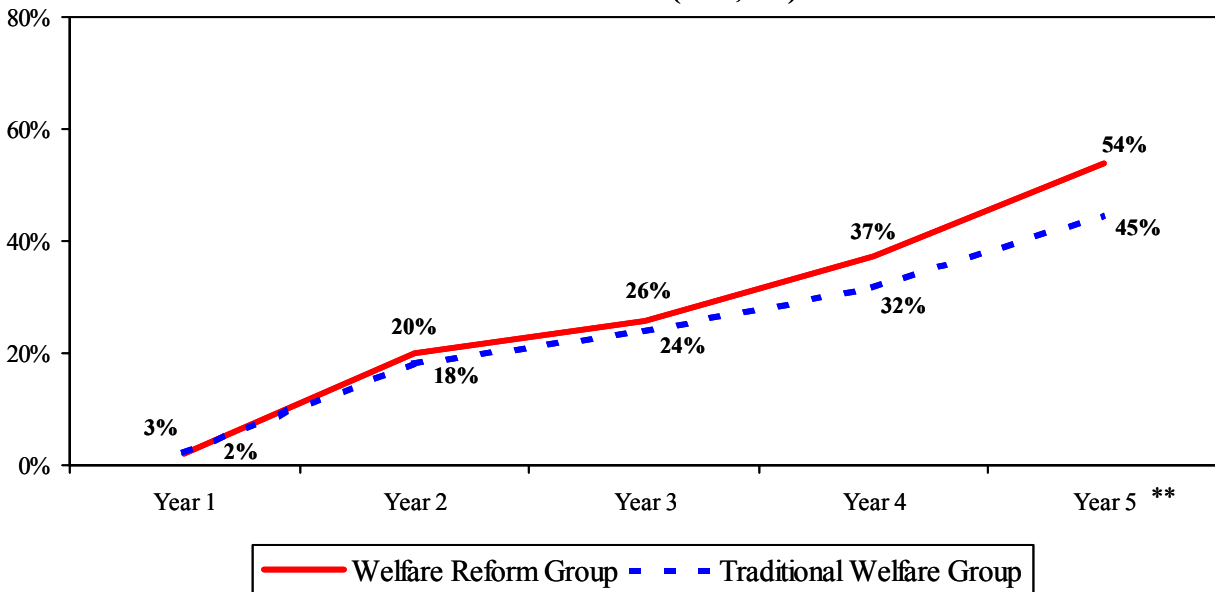


Exhibit 3.14

Percentage of Families without AFDC/TANF and Not Using Vouchers by Years since Random Assignment, for Families Using Vouchers at Random Assignment, Early Indiana Cohort (N=3,478)



DATA SOURCES: Administrative records from the Indiana Client Eligibility System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS). Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 3.15

Percentage of Families Employed and Not Using Vouchers by Years since Random Assignment, for Families Using Vouchers at Random Assignment, Early Indiana Cohort (N=3,478)

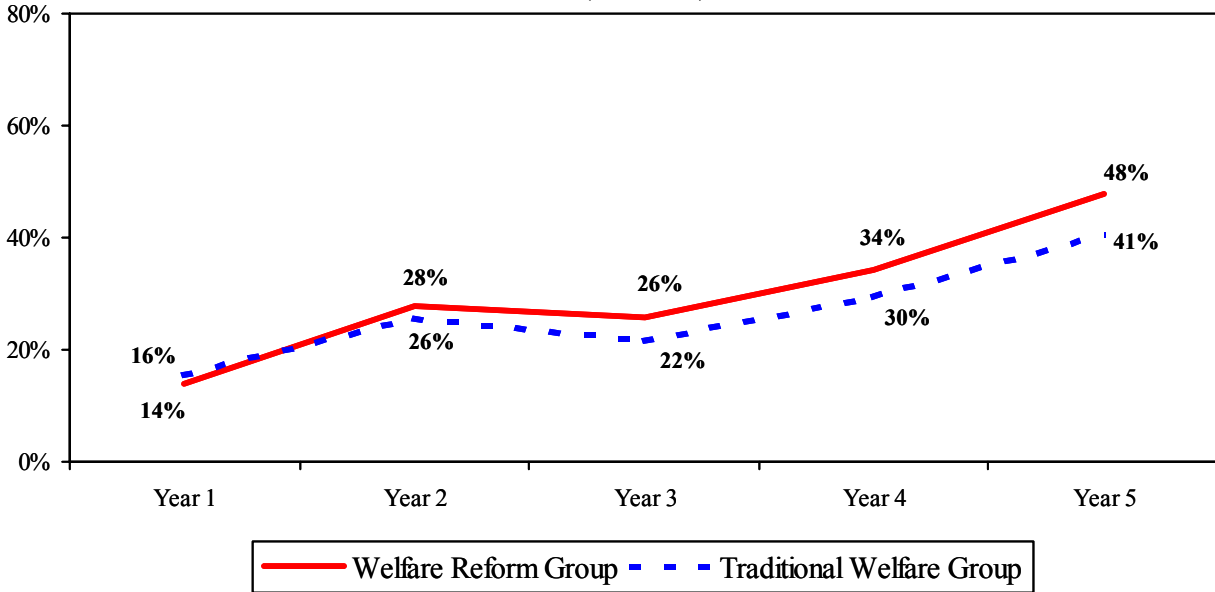
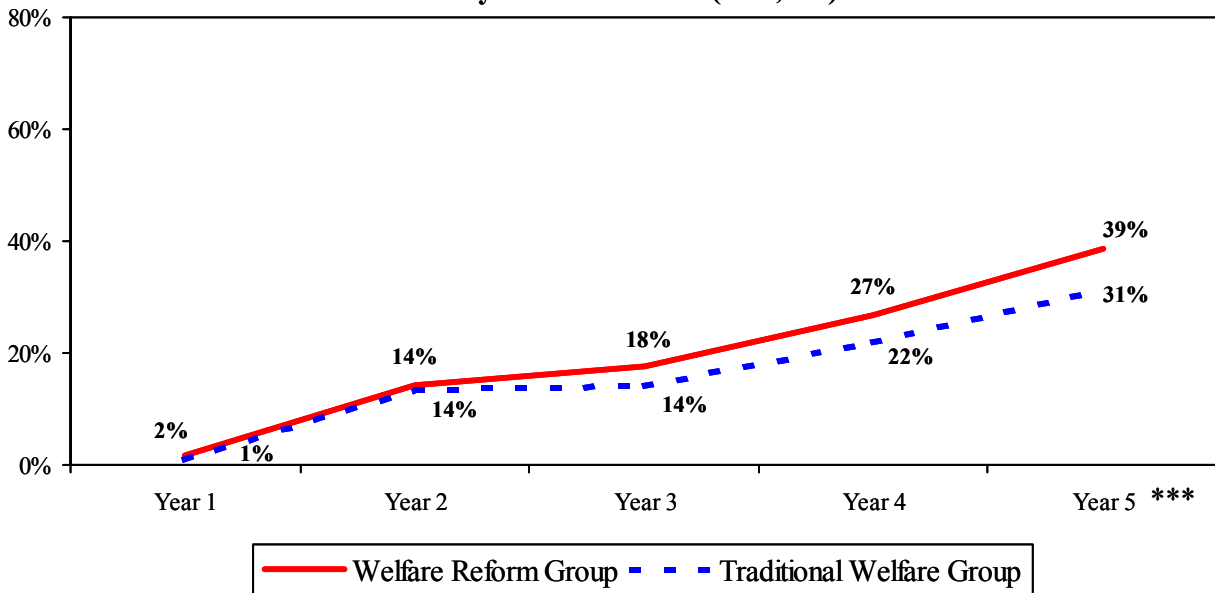


Exhibit 3.16

Percentage of Families Employed, without AFDC/TANF and Not Using Vouchers by Years since Random Assignment, for Families Using Vouchers at Random Assignment, Early Indiana Cohort (N=3,478)



DATA SOURCES: Administrative records from the Indiana Client Eligibility System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS). Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

3.3 Conclusion

Welfare reform increased earnings and employment, and decreased welfare use for welfare recipients with housing assistance in all three cohorts examined in this study. However, compared with the experimental findings of welfare reform studies conducted in Atlanta, Columbus, and Minnesota, we find less evidence that welfare reform has a greater impact for families with housing assistance compared with those who live in private, unsubsidized housing. There were few significant differences in impacts between families with and without housing assistance.

The main exception was for the later cohort in Indiana. For that cohort, welfare reform increased employment and earnings more for families with housing assistance than for families without housing assistance. In addition, in Delaware TANF reductions were larger for HUD-assisted compared to unassisted families.

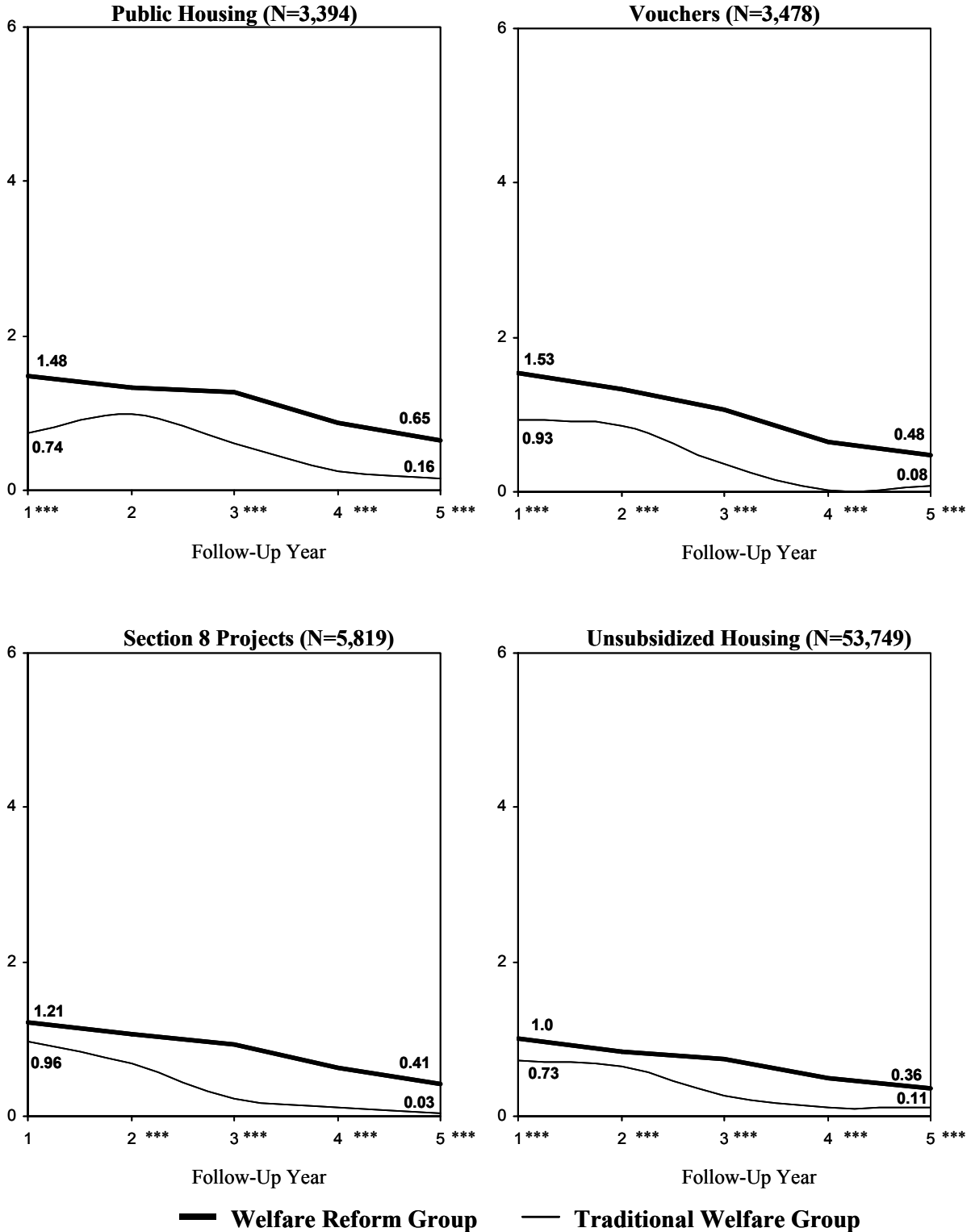
It is unclear why impacts were larger for families with housing assistance in the later Indiana cohort. One hypothesis is that families with housing assistance in that cohort had higher rates of participation in employment and training activities than families without housing assistance. Although this hypothesis is borne out, the same pattern holds for the early Indiana cohort, for which there were not subgroup differences in impact (Exhibits 3.17 and 3.18).³¹

For families in public housing or using vouchers at baseline in the early Indiana cohort, we found that welfare reform reduced time spent in public housing or using vouchers. We also found that welfare reform increased the proportion of families with housing assistance who over time were employed, left welfare and left public housing or the voucher program.

³¹ One possible reason why assisted households had substantially higher levels of participation in employment and training activities than unassisted households is that the former group spent more time on welfare. Other things being equal, more time on TANF increases the likelihood of participating in employment and training activities. It is also possible that assisted households were less likely than other households to be exempt from employment and training requirements.

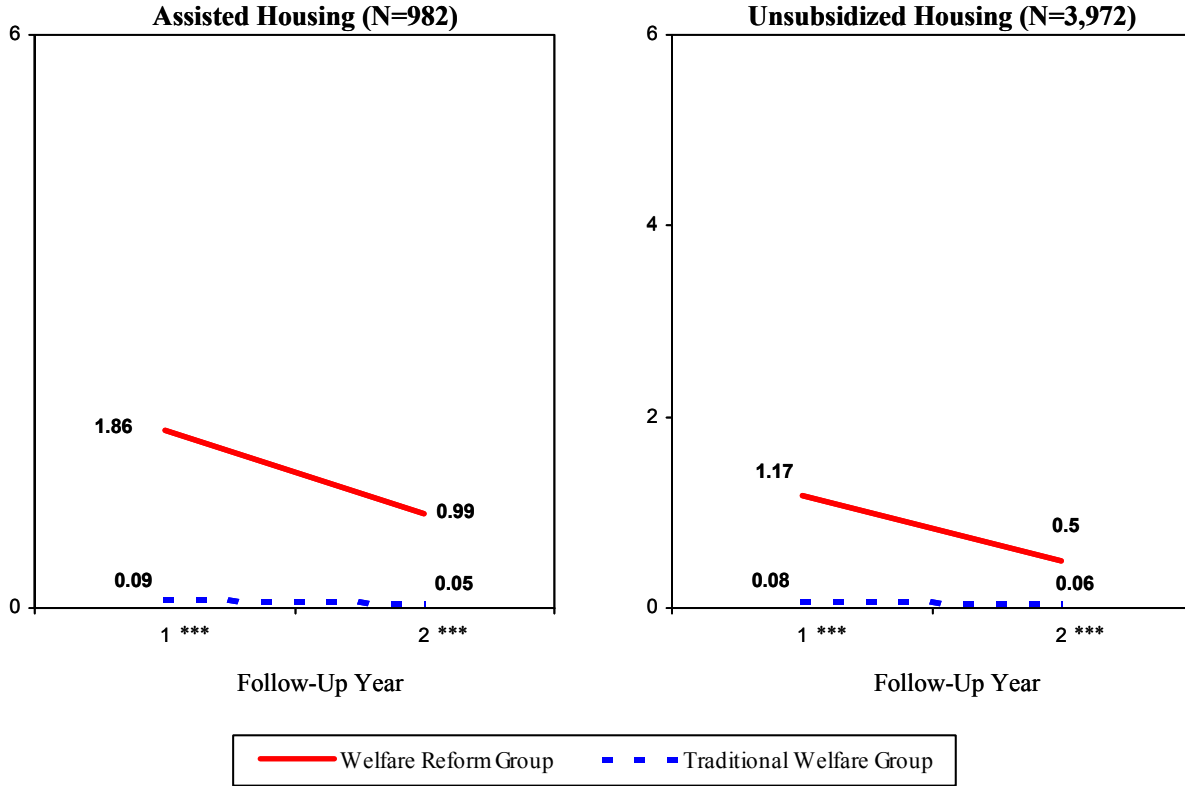
Exhibit 3.17

Average Annual Number of Months of Participation in Employment and Training Activities by Welfare Reform/Traditional Welfare Group and Housing Status at Baseline, Early Indiana Cohort



Data Sources: Administrative records from the Indiana Client Eligibility System. Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 3.18
Average Annual Number of Months of Participation in Employment and Training Activities
by Welfare Reform/Traditional Welfare Group and Housing Status at Baseline, Later
Indiana Cohort



Data Sources: Administrative records from the Indiana Client Eligibility System. Differences in means significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Chapter 4

Non-Experimental Findings

In this chapter, we move away from making use of the experimental design of the Indiana and Delaware welfare reform studies, because we are no longer testing the impact of welfare reform on recipient outcomes. Although experiments provide unbiased and reliable evidence of whether an intervention is effective, they are less useful in addressing the question of why it is effective or ineffective. Carefully performed non-experimental analysis can help uncover some clues.

In section 4.1, we examine how families' time in housing assistance since baseline affects their subsequent employment, earnings, and welfare receipt. Section 4.2 compares employment and welfare outcomes for treatment and control group families with and without housing assistance at the time of random assignment. Finally, section 4.3 performs a descriptive analysis of survey outcomes relating to financial strain and neighborhood characteristics for families with and without housing assistance at the time of the survey.

4.1 What is the Relationship Between Years in Public Housing or Using Vouchers and Employment and Welfare Outcomes?

The previous chapter focused on the impacts of welfare reform on welfare recipients with and without housing assistance. In this section, we attempt to further our understanding of the interaction of housing assistance and welfare reform by examining the relationship between the number of years spent in assisted housing and recipients' employment and welfare outcomes.

The focus of this section is not the impact of welfare reform, but whether time spent in assisted housing improves economic outcomes for welfare recipients who are subject to welfare reform. Examining the relationship between length of time receiving housing assistance and economic outcomes for families with housing assistance at baseline will shed additional light on whether housing assistance is helping welfare recipients become employed, increase their earnings, and decrease their receipt of welfare income.

4.1.1 Methods

Because we are not testing the impact of welfare reform, we only include treatment group members in this section of the analysis.³² Control group members are not pooled together with treatment group members in the analysis because including them in this non-experimental analysis could give rise to bias. Although random assignment guarantees an equal distribution of observable and unobservable characteristics between the treatment and control group at baseline, they do not do so for characteristics that occur after random assignment. Since tenure of treatment group members in public housing or using vouchers is measured over a period that includes time after random assignment, the experience of experimental and control group members may be systematically different.

³² Although a parallel analysis could be performed for the control group, the sample sizes of the control group in public housing (187 families) or using vouchers (294 families) in the early Indiana cohort are too small for multivariate analysis to be very meaningful.

To mitigate sample selection issues when comparisons of outcomes for families with housing assistance are made with families without housing assistance, we only include families with housing assistance at baseline in our sample.³³ No comparison groups are used. The issue we are studying, therefore, is the effect of length of tenure in housing assistance, not the effect of having housing assistance at all.

One of the central problems in any non-experimental analysis is ensuring that we have identified the correct direction of causality. For example, suppose we are interested in analyzing the effects of housing assistance on employment. We face difficulty interpreting our results, because housing affects employment, but employment also affects housing. We would be wrong to attribute the full amount of the estimated relationship to the impact of housing status *on* employment, when much of the relationship could be the impact of employment on housing status. Any regression estimates that are based on contemporaneous housing and employment statuses will be biased because of the two-way causality.

We avoid the problem of two-way causality by testing the impact of *previous years* of housing status on *current year* economic outcomes. For example, to estimate the effects of time spent in public housing on earnings in year 5, we use exposure to public housing from years 1 to 4 as our key independent variable. This helps to ensure that ‘past’ information is used to explain ‘future’ outcomes.

4.1.2 Data

In this section, we focus on the early Indiana cohort because we have five years of post-intervention employment and welfare follow-up data. Analysis files for this section were constructed by merging the Indiana data to six files of MTCS data (December 1996, May 1997, May 1998, May 1999, May 2000, May 2001) in order to create a variable for the duration of housing assistance. As TRACS data were not available over the same time period, the analysis is restricted to estimating the effects of time spent in public housing or using vouchers, but not the effects of time spent in Section 8 projects.

4.1.3 Outcomes and Independent Variables

We analyze three economic outcome measures in this section: earnings, employment and welfare receipt. The means of these outcome variables are shown in Exhibits 4.1 and 4.2.³⁴

The key independent variable in our model is time spent in public housing or using vouchers. In addition, we use the following independent variables to control for other household characteristics: time spent on welfare, race, sex, age of youngest child, education, age, marital status, family size, county dummies, earnings history, and welfare history. Note that “welfare history” refers to the

³³ In addition, focusing on families with housing assistance at baseline as opposed to families ever with any housing assistance is an attempt to control for differences in calendar time of exposure to housing assistance. For example, one year spent in public housing in year 1 and its effect on outcomes in year 5 is different from one year spent in public housing in year 4. Conditioning the data in this way is reasonable because an examination of the data suggests that there are few cyclers that came on and off public housing or using vouchers repeatedly, and families tend to either continue to use or stop using housing assistance for good.

³⁴ The independent variables are expressed as: annual earnings, whether or not the family head is employed at any time in the relevant year, and whether or not the family receives welfare in the relevant year.

whether a recipient was on welfare prior to the introduction of welfare reform, while “time spent on welfare” refers to the number of years a recipient spends on welfare after the introduction of welfare reform.

4.1.4 Regression Results

Exhibit 4.3 presents the regression results for the effects of *time spent in public housing* on earnings, employment, and welfare receipt for welfare recipients who were living in public housing at baseline. The first column in the top panel (Model 1) shows the results of the regression of earnings in follow-up year 5 on time spent in public housing for follow-up years 1 through 4, time spent on welfare for follow-up years 1 through 4, and other characteristics (output not shown). Model 2 uses a log specification of earnings, a technique that is used to deal with dependent variables that have skewed distributions, such as earnings in this case. Model 3 examines employment in year 5 as the outcome, and Model 4 examines welfare receipt in year 5 as the outcome.

The Impact of Time Spent in Public Housing on Economic Outcomes

The results provide striking evidence that length of receipt of housing assistance is associated with improved economic outcomes among welfare recipients exposed to welfare reform. An additional year spent in public housing between years 1 to 4 is associated with an *increase of \$450* in earnings in year 5 (model 1)³⁵ and also increases employment in year 5 by 2 percent (model 3). Similarly, an additional year spent in public housing between years 1 to 4 is associated with a 1 percent decrease in welfare receipt in year 5 (model 4). All of these results are statistically significant.

³⁵ The direction of the results are similar in Model 2, where the log of earnings is the outcome: additional time in public housing increases earnings significantly in year 5, and additional time on welfare significantly decreases earnings. In this specification, time spent in public housing is shown to have an even larger positive effect on earnings. An additional year spent in public housing, holding all the other independent variables constant, increases earnings in year 5 by 20 percent, which is approximately \$1,300.

Exhibit 4.1
Mean Values of Outcome Variables Used in Regression, Welfare Reform
Group Members who were Public Housing Residents at Baseline
(N=3,206)

Outcome	Mean
Earnings year 1	2,502
Earnings year 2	4,086
Earnings year 3	5,149
Earnings year 4	5,886
Earnings year 5	6,710
Employment rate year 1	.65
Employment rate year 2	.69
Employment rate year 3	.71
Employment rate year 4	.70
Employment rate year 5	.69
Welfare receipt rate year 1	.92
Welfare receipt rate year 2	.62
Welfare receipt rate year 3	.49
Welfare receipt rate year 4	.39
Welfare receipt rate year 5	.35

Exhibit 4.2
Mean Values of Outcome Variables Used in Regression, Welfare Reform
Group Members who were Using Vouchers at Baseline
(N=3,302)

Outcome	Mean
Earnings year 1	3,055
Earnings year 2	4,733
Earnings year 3	5,870
Earnings year 4	6,806
Earnings year 5	7,664
Employment rate year 1	.69
Employment rate year 2	.71
Employment rate year 3	.74
Employment rate year 4	.73
Employment rate year 5	.72
Welfare receipt rate year 1	.91
Welfare receipt rate year 2	.54
Welfare receipt rate year 3	.39
Welfare receipt rate year 4	.29
Welfare receipt rate year 5	.25

Note: Earnings are annual earnings of the welfare case head, employment rate is whether or not the family head is employed at any time in the relevant year, and welfare receipt is whether or not the family receives welfare in the relevant year.

From the same models, we see that an additional year on welfare from years 1 to 4 leads to a \$1,227 decrease in earnings in year 5, and, as expected, is associated with a significant increase in welfare receipt in year 5 (19 percent). Both of these results are statistically significant.³⁶

Models 5 through 16 are essentially replications of Models 1 to 4, only differing in that the time frame of the outcomes and key independent variables are ‘laddered’ downwards. For example, outcomes in year 4 were regressed on variables from years 1 to 3. These were estimated as a test of robustness for the findings in Models 1 to 4. The fact that all the models show positive and significant coefficients on earnings and employment suggests that the findings are robust. The association between an additional year spent in public housing and welfare receipt was found to be negative and significant in models 8 and 12, but not model 16.³⁷

The Impact of Time Spent using Vouchers on Economic Outcomes

Exhibit 4.4 is similar to Exhibit 4.3, except that *vouchers* are now the focus instead of public housing. Regressions were estimated of time spent using vouchers on earnings, employment, and welfare receipt for welfare reform group members who were using vouchers at baseline.

The results are similar to the results found for public housing residents – time spent using vouchers is associated with increased earnings and employment and significantly decreased welfare receipt. An additional year of time spent using vouchers in years 1 to 4 is associated with an increase in earnings of \$710 at year 5 (model 1), and an increase in employment of 3 percent at year 5 (model 3). Similarly, an additional year spent using vouchers in years 1 to 4 is associated with a 2 percent decrease in welfare receipt at year 5 (model 4). All of these results are statistically significant.

As in the models testing the impact of public housing on economic outcomes, the same checks for robustness revealed that positive and significant coefficients were consistently found for earnings and employment across all models. The association between time spent using vouchers and welfare receipt was less robust—they were not significant in models 12 and 16.

4.1.5 Discussion

In this section, we performed a non-experimental multivariate analysis in an attempt to capture the relationship between time spent in public housing or using vouchers on earnings,

³⁶ An additional year on welfare in years 1–4 does not have a statistically significant impact on the probability of employment in year 5.

³⁷ We also estimated versions of regression models 1 to 4 that excluded years on welfare as an independent variable. For the alternative versions of models 1 to 3, the effect of exposure to public housing was still positive and significant (but smaller in magnitude). However, for model 4 (welfare receipt as the outcome), the effect of time spent in public housing in this case changed from being negative and significant to becoming positive and significant. This highlights the importance of including years on welfare in the regression model, because by omitting it, years in public housing could become a proxy measure for it.

employment, and welfare receipt. The results suggest that time spent in public housing or using vouchers is associated with higher earnings and higher employment, and also likely with lower welfare receipt (although this finding is less robust).

A possible interpretation of this evidence is a causal one: receipt of public housing or the use of vouchers causes higher employment and earnings, and lower welfare receipt. This might happen if the stability that housing assistance brings allows recipients to “get back on their feet” and make the transition from welfare to work. The increased employment and earnings could account for the decrease in welfare receipt.

Newman and Harkness (2002) found similar results using a sample from the Panel Study of Income Dynamics. They examined the effects of living in public housing as a child on subsequent young adult outcomes, and found that every year of public housing residence between ages 10 and 16 is estimated to increase the probability of working between ages 25 and 27 by 7 percentage points, and to increase annual earnings between ages 25 and 27 by \$1,861. Using a sample of non-working people (non-work was defined as working less than 320 hours per year) from the Panel Study of Income Dynamics, Stoloff (2002) found that there was no significant effect of living in public housing on the likelihood of a transition to work. However, she found a significant, positive, interaction between public housing residence and AFDC receipt. Living in public housing and receiving AFDC in a given year increased the odds of a transition to work.

Given the non-experimental design of this analysis, it is also possible that the observed association between receipt of housing assistance and employment, earnings and welfare receipt is *not* causal. In this case, there could be some omitted variables that account for both the increased time in housing assistance and the increased employment, increased earnings, and decreased welfare receipt. For example, if some welfare recipients have more “personal stability,” and this stability causes them to remain in housing assistance and remain employed, then the unobserved characteristic—and not housing assistance itself—could be responsible for the higher employment and earnings, or lower welfare receipt rates.

Further research is needed to determine if there indeed exists a causal relationship between the duration of time spent on housing assistance and subsequent positive labor market outcomes for welfare recipients. If such a relationship exists, including housing as a core component could help achieve the objectives of welfare reform programs.

Exhibit 4.3
Regression of Annual Earnings, Employment and Welfare Receipt on Tenure in
Public Housing, for Welfare Reform Group Members who were
Public Housing Residents at Baseline
(N=3,206)

Model	1	2	3	4
Outcome	Earnings year 5	Log Earnings year 5	Employment year 5	Welfare receipt year 5
Coefficient				
Years in Public Housing for years 1 to 4	449.9***	.20***	.022***	-.008*
Years on Welfare for years 1 to 4	-1227.1***	-.19***	-.003	.19***

Model	5	6	7	8
Outcome	Earnings year 4	Log Earnings year 4	Employment year 4	Welfare receipt year 4
Coefficient				
Years in Public Housing for years 1 to 3	507.1***	.21***	.021***	-.008*
Years on Welfare for years 1 to 3	-1318.4***	-.25***	-.006	.29***

Model	9	10	11	12
Outcome	Earnings year 3	Log Earnings year 3	Employment year 3	Welfare receipt year 3
Coefficient				
Years in Public Housing for years 1 to 2	567.6***	.28***	.029***	-.011**
Years on Welfare for years 1 to 2	-1371.4***	-.29***	-.005	.32***

Model	13	14	15	16
Outcome	Earnings year 2	Log Earnings year 2	Employment year 2	Welfare receipt year 2
Coefficient				
In Public Housing in year 1	333.9***	.20*	.034**	.017
On Welfare in year 1	-1138.2***	-.18	-.004	.43***

Other covariates in each model: race, sex, age of youngest child, education, age, age squared, marital status, family size, county dummies, earnings history, employment history, and welfare history. Coefficients are significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 4.4
Regression of Annual Earnings, Employment and Welfare Receipt on Tenure in Tenant-Based Housing, for Welfare Reform Group Members who were Using Vouchers at Baseline (N=3,302)

Model	1	2	3	4
Outcome	Earnings year 5	Log Earnings year 5	Employment year 5	Welfare receipt year 5
Coefficient				
Years using Vouchers for years 1 to 4	710.6***	.28***	.029***	-.016***
Years on Welfare for years 1 to 4	-1536.6***	-.31***	-.020***	.17***

Model	5	6	7	8
Outcome	Earnings year 4	Log Earnings year 4	Employment year 4	Welfare receipt year 4
Coefficient				
Years using Vouchers for years 1 to 3	595.2***	.28***	.027***	-.014***
Years on Welfare for years 1 to 3	-1505.5***	-.34***	-.020***	.27***

Model	9	10	11	12
Outcome	Earnings year 3	Log Earnings year 3	Employment year 3	Welfare receipt year 3
Coefficient				
Years using Vouchers for years 1 to 2	518.9***	.32***	.036***	-.006
Years on Welfare for years 1 to 2	-1622.1***	-.42***	-.026***	.32***

Model	13	14	15	16
Outcome	Earnings year 2	Log Earnings year 2	Employment year 2	Welfare receipt year 2
Coefficient				
Using Vouchers in year 1	778.9***	.39***	.043**	.022
On Welfare in year 1	-1783.1***	-.71***	-.076***	.39***

Other covariates in each model: race, sex, age of youngest child, education, age, age squared, marital status, family size, county dummies, earnings history, employment history, and welfare history. Coefficients are significant at *** = 1 percent, ** = 5 percent, * = 10 percent.

4.2 Employment and Welfare Outcomes by Housing Status

In section 4.1, we explored the effect that *length of time* receiving housing assistance has on outcomes for families exposed to welfare reform—that is, for treatment group members *with housing assistance*.

In this section, the question we address is how welfare recipients *with housing assistance* compare to welfare recipients *without housing assistance* in terms of employment and welfare outcomes. This analysis makes separate comparisons within members of the control group and within members of the treatment group. The control group outcomes show the pattern of outcomes for families in each housing situation group in the absence of support from the welfare agency to help recipients look or prepare for work. Outcomes for the treatment group show the pattern of outcomes by housing status for families experiencing welfare reform. We classify households by their housing status at baseline and measure whether the household is ever employed during the follow-up period, average total earnings during the follow-up period, average total TANF payments, and average total Food Stamps payments.

Differences in outcomes across families in different housing situations could result from several factors. First, differences in outcomes may be affected by *who* gets housing assistance and *who* gets each type of housing assistance—i.e., by family characteristics that we can measure, such as age, race, or previous employment history. Second, differences in outcomes may be the result of housing assistance or the type of housing assistance. Finally, the difference might be the result from some other factor that we do not measure and which is correlated with housing status. In the analysis presented in this section, we control for differences in *observable* background characteristics among residents by estimating multivariate models.

Key Findings

- For the most part, we found that in the traditional welfare system, welfare recipients with housing assistance did not have lower earnings and were no less likely to be employed than welfare recipients without housing assistance. Families living in Section 8 projects in the early Indiana cohort even had higher five-year average total earnings than families without housing assistance. On the other hand, for control group members in the later Indiana cohort, two-year earnings were lower for families with housing assistance than for families living in private, unsubsidized housing.
- By and large, the pattern of outcomes by housing status for the treatment group was similar to the pattern for the control group. There was one interesting exception. For the early Indiana cohort, significantly higher earnings and employment rates were found for welfare recipients using vouchers in the treatment group, but not in the control group. This suggests a possible positive interactive effect between housing assistance and welfare reform, although such an impact was not evident in the experimental results presented in Chapter 3.
- Families with housing assistance had consistently higher use of welfare and received higher food stamp payments compared to unassisted families.

- Adjusting for differences in observable family characteristics does not change the findings.

4.2.1 Outcomes for the Control Group

Early Indiana Cohort

Exhibit 4.5 presents the control group outcomes for Indiana’s early cohort for families in each housing situation. The top panel presents the coefficients before controlling for differences in characteristics, and the bottom panel after they have been controlled for. Welfare recipients who lived in public housing at baseline had similar rates of employment and similar earnings, when compared with welfare recipients without housing assistance at baseline. This was also the case after differences in characteristics were controlled for: public housing residents were found to have five-year ever-employed rates that were four percent higher than welfare families without housing assistance and five-year earnings that were \$611 higher (although both of these were not statistically significant). On the other hand, public housing residents received significantly more five-year average Food Stamps payments, even after controlling for family characteristics.

Welfare recipients who used vouchers also had five-year earnings and ever-employed rates that were not lower than those of families without housing assistance. Moreover, families in the early Indiana cohort living in Section 8 projects had five-year earnings that were \$3,757 higher than families without housing assistance before controlling for family characteristics, and \$2,876 higher after characteristics were controlled for (both of these were statistically significant).

Later Indiana Cohort

For control group members in the later Indiana cohort, welfare recipients with housing assistance were slightly more likely to be employed, but had lower earnings over the two-year follow-up period than welfare recipients without housing assistance (see Exhibit 4.6). Before controlling for differences in residents’ background characteristics, families with assisted housing had \$2,769 less in two-year earnings than families living in private, unsubsidized housing, but at the same time had two-year ever-employed rates that were seven percent higher (both of these were statistically significant). Even after controlling for differences in background characteristics, the signs of the coefficients for average earnings and ever-employed rates remained different (although the difference in employment rates between families with and without housing assistance was now not statistically significant). A possible explanation for this finding is that more families with assisted housing worked, but they worked fewer hours. Another possibility is that families living in assisted housing may have had fewer high-quality job opportunities and, therefore, received lower wages.

For the later Indiana cohort, average total TANF and Food Stamps payments were significantly higher for families with housing assistance, even after controlling for family characteristics.

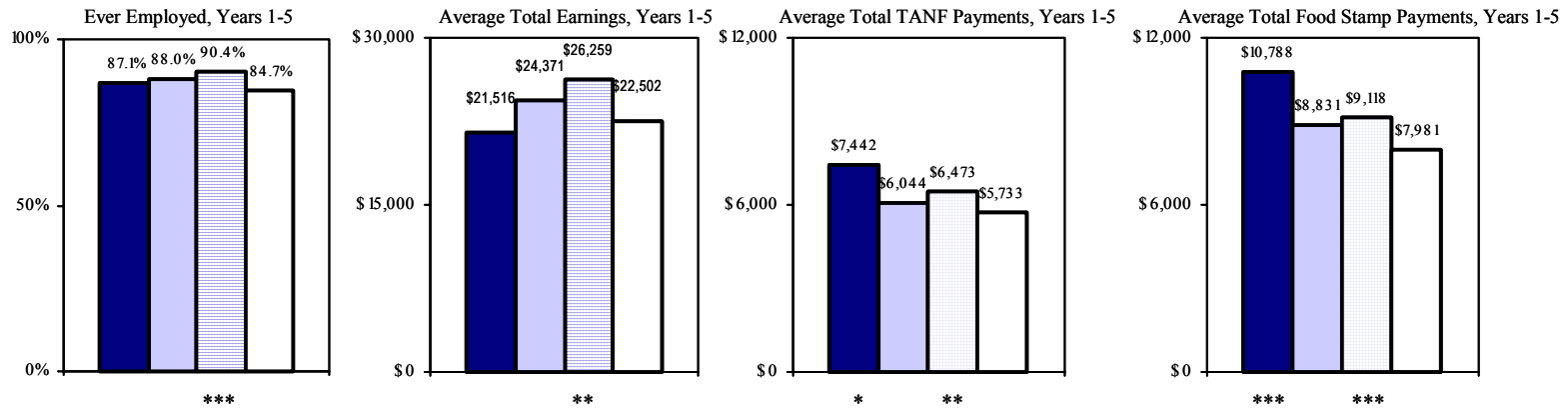
Delaware

For control group members in Delaware, employment rates were higher for families with housing assistance, but earnings over the two-year follow up period were virtually identical to the earnings of families without housing assistance (see Exhibit 4.7). Two-year employment rates were higher than for the assisted families by a significant six percent, even after controlling for differences in family characteristics. There was no significant difference in two-year average earnings, before or after controlling for characteristics.

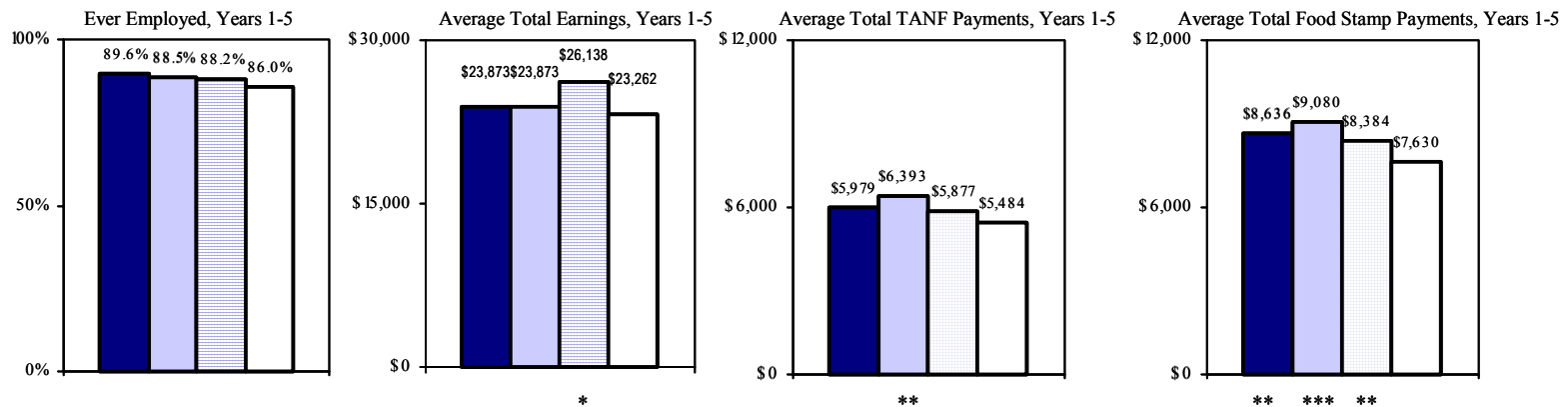
Average TANF payments were higher for families with assisted housing, even after controlling for family characteristics.³⁸

³⁸ Information on food stamps payments is not available for the Delaware sample.

Exhibit 4.5
Control Group's Employment and Welfare Outcomes Within Five Years After Random
Assignment, Early Indiana Cohort
Ignoring Differences in Characteristics

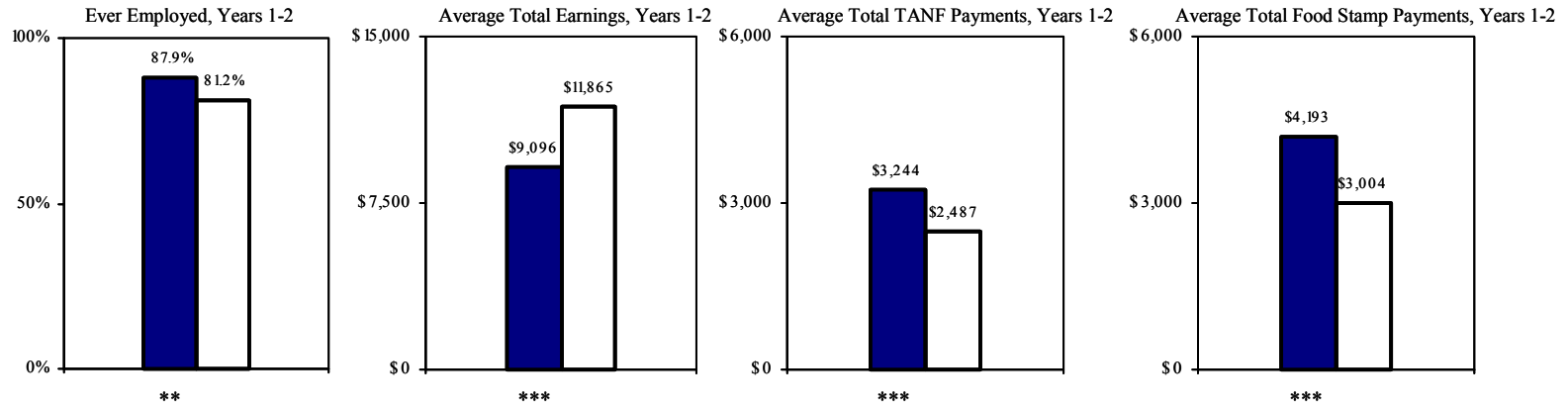


Controlling for Differences in Characteristics

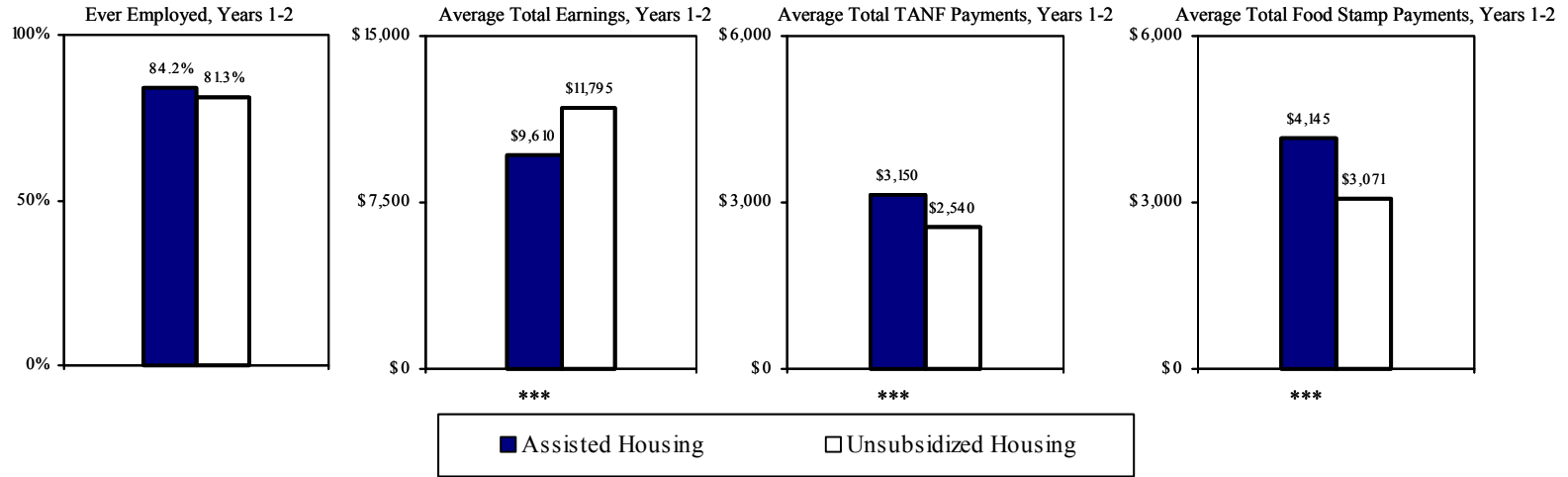


Data Sources: Administrative records from the Indiana Client Eligibility System and Indiana Unemployment Insurance Records. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS). Two-way statistical tests were conducted to determine if percentage distributions or means differ significantly from those of welfare recipients in unsubsidized private housing. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 4.6
Control Group's Employment and Welfare Outcomes Within Two Years After Random
Assignment, Later Indiana Cohort
Ignoring Differences in Characteristics



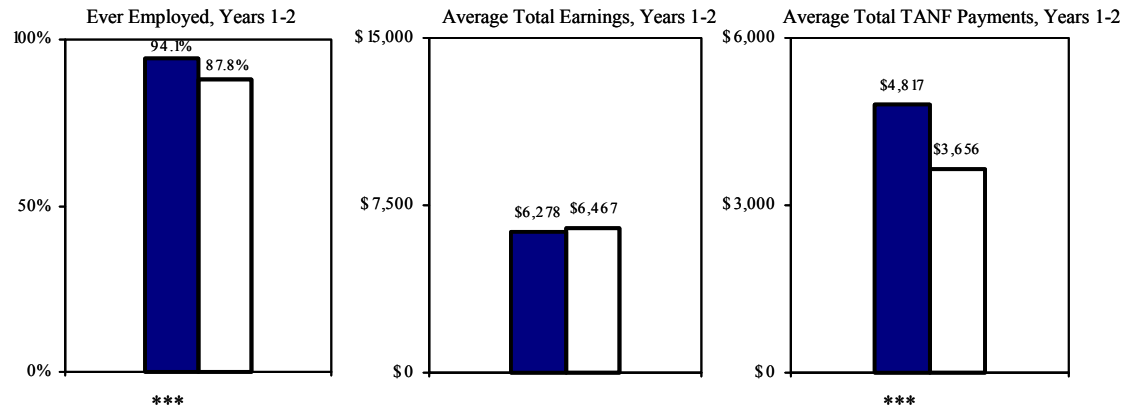
Controlling for Differences in Characteristics



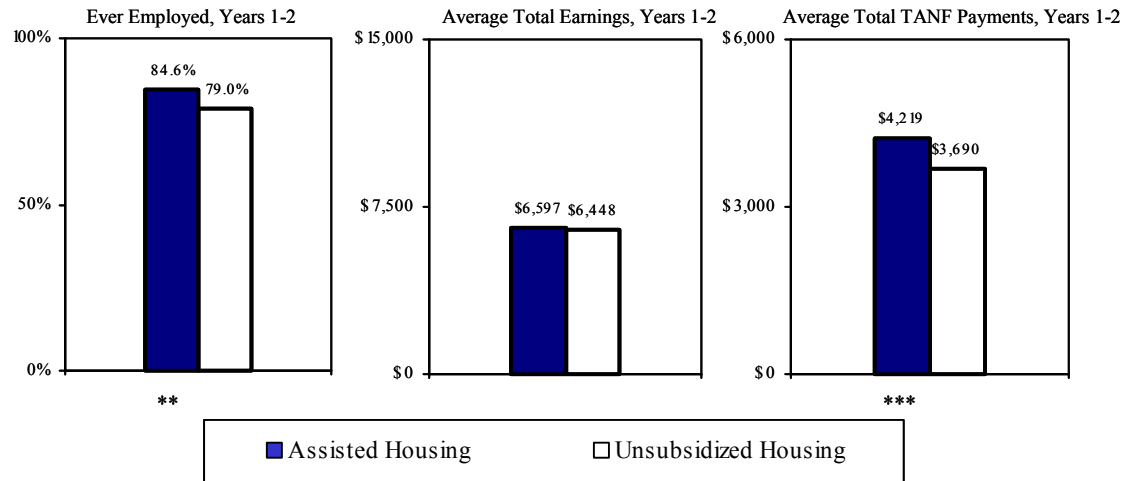
Data Sources: Administrative records from the Indiana Client Eligibility System and Indiana Unemployment Insurance Records. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS). Two-way statistical tests were conducted to determine if percentage distributions or means differ significantly from those of welfare recipients in unsubsidized private housing. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 4.7
Control Group's Employment and Welfare Outcomes Within Two Years After Random
Assignment, Delaware Cohort

Ignoring Differences in Characteristics



Controlling for Differences in Characteristics



Data Sources: Administrative records from the Delaware Client Information System and Delaware Unemployment Insurance Records. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS). Two-way statistical tests were conducted to determine if percentage distributions or means differ significantly from those of welfare recipients in unsubsidized private housing. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent.

4.2.2 Outcomes for the Treatment Group

Early Indiana Cohort

Among treatment group members in the early Indiana cohort, public housing residents were not less likely to be employed than families without housing assistance (see Exhibit 4.8). Both groups had five-year ever-employed rates of 88 percent before controlling for characteristics and virtually the same (89 vs. 88 percent) after controlling for characteristics. Although five-year average total earnings were significantly lower for public housing residents before controlling for differences in characteristics (\$24,048 versus \$25,321), the differences became insignificant after the differences were accounted for (\$25,144 versus \$25,265).

In contrast, welfare families using vouchers and living in Section 8 projects were more likely to be employed than unassisted families. Five-year average total earnings were between \$1,400 and \$4,000 higher than for unassisted families. Families using vouchers and living in Section 8 projects also had significantly higher employment rates. Whether or not differences in characteristics were controlled for, five-year ever employed rates were at least two percent higher than for unassisted families for both of these groups.

Later Indiana Cohort

For treatment group members in the later Indiana cohort, as with the control group, the differences in employment and earnings over the follow-up period were not consistent with each other. HUD-assisted families had lower two-year earnings than unassisted families, with or without adjusting for background differences, but these were not statistically significant (see Exhibit 4.9). On the other hand, two-year ever-employed rates were significantly higher for HUD-assisted families before controlling for characteristics (89 percent versus 84 percent). A difference remained but became insignificant after characteristics were controlled for (87 percent versus 84 percent).

Delaware Cohort

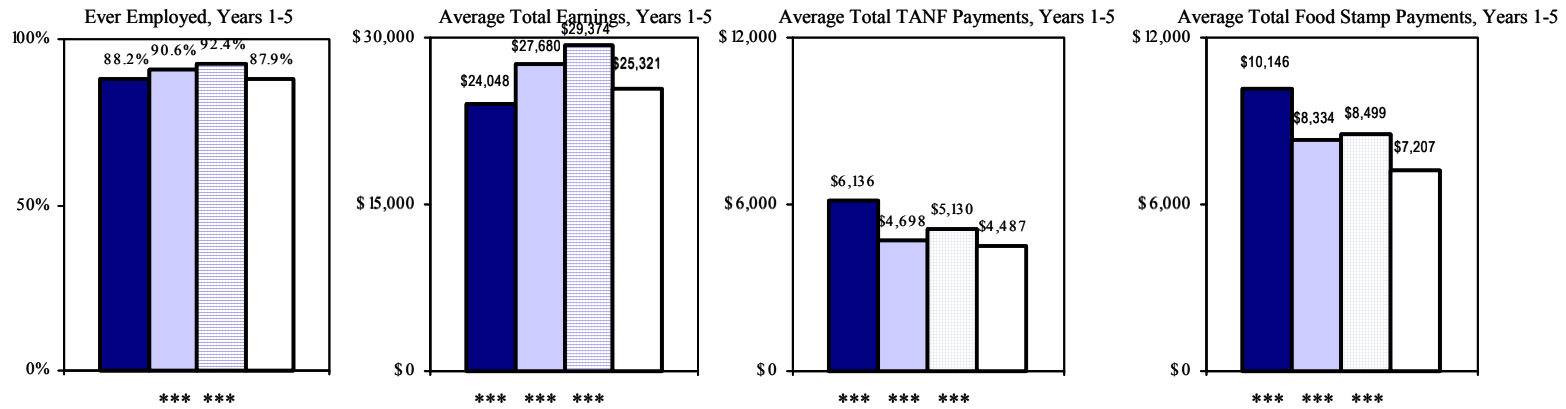
For Delaware treatment group members, families with and without housing assistance had similar employment rates and earnings over the two-year follow up period (see Exhibit 4.10). Like the control group, treatment group members with housing assistance had higher average TANF payments than treatment group members in private, unsubsidized housing, even after controlling for background characteristics.

4.2.3 Discussion

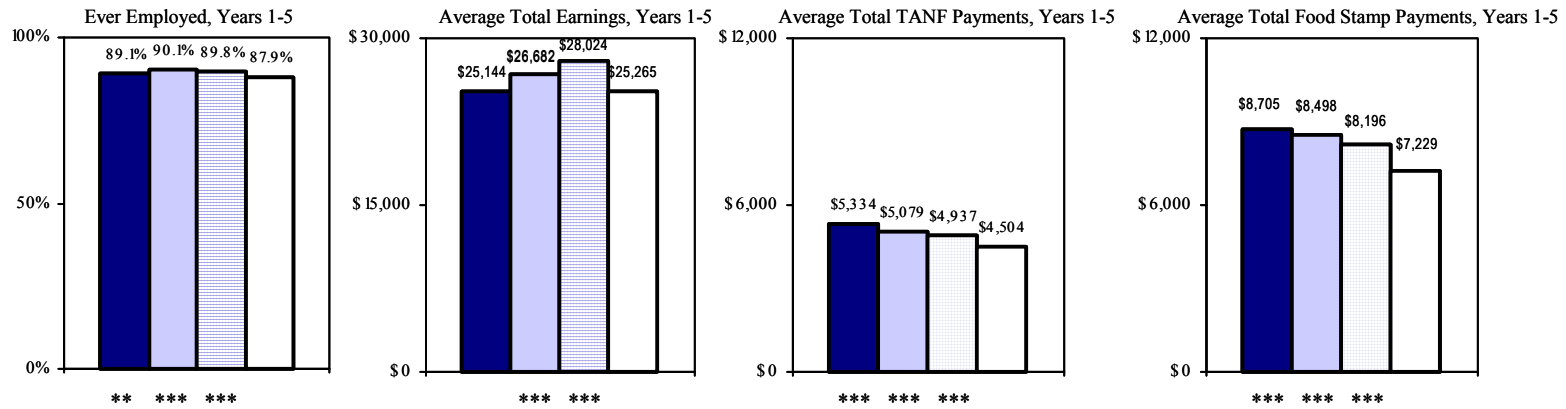
Housing assistance has both work-depressing and work-promoting aspects. The subsidy calculation for housing assistance is based on income and functions as an implicit tax: as a family's income increases, so does its rent.³⁹ Under some circumstances, this could discourage a

³⁹ The Quality Housing and Work Responsibility Act of 1998 provides earned income disregards for some families living in public housing. This disregard applies only to newly employed households and does not apply to families using vouchers or living in Section 8 projects.

Exhibit 4.8
Treatment Group's Employment and Welfare Outcomes Within Five Years After Random
Assignment, Early Indiana Cohort
Ignoring Differences in Characteristics

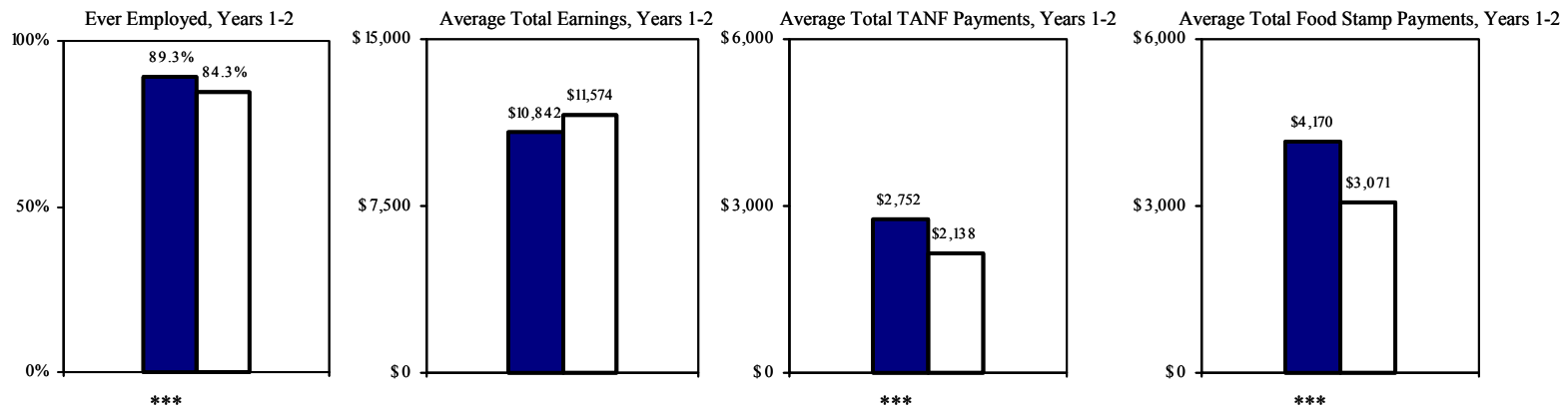


Controlling for Differences in Characteristics

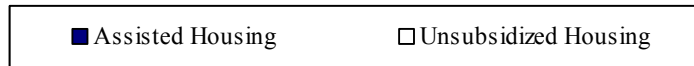
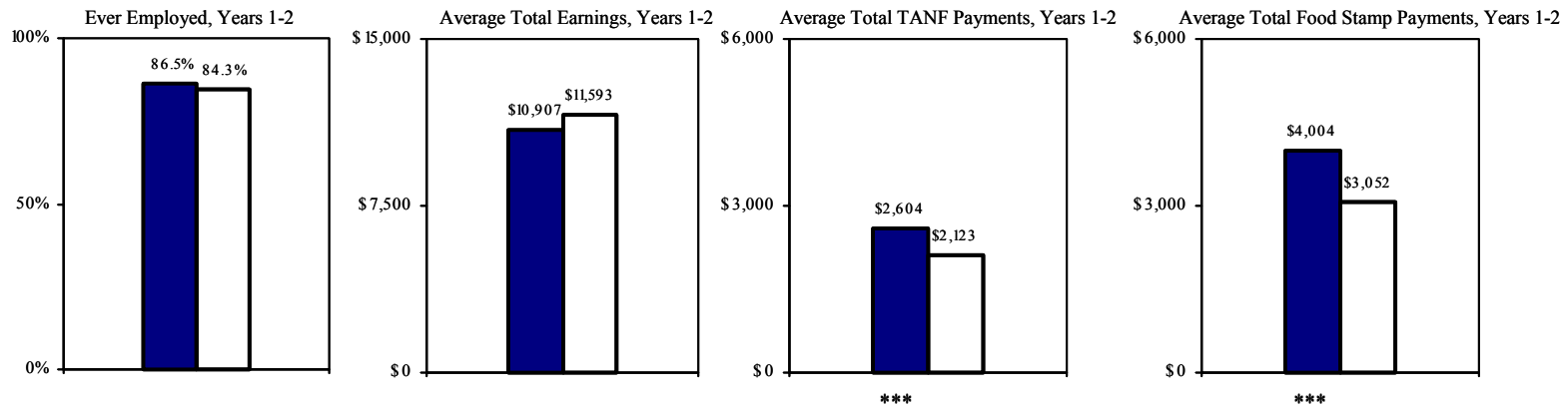


Data Sources: Administrative records from the Indiana Client Eligibility System and Indiana Unemployment Insurance Records. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS). Two-way statistical tests were conducted to determine if percentage distributions or means differ significantly from those of welfare recipients in unsubsidized private housing. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 4.9
Treatment Group's Employment and Welfare Outcomes Within Two Years After Random
Assignment, Later Indiana Cohort
Ignoring Differences in Characteristics



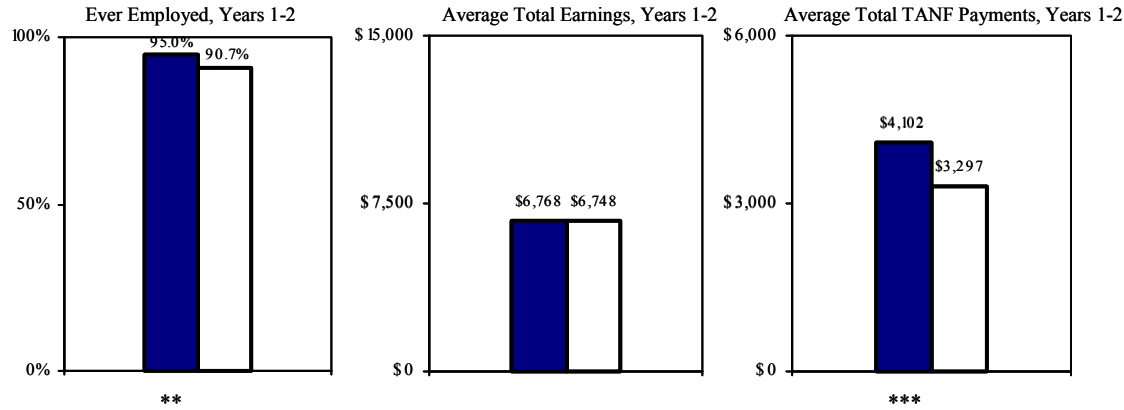
Controlling for Differences in Characteristics



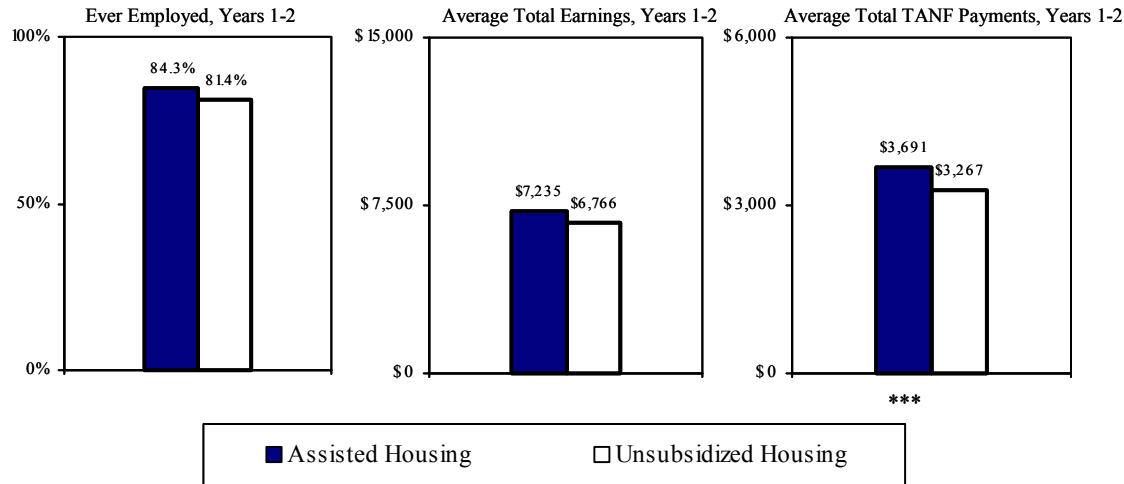
Data Sources: Administrative records from the Indiana Client Eligibility System and Indiana Unemployment Insurance Records. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS). Two-way statistical tests were conducted to determine if percentage distributions or means differ significantly from those of welfare recipients in unsubsidized private housing. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent.

Exhibit 4.10
Treatment Group's Employment and Welfare Outcomes Within Two Years After Random
Assignment, Delaware Cohort

Ignoring Differences in Characteristics



Controlling for Differences in Characteristics



Data Sources: Administrative records from the Delaware Client Information System and Delaware Unemployment Insurance Records. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS). Two-way statistical tests were conducted to determine if percentage distributions or means differ significantly from those of welfare recipients in unsubsidized private housing. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent.

family from taking a full-time rather than a part-time job, from taking a job that paid higher wages, or from having a second wage earner in the family.

On the other hand, the stability provided by housing assistance can promote work. For example, housing assistance could improve the ability of low-income families to secure and retain jobs, because families will not have to worry about how the rent will be paid each month.

For the early Indiana cohort, it is interesting that in the treatment group, but not in the control group, significantly higher earnings and employment rates were found for welfare recipients using vouchers compared with welfare recipients without housing assistance. Although the analysis is non-experimental, it is possible that vouchers interact positively with welfare reform. For example, welfare reform in Indiana, by emphasizing the importance of work, may have neutralized the work-depressing aspects of housing assistance and permitted the work-promoting aspects of housing assistance to dominate.

There is less evidence of an interactive effect of welfare reform and housing assistance for the later Indiana cohort and the Delaware sample. But this could be because of the grouping of public housing residents, voucher holders, and Section 8 project residents into a single category (necessitated by smaller sample sizes), masking any potential interactive effects that might exist between vouchers and welfare reform.

It is interesting also that the greater dependence on public assistance (TANF and Food Stamps) for families with housing assistance in both the treatment and control groups is not accompanied by lower employment rates. This finding is somewhat surprising because TANF receipt and employment are generally inversely related. Welfare recipients with housing assistance had higher employment rates than unassisted recipients during the period of follow-up, and also stayed on welfare for a longer time (we saw evidence for this in Chapter 3), leading to *both* higher two-year or five-year ever employed rates and to higher receipt of welfare benefits.

Overall, we find that controlling for background characteristics appears to explain only some of the difference in outcomes by housing status. This suggests that not all of the differences in outcomes are associated with the types of people living in public or assisted housing projects or who use vouchers, and that housing assistance might be partly responsible.⁴⁰

However, the analysis reported here cannot provide conclusive evidence of the effects of different housing situations on outcomes, for at least two reasons. First, it is possible that families who live in public housing or in Section 8 projects or who use vouchers are systematically different from those who do not in unobservable ways. The most reliable way to determine if housing situation influences labor market outcomes is to analyze the outcomes of a study in which type of housing assistance is randomly assigned.⁴¹ In this study, the cohorts we examine have welfare reform status randomly assigned, but not housing assistance.

⁴⁰ It is possible that we have not measured the relevant set of observable characteristics.

⁴¹ HUD is funding two studies that randomly assign households to different housing situations: the Moving to Opportunity (MTO) demonstration and the Welfare to Work Voucher evaluation.

The other reason the analysis is not conclusive is that it fails to take into consideration the length of time that families with housing assistance at baseline had been receiving housing assistance. For example, if public housing residents in our sample had on average been living in public housing for 4 years prior to enrollment into the welfare reform experiment, whereas families using vouchers had only been using them shortly before baseline, it would be inaccurate to compare outcomes over time for public housing families with outcomes for families using vouchers because of the different ‘exposure’ times. Although differing exposure times might also apply to the subgroup analysis reported in Chapter 3, they do not affect the validity of those results because, in that case, random assignment ensures that the average exposure times between treatment and control group members in each housing situation will be very similar.

As an alternative to random assignment, one possible non-experimental approach to help us better understand the effects of housing assistance would be to use a ‘before-after’ design. This would entail collecting data on outcomes for cohorts of housing assistance recipients before and after their housing spell began. A comparison could then be made of outcomes before and after receipt of housing assistance.

4.3 Neighborhood Quality and Financial Strain for Welfare Recipients with and without Housing Assistance: Analysis of Survey Data

In order to further understand the differences across housing subgroups that might affect labor market and welfare dependency outcomes, we turn to descriptive analysis of neighborhood quality and financial strain from five-year follow-up surveys of participants in welfare reform experiments in Indiana and Delaware.⁴² We match data on housing status to survey responses to get a better sense of the circumstances faced by families with different types of housing assistance and in private, unsubsidized housing. Unlike the analysis reported in Chapter 3, this analysis defines housing subgroups using housing program administrative data from 2000, in order to capture housing status at the time the surveys were conducted.⁴³ We decided not to use housing status at baseline, because, for example, a public housing resident in 1995 could have moved to private housing in 2000. She would be commenting on her current private housing environment when answering survey questions.

For the analysis in this section, we pool the responses of treatment and control group members in order to maximize the number of sample points. The treatment-control group distinction is of

⁴² Survey data is available for the Indiana early cohort and the Delaware cohort, but not for the later cohort in Indiana.

⁴³ The matching of 2000 housing data for Exhibits 4.11 to 4.14 was based on the May 2000 MTCS file. Therefore, we are able to identify only residents in public housing and families using vouchers. Without the corresponding 2000 TRACS file, we were not able to distinguish between residents in project-based Section 8 housing and residents in unsubsidized housing. This explains why there are only three subgroups in Exhibits 4.11 to 4.14. Baseline data suggest that approximately one-tenth of the group we categorize as living in private, unsubsidized housing are likely to live in Section 8 projects.

minor importance in this case, as we are primarily interested in understanding neighborhood quality and financial strain of welfare families with and without housing assistance.

4.3.1 The Indiana Survey

We find evidence to suggest that families in public housing lived in less desirable neighborhoods than families with other types of housing (see Exhibit 4.11). Many public housing residents reported big problems in their neighborhoods with unemployment (35 percent), noise pollution (30 percent), drugs (37 percent), crime (26 percent), and run-down buildings and yards (24 percent). These were often roughly one and a half times the percentages reported by families living in private, unsubsidized housing.

However, housing assistance seems to have helped stabilize somewhat the lives of low income families. The percentages with someone needing to see a doctor and dentist but not going because of a lack of money was lowest for public housing residents, followed by families using vouchers (see Exhibit 4.12). Families we categorized as living in private, unsubsidized housing were more likely to forego going to the doctor and dentist, perhaps because they had to spend more of their monthly family budget on housing costs and had less money left over each month for family health care. Public housing residents moved less often than residents in private, unsubsidized housing. Six percent of public housing residents moved more than 4 times during the five-year follow-up period, compared to 20 percent for the latter group.

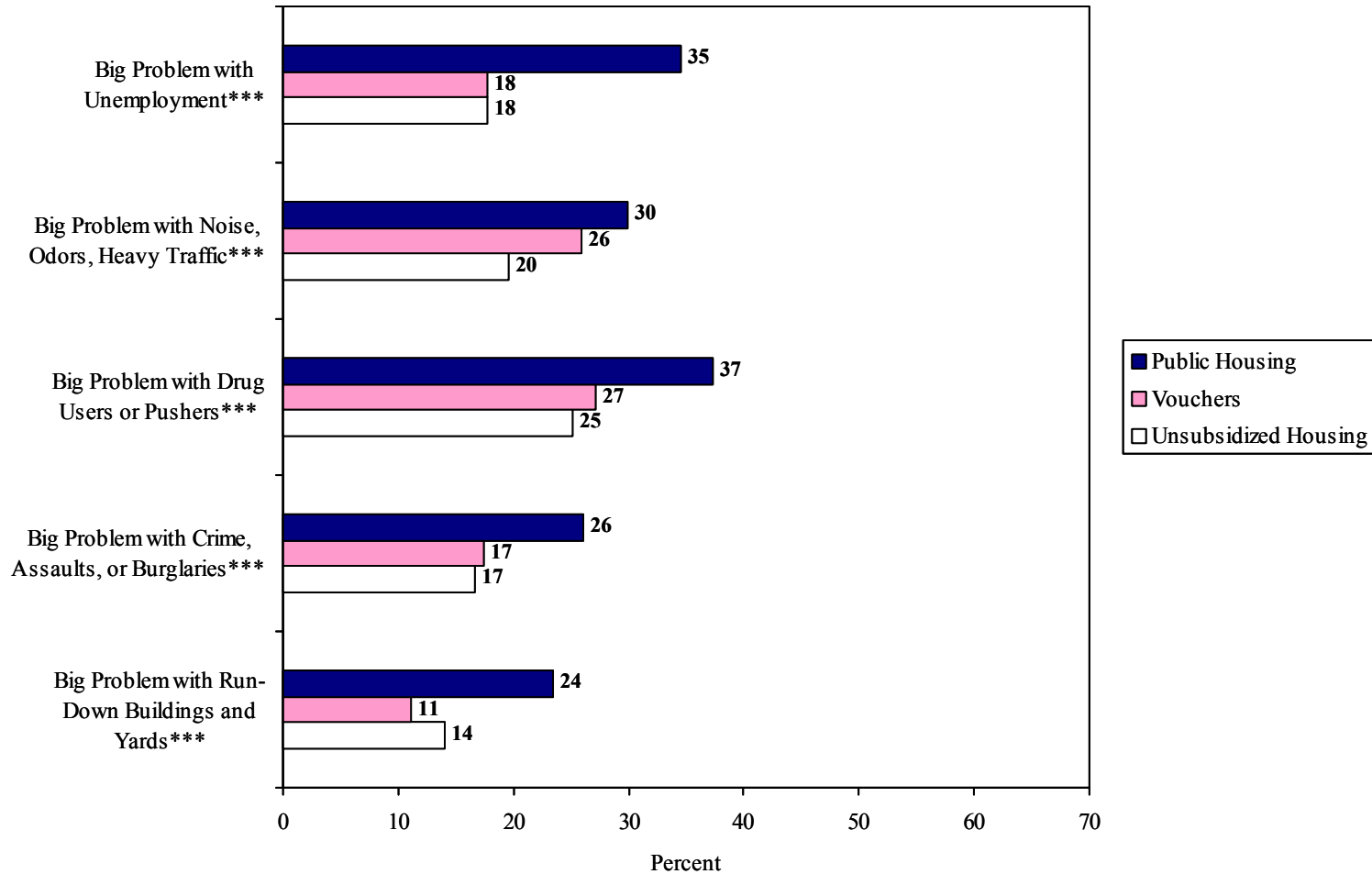
Families using vouchers lived in neighborhoods with very little difference in the indicators of quality from the neighborhoods of families living in private, unsubsidized housing. However, families using vouchers in Indiana tended to have greater difficulties with regular monthly payment of utilities bills. They were more likely than public housing residents or residents in private, unsubsidized housing to not pay all utilities and have utilities disconnected because of a failure to pay the bill. On the other hand, those in private, unsubsidized housing were somewhat more likely to fail to pay the full amount of rent.

In terms of housing stability, voucher recipients tended to move slightly more often than public housing residents (8 percent versus 6 percent moved more than 4 times during the follow-up period), but less often than residents in private, unsubsidized housing (20 percent).

4.3.2 The Delaware Survey

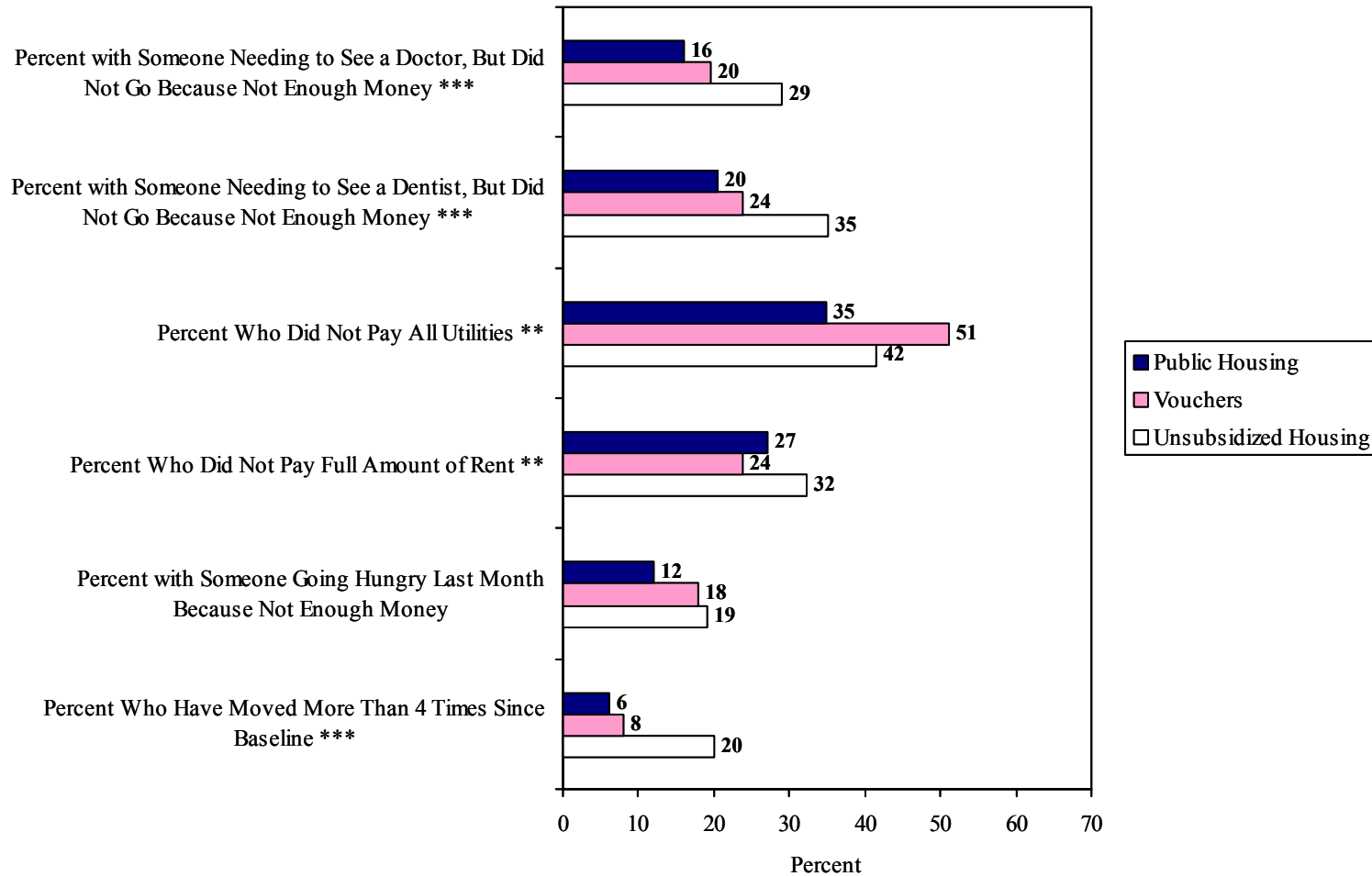
The Delaware survey reinforces the findings from the Indiana survey. The Delaware survey data also suggest that public housing residents live in neighborhoods that are more distressed than families in other types of housing. Thirty-five percent of public housing residents reported big problems with unemployment. Furthermore, 35 percent of public housing families reported big problems with noise, odors and heavy traffic, 64 percent for drug problems, 28 percent for crime, and 25 percent for run-down buildings (see Exhibit 4.13). On the other hand, because their housing was more affordable than private, unsubsidized housing, it appears that public housing residents in Delaware were also better able to balance their monthly budgets. For example, fewer were unable to see doctors and dentists when necessary (see Exhibit 4.14). In addition, public

Exhibit 4.11
Percent of Families Reporting Neighborhood Problems by Current Housing Status,
Early Indiana Cohort



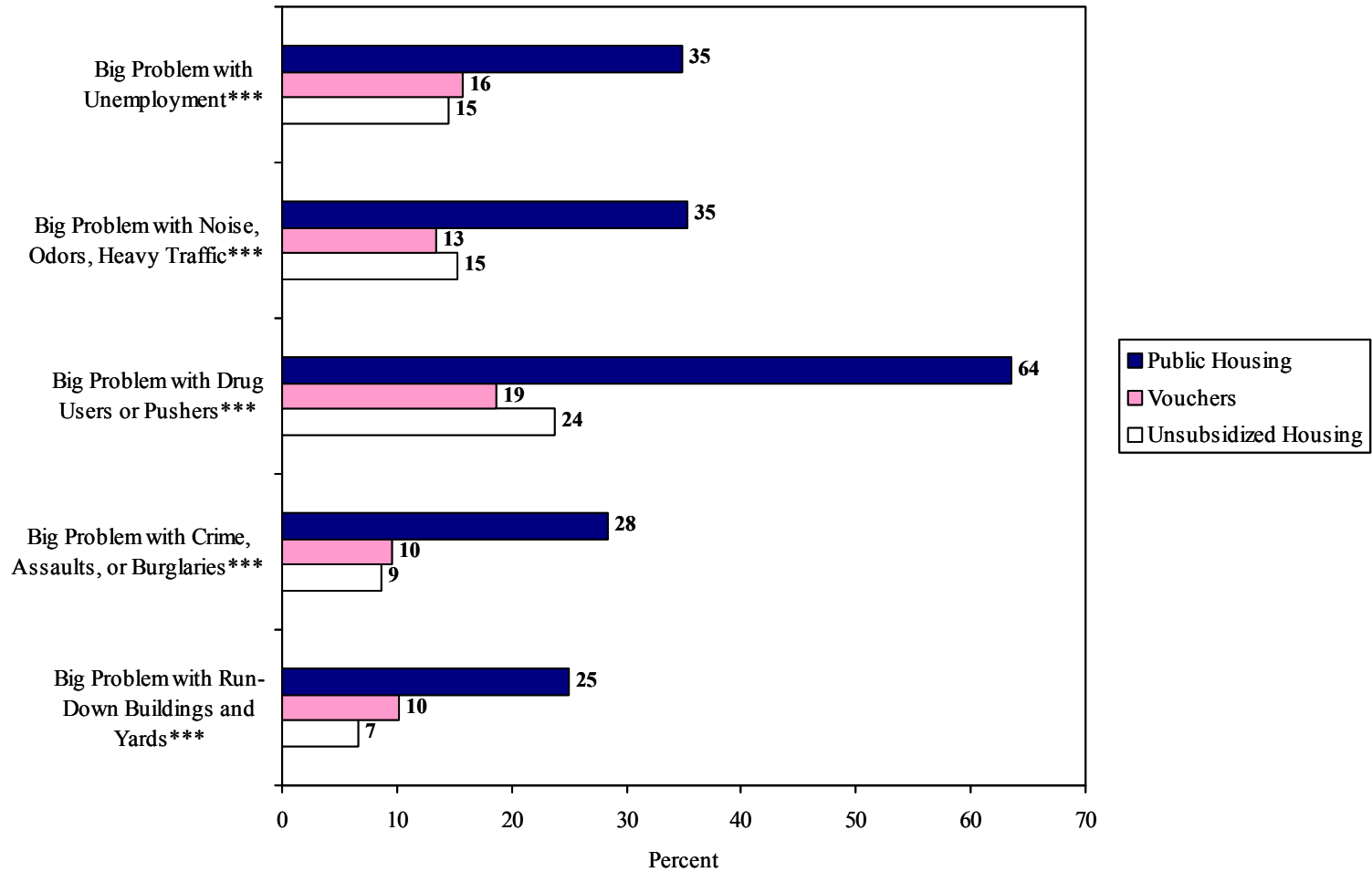
Data on neighborhood problems are from Indiana Wave 2 survey conducted in 2000. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) May 2000 Multifamily Tenant Characteristics System (MTCS). Chi squared or ANOVA indicates percentage distributions or means differ significantly across housing assistance groups at: *** 1 percent, ** 5 percent, * 10 percent.

Exhibit 4.12
Survey Measures of Financial Strain by Current Housing Status, Early Indiana Cohort



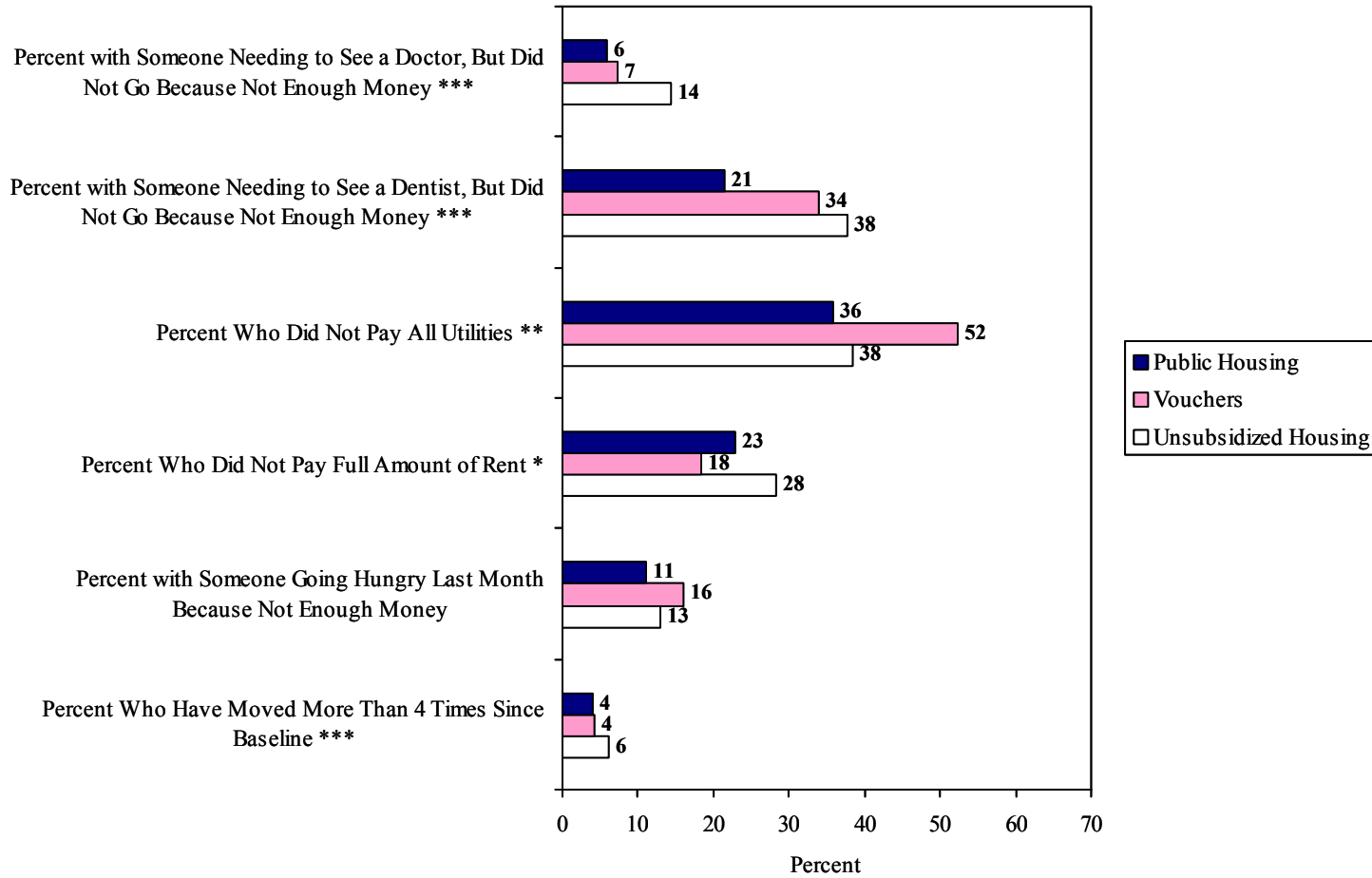
Data on measures of financial strain are from Indiana Wave 2 survey conducted in 2000. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) May 2000 Multifamily Tenant Characteristics System (MTCS). Chi squared or ANOVA indicates percentage distributions or means differ significantly across housing assistance groups at: *** 1 percent, ** 5 percent, * 10 percent.

Exhibit 4.13
Percent of Families Reporting Neighborhood Problems by Current Housing Status,
Delaware Cohort



Data on neighborhood problems are from Delaware Wave 2 survey conducted in 2000. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) May 2000 Multifamily Tenant Characteristics System (MTCS). Chi squared or ANOVA indicates percentage distributions or means differ significantly across housing assistance groups at: *** 1 percent, ** 5 percent, * 10 percent.

Exhibit 4.14
Survey Measures of Financial Strain by Current Housing Status, Delaware Cohort



Data on measures of financial strain are from Delaware Wave 2 survey conducted in 2000. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) May 2000 Multifamily Tenant Characteristics System (MTCS). Chi squared or ANOVA indicates percentage distributions or means differ significantly across housing assistance groups at: *** 1 percent, ** 5 percent, * 10 percent.

housing families moved less often. Four percent of public housing residents moved more than 4 times, compared to six percent for welfare recipients private, unsubsidized housing.

For families using vouchers as well, the Delaware findings are very similar to the Indiana findings. Voucher recipients tended to live in better neighborhoods with fewer problems than public housing residents. Their neighborhoods were very similar to the neighborhoods of welfare recipients living in private, unsubsidized housing. But voucher users were also more likely to have difficulties with paying monthly utilities bills. Fifty-two percent of families using vouchers did not pay for all utilities in the previous month, as compared to 36 percent for public housing residents and 38 percent for the group in private, unsubsidized housing.

4.3.3 Conclusion

There is some evidence from the survey data in Indiana and Delaware that by making housing more affordable, housing subsidies have helped to stabilize the lives of low-income families. By reducing housing costs, housing subsidies appear to have allowed families living in public housing to balance their budgets and spend more on other essentials, like visits to the doctor and dentist.

However, it also seems clear that families living in public housing tend to live in more distressed neighborhoods than families living in private, unsubsidized housing or using vouchers. For public housing residents, there appears to be a trade-off between greater ability to make ends meet and living in a distressed neighborhood.

Families using vouchers in both Indiana and Delaware appear to have more trouble than other households paying their utility bills. Similar findings for voucher holders were found in a recent study of the current housing situations of households affected by redevelopments of public housing projects (Buron *et al.* 2002). A possible explanation in Indiana and Delaware is that welfare recipients using vouchers were less likely to live with other adults and therefore had less help in meeting housing expenses. Seventeen percent of welfare recipients using vouchers in the Indiana survey reported living with another adult (excluding spouses and partners), compared to 26 percent for public housing residents and 27 percent for residents in unsubsidized housing. The Delaware survey reported similar findings. Although recipients using vouchers in Delaware were as likely as public housing residents to be living with another adult (12 percent), this was significantly less than the percentage of residents in private housing that did so (31 percent).

References

- Beecroft, Erik, *et al.* (forthcoming). *Final Report on the Indiana Welfare Reform Evaluation*. Bethesda, MD: Abt Associates Inc.
- Bitler, Marianne, Jonah Gelbach, and Hilary Hoynes (2002). "The Impact of Welfare Reform on Living Arrangements," National Bureau of Economic Research, Working Paper 8784.
- Bloom, Dan, and Charles Michalopoulos (2001). *How Welfare and Work Policies Affect Employment and Income: A Synthesis of Research*. New York, NY: Manpower Demonstration Research Corporation.
- Buron, Larry, Susan Popkin, Diane Levy, Laura Harris, and Jill Khadduri (2002). *The HOPE VI Resident Tracking Study: A Snapshot of the Current Living Situation of Original Residents from Eight Sites*. Bethesda, MD: Abt Associates Inc.
- Connell, Terrence, Deborah Devine and Les Rubin (1998). *Welfare Reform Impacts on the Public Housing Program: A Preliminary Forecast*. Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.
- Fein, David, David Long, Joy Behrens, and Wang Lee (2000). *Turning the Corner: Delaware's A Better Chance Welfare Reform Program at Four Years*. Bethesda, MD: Abt Associates Inc.
- Khadduri, Jill, Mark Shroder and Barry Steffen (forthcoming). "Can Housing Assistance Support Welfare Reform?" in *Affordable Housing under Welfare Reform: Reconciling Competing Demands*, edited by Barbara Sard and Amy Bogdon, Fannie Mae Foundation.
- Michalopoulos, Charles, and Christine Schwartz (2001). *National Evaluation of Welfare-to-Work Strategies. What Works Best for Whom? Impacts of 20 Welfare-to-Work Programs by Subgroup*. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families and Office of the Assistant Secretary for Planning and Evaluation; and U.S. Department of Education, Office of the Under Secretary and Office of Vocational and Adult Education.
- Miller, Cynthia, Virginia Knox, Lisa Gennetian, Marety Dodoo, Jo Anna Hunter, and Cindy Redcross (2000). *Reforming Welfare and Rewarding Work: Final Report on the Minnesota Family Investment Program. Volume 1: Effects on Adults*. Manpower Demonstration Research Corporation.
- Newman, Sandra and Joseph Harkness (2002). "The Long-Term Effects of Housing Assistance on Self-Sufficiency," *Journal of Policy Analysis and Management* 21(1), pp. 21-43.
- Quane, James, Bruce Rankin and Pamela Joshi (2002). "Housing Assistance, Housing Costs, and Welfare Reform," *Welfare, Children and Families: A Three-City Study*, Policy Brief 02-4, Johns Hopkins University.
- Riccio, James and Alan Orenstein (2000). "Are Recipients in Public Housing Really Harder to Employ?" Manpower Demonstration Research Corporation, manuscript.

Sard, Barbara and Jennifer Daskal (1998). "Housing and Welfare Reform: Some Background Information." Center on Budget and Policy Priorities.

Sard, Barbara and Margy Waller (2002). "Housing Strategies to Strengthen Welfare Policy and Support Working Families," Research Brief, The Brookings Institution.

Shroder, Mark and Marge Martin (1996). "New Results from Administrative Data: Housing the Poor, or, What They Don't Know Might Hurt Somebody," American Real Estate and Urban Economics Association, 22nd Annual Midyear Meeting, Washington D.C., May 29, 1996.

Stoloff, Jennifer (2002). "Public Housing and Paid Work: Help or Hindrance?" Doctoral dissertation, University of North Carolina, Chapel Hill, 2001.

Appendix A

Measuring Housing Assistance at Baseline

To analyze subgroups in a way that retains the advantages of experimental design for measuring the impact of a policy intervention it is necessary to define subgroups using information from the time of random assignment. That is, the characteristics that define the subgroup should not be “endogenous” to the experiment. They should not be something that happened during the experiment and might have been affected by the intervention itself.

Ideally, therefore, the information used to construct subgroups on housing status should be whether a welfare recipient is receiving housing assistance (and what type of housing assistance) at baseline – during the month of random assignment. However, this would require matching HUD administrative data files for the specific month in which random assignment took place to welfare recipients’ records, and this was not feasible. The best available files that have historical data on the households that receive housing assistance are assembled, cleaned, and stored once or twice a year, rather than monthly.

There are two HUD data systems on households that receive housing assistance. The Multifamily Tenant Characteristics System (MTCS) contains records of families subsidized under the public housing, certificate, voucher and Section 8 moderate rehabilitation programs. The Tenant Rental Assistance Certification System (TRACS) contains records of families subsidized under the Section 8 new construction, substantial rehabilitation, and loan-management set-aside programs, along with several other programs that subsidize units in specific privately-owned projects. Public housing authorities submit records to MTCS, while private owners who have direct contractual relationships submit records to TRACS. We matched the samples of welfare clients in the Indiana and Delaware experiments to the MTCS and TRACS and accepted all matches, regardless of the program. We created four subgroups based on housing assistance status:

- Welfare recipients living in public housing.
- Welfare recipients using vouchers (including both certificates and vouchers).
- Welfare recipients living in Section 8 projects (in units with Section 8 moderate rehabilitation, new construction, substantial rehabilitation, or loan-management set-aside subsidies, or in units with in other privately owned assisted housing projects that report data to TRACS).
- Welfare recipients not found in MTCS or TRACS, who were classified as living in unsubsidized private market housing (or, put another way, not receiving housing assistance).

There are two reasons that we may have misclassified the housing assistance status of some welfare recipients in the Indiana and Delaware samples.

Inaccurate reporting to MTCS and TRACS. First, reporting to the MTCS and TRACS may be incomplete or inaccurate. Unlike state welfare files, which are kept by the agency actually making payments to households, with recording triggered by the payments themselves, MTCS and TRACS data are reported to HUD by local housing authorities or private owners, with at best a short lag and

at worst never. Recording is not triggered by a specific monthly payment, but by several events in the process of assisting a particular household. These include admission to a housing assistance program; recertification of income eligibility and the applicable level of rent subsidy (which should occur every twelve months), and the end of the household's participation in the program. A PHA or private owner may fail to report a household's record at admission or recertification, and this could lead us to fail to match a welfare recipient to a housing assistance program. Or a PHA or owner may fail to submit an "end-of-participation" record, and this could lead us to identify as receiving housing assistance a household that was no longer receiving assistance at the time of random assignment.

Timing of MTCS and TRACS files compared with random assignment. In addition, because we could not use monthly MTCS and TRACS files, we may have misclassified a few welfare recipients as HUD-assisted at baseline when their assistance really started after random assignment and, therefore, was endogenous. The following exhibits suggest the extent of the possible misclassification that resulted from the timing of the MTCS and TRACS files. Exhibit A1 illustrates the timing of the matching procedure for the early Indiana cohort.

Exhibit A1
Matching HUD Data for the Early Indiana Cohort

Month of Random Assignment	MTCS Data Used	TRACS Data Used	Maximum Number of "Endogenous" Months (MTCS/TRACS) ⁴⁴
May 1995	May 1995	Dec 1995	0/6
June 1995	Dec 1995	Dec 1995	5
July 1995	Dec 1995	Dec 1995	4
August 1995	Dec 1995	Dec 1995	3
September 1995	Dec 1995	Dec 1995	2
October 1995	Dec 1995	Dec 1995	1
November 1995	Dec 1995	Dec 1995	0
December 1995	Dec 1995	Dec 1995	0
January 1996	Dec 1996	Dec 1996	10
February 1996	Dec 1996	Dec 1996	9
March 1996	Dec 1996	Dec 1996	8
April 1996	Dec 1996	Dec 1996	7

⁴⁴ The number of months that the welfare recipient may have been exposed to welfare reform before beginning to receive housing assistance.

The last column in the table shows the maximum number of months of endogenous housing assistance data (i.e., the months after random assignment during which the welfare recipient could have begun to receive housing assistance).⁴⁵ The criteria for which MTCS or TRACS file to use to match data were chosen, not to minimize the number of endogenous months, but to ensure that the fewest number of matches would be lost. For example, the March 1996 enrollees shown in Exhibit A1 could have been matched to the December 1995 MTCS/TRACS files instead of the December 1996 files. In this case there would have been no possible endogenous months. But the tradeoff is that welfare clients who entered housing assistance between December 1995 and February 1996 would have been incorrectly classified as living in unsubsidized, private market housing at baseline.

Exhibit A2 and Exhibit A3 illustrate the matching procedure for the later Indiana cohort and for the Delaware cohort.

Exhibit A2
Matching HUD Data for the Later Indiana Cohort

Month of Random Assignment	MTCS Data Used	TRACS Data Used	Maximum Number of Endogenous Months (MTCS/TRACS)
March 1998	May 1998	June 1998	1/2
April 1998	May 1998	June 1998	0/1
May 1998	May 1998	June 1998	0
June 1998	May 1999	June 1998	10/0
July 1998	May 1999	June 1999	9/10
August 1998	May 1999	June 1999	8/9
September 1998	May 1999	June 1999	7/8
October 1998	May 1999	June 1999	6/7
November 1998	May 1999	June 1999	5/6
December 1998	May 1999	June 1999	4/5
January 1999	May 1999	June 1999	3/4
February 1999	May 1999	June 1999	2/3

⁴⁵ If two numbers are shown in the column, the first refers to matching on the MTCS data and the second to matching on the TRACS data. If only one number is shown, the same number applies to both data in MTCS and TRACS.

Exhibit A3
Matching HUD Data for the Delaware Cohort

Month of Random Assignment	MTCS Data Used	TRACS Data Used	Maximum Number of Endogenous Months (MTCS/TRACS)
October 1995	Dec 1995	Dec 1995	1
November 1995	Dec 1995	Dec 1995	0
December 1995	Dec 1995	Dec 1995	0
January 1996	Dec 1996	Dec 1996	10
February 1996	Dec 1996	Dec 1996	9
March 1996	Dec 1996	Dec 1996	8
April 1996	Dec 1996	Dec 1996	7
May 1996	Dec 1996	Dec 1996	6
June 1996	Dec 1996	Dec 1996	5
July 1996	Dec 1996	Dec 1996	4
August 1996	Dec 1996	Dec 1996	3
September 1996	Dec 1996	Dec 1996	2

Appendix B

Detailed Impacts for the Early Indiana Cohort

Exhibit B.1
Five-Year Subgroup Impacts on Employment
for the Early Indiana Cohort

Subgroup	Welfare Reform Group	Traditional Welfare Group	Difference	Percentage Change	Sample Size
Employment					
Last Quarter of Year 1					
Public Housing	47.5	47.4	0.1	0.2	3,394
Vouchers	51.3	47.2	4.1	8.7	3,478
Section 8 Projects	52.8	50.3	2.5	5.0	5,819
Unsubsidized Housing	46.8	44.2	2.6***	5.9	53,749
Last Quarter of Year 2					
Public Housing	52.6	53.0	-0.4	-0.8	3,394
Vouchers	55.7	50.3	5.4	10.7	3,478
Section 8 Projects	59.1	61.0	-1.9	-3.1	5,819
Unsubsidized Housing	51.4	48.0	3.4***	7.1	53,749
Last Quarter of Year 3					
Public Housing	56.4	53.0	3.4	6.4	3,394
Vouchers	59.1	56.8	2.3	4.1	3,478
Section 8 Projects	62.2	62.2	0	0	5,819
Unsubsidized Housing	53.7	49.8	3.9***	7.9	53,749
Last Quarter of Year 4					
Public Housing	55.1	55.0	0.1	0.2	3,394
Vouchers	60.7	55.5	5.2	9.4	3,478
Section 8 Projects	62.3	60.1	2.2	3.7	5,819
Unsubsidized Housing	54.3	50.5	3.8***	7.6	53,749
Last Quarter of Year 5					
Public Housing	56.3	50.4	5.9	11.7	3,394
Vouchers	58.6	54.7	3.9	7.2	3,478
Section 8 Projects	60.9	57.7	3.2	5.5	5,819
Unsubsidized Housing	53.5	50.0	3.5***	7.0	53,749
Ever Employed, Years 1-5					
Public Housing	88.3	87.4	0.9	1.0	3,394
Vouchers	90.5	90.2	0.3	0.4	3,478
Section 8 Projects	92.4	90.3	2.1	2.3	5,819
Unsubsidized Housing	87.9	86.0	1.9***	2.2	53,749

DATA SOURCES: Employment data from the Indiana Unemployment Insurance wage records. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS).

NOTE: A two-tailed t-test was applied to differences between the Welfare Reform and Traditional Welfare groups. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent. Shaded cells indicate where F-test rejected the null hypothesis of equal subgroup impacts.

Exhibit B.2
Five-Year Subgroup Impacts on Average Earnings
for the Early Indiana Cohort

Subgroup	Welfare Reform Group	Traditional Welfare Group	Difference	Percentage Change	Sample Size
Average Earnings					
Year 1					
Public Housing	2,454	2,486	-32	-1.3	3,394
Vouchers	2,971	2,658	313	11.8	3,478
Section 8 Projects	3,110	2,798	312	11.2	5,819
Unsubsidized Housing	2,871	2,637	234***	8.9	53,749
Year 2					
Public Housing	3,994	4,046	-52	-1.3	3,394
Vouchers	4,626	3,920	706	18.0	3,478
Section 8 Projects	4,800	4,219	581**	13.8	5,819
Unsubsidized Housing	4,248	3,902	346***	8.9	53,749
Year 3					
Public Housing	5,069	4,544	525	11.6	3,394
Vouchers	5,735	5,324	411	7.7	3,478
Section 8 Projects	6,179	5,859	320	5.5	5,819
Unsubsidized Housing	5,260	4,829	431***	8.9	53,749
Year 4					
Public Housing	5,804	5,120	684	13.4	3,394
Vouchers	6,672	5,822	850	14.6	3,478
Section 8 Projects	7,144	6,385	759*	11.9	5,819
Unsubsidized Housing	6,038	5,625	413***	7.3	53,749
Year 5					
Public Housing	6,622	5,541	1,081*	19.5	3,394
Vouchers	7,524	7,312	212	2.9	3,478
Section 8 Projects	8,017	7,343	674	9.2	5,819
Unsubsidized Housing	6,758	6,203	555***	8.9	53,749
Average Total Earnings, Years 1-5					
Public Housing	23,985	21,776	2,209	10.1	3,394
Vouchers	27,651	25,102	2,549	10.2	3,478
Section 8 Projects	29,304	26,664	2,640**	9.9	5,819
Unsubsidized Housing	25,265	23,262	2,003***	8.6	53,749

DATA SOURCES: Earnings data from the Indiana Unemployment Insurance wage records. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS).

NOTE: A two-tailed t-test was applied to differences between the Welfare Reform and Traditional Welfare groups. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent. Shaded cells indicate where F-test rejected the null hypothesis of equal subgroup impacts.

Exhibit B.3
Five-Year Subgroup Impacts on Average TANF Payments
for the Early Indiana Cohort

Subgroup	Welfare Reform Group	Traditional Welfare Group	Difference	Percentage Change	Sample Size
Average TANF Payments					
Year 1					
Public Housing	2,298	2,563	-265***	-10.4	3,394
Vouchers	2,030	2,201	-171*	-7.8	3,478
Section 8 Projects	2,041	2,088	-47	-2.2	5,819
Unsubsidized Housing	1,886	1,977	-91***	-4.6	53,749
Year 2					
Public Housing	1,428	1,574	-146	-9.3	3,394
Vouchers	1,118	1,472	-354***	-24.0	3,478
Section 8 Projects	1,210	1,398	-188**	-13.4	5,819
Unsubsidized Housing	1,042	1,186	-144***	-12.1	53,749
Year 3					
Public Housing	1,040	1,235	-195*	-15.8	3,394
Vouchers	704	1,011	-307***	-30.4	3,478
Section 8 Projects	834	1,044	-210**	-20.1	5,819
Unsubsidized Housing	691	891	-200***	-22.4	53,749
Year 4					
Public Housing	763	978	-215*	-22.0	3,394
Vouchers	480	772	-292***	-37.8	3,478
Section 8 Projects	594	901	-307***	-34.1	5,819
Unsubsidized Housing	490	754	-264***	-34.9	53,749
Year 5					
Public Housing	622	869	-247**	-28.4	3,394
Vouchers	365	586	-221**	-37.7	3,478
Section 8 Projects	467	825	-358***	-43.4	5,819
Unsubsidized Housing	394	677	-283***	-41.8	53,749
Average Total Payments, Years 1-5					
Public Housing	6,150	7,220	-1,070***	-14.8	3,394
Vouchers	4,697	6,043	-1,346***	-22.3	3,478
Section 8 Projects	5,146	6,255	-1,109***	-17.7	5,819
Unsubsidized Housing	4,504	5,484	-980***	-17.9	53,749

DATA SOURCES: Administrative records from the Indiana Client Eligibility System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS).

NOTE: A two-tailed t-test was applied to differences between the Welfare Reform and Traditional Welfare groups. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent. Shaded cells indicate where F-test rejected the null hypothesis of equal subgroup impacts.

Exhibit B.4
Five-Year Subgroup Impacts on TANF Receipt
for the Early Indiana Cohort

Subgroup	Welfare Reform Group	Traditional Welfare Group	Difference	Percentage Change	Sample Size
Received Any TANF Payments					
Last Quarter of Year 1					
Public Housing	59.1	64.9	-5.8	-8.9	3,394
Vouchers	52.7	58.3	-5.6	-9.6	3,478
Section 8 Projects	56.0	58.2	-2.2	-3.8	5,819
Unsubsidized Housing	47.3	50.4	-3.1***	-6.2	53,749
Last Quarter of Year 2					
Public Housing	41.2	41.6	-0.4	-1.0	3,394
Vouchers	33.1	40.0	-6.9*	-17.3	3,478
Section 8 Projects	36.9	42.1	-5.2*	-12.3	5,819
Unsubsidized Housing	30.9	33.0	-2.1**	-6.3	53,749
Last Quarter of Year 3					
Public Housing	32.7	35.4	-2.7	-7.6	3,394
Vouchers	22.9	26.7	-3.8	-14.1	3,478
Section 8 Projects	27.3	31.4	-4.1	-13.2	5,819
Unsubsidized Housing	22.1	26.5	-4.4***	-16.7	53,749
Last Quarter of Year 4					
Public Housing	27.7	32.3	-4.6	-14.3	3,394
Vouchers	18.3	24.8	-6.5**	-26.3	3,478
Section 8 Projects	22.0	31.0	-9.0***	-29.0	5,819
Unsubsidized Housing	18.2	23.5	-5.3***	-22.6	53,749
Last Quarter of Year 5					
Public Housing	24.2	26.8	-2.6	-9.7	3,394
Vouchers	16.1	16.7	-0.6	-3.6	3,478
Section 8 Projects	19.2	28.8	-9.6***	-33.4	5,819
Unsubsidized Housing	16.0	21.2	-5.2***	-24.7	53,749
Average Total Number of Months Receiving TANF Payments, Years 1-5					
Public Housing	21.5	23.5	-2.0	-8.5	3,394
Vouchers	17.1	20.4	-3.3***	-16.2	3,478
Section 8 Projects	19.0	21.9	-2.9	-13.2	5,819
Unsubsidized Housing	16.1	18.4	-2.3***	-12.5	53,749

DATA SOURCES: Administrative records from the Indiana Client Eligibility System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS).

NOTE: A two-tailed t-test was applied to differences between the Welfare Reform and Traditional Welfare groups. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent. Shaded cells indicate where F-test rejected the null hypothesis of equal subgroup impacts.

Exhibit B.5
Five-Year Subgroup Impacts on Average Food Stamp Payments
for the Early Indiana Cohort

Subgroup	Welfare Reform Group	Traditional Welfare Group	Difference	Percentage Change	Sample Size
Average Food Stamp Payments					
Year 1					
Public Housing	2,755	2,932	-177**	-6.0	3,394
Vouchers	2,520	2,594	-74	-2.9	3,478
Section 8 Projects	2,364	2,435	-71	-2.9	5,819
Unsubsidized Housing	2,217	2,269	-52**	-2.3	53,749
Year 2					
Public Housing	2,287	2,401	-116	-4.8	3,394
Vouchers	1,918	2,199	-281**	-12.8	3,478
Section 8 Projects	1,934	2,061	-127	-6.2	5,819
Unsubsidized Housing	1,627	1,717	-90***	-5.3	53,749
Year 3					
Public Housing	1,917	1,950	-33	-1.7	3,394
Vouchers	1,517	1,725	-208*	-12.0	3,478
Section 8 Projects	1,592	1,644	-52	-3.2	5,819
Unsubsidized Housing	1,293	1,380	-87***	-6.3	53,749
Year 4					
Public Housing	1,654	1,646	8	0.5	3,394
Vouchers	1,245	1,323	-78	-5.9	3,478
Section 8 Projects	1,361	1,345	16	1.2	5,819
Unsubsidized Housing	1,086	1,162	-76**	-6.5	53,749
Year 5					
Public Housing	1,556	1,516	40	2.6	3,394
Vouchers	1,120	1,172	-52	-4.5	3,478
Section 8 Projects	1,268	1,355	-87	-6.4	5,819
Unsubsidized Housing	1,005	1,102	-97***	-8.8	53,749
Average Total Payments, Years 1-5					
Public Housing	10,168	10,445	-277	-2.7	3,394
Vouchers	8,319	9,013	-694	-7.7	3,478
Section 8 Projects	8,520	8,840	-320	-3.6	5,819
Unsubsidized Housing	7,229	7,630	-401***	-5.3	53,749

DATA SOURCES: Administrative records from the Indiana Client Eligibility System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS).

NOTE: A two-tailed t-test was applied to differences between the Welfare Reform and Traditional Welfare groups. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent. Shaded cells indicate where F-test rejected the null hypothesis of equal subgroup impacts.

Exhibit B.6
Five-Year Subgroup Impacts on Food Stamp Receipt
for the Early Indiana Cohort

Subgroup	Welfare Reform Group	Traditional Welfare Group	Difference	Percentage Change	Sample Size
Received Any Food Stamp Payments					
Last Quarter of Year 1					
Public Housing	81.7	89.6	-7.9***	-8.8	3,394
Vouchers	76.0	81.7	-5.7*	-7.0	3,478
Section 8 Projects	78.3	81.5	-3.2	-3.9	5,819
Unsubsidized Housing	63.7	65.3	-1.6	-2.5	53,749
Last Quarter of Year 2					
Public Housing	67.6	65.5	2.1	3.3	3,394
Vouchers	59.5	71.1	-11.6***	-16.4	3,478
Section 8 Projects	62.2	66.6	-4.4	-6.7	5,819
Unsubsidized Housing	49.2	51.3	-2.1	-4.1	53,749
Last Quarter of Year 3					
Public Housing	56.5	58.3	-1.8	-3.0	3,394
Vouchers	48.2	55.7	-7.5*	-13.5	3,478
Section 8 Projects	50.0	52.0	-2.0	-3.8	5,819
Unsubsidized Housing	39.6	41.5	-1.9*	-4.6	53,749
Last Quarter of Year 4					
Public Housing	51.7	53.6	-1.9	-3.7	3,394
Vouchers	42.8	46.1	-3.3	-7.2	3,478
Section 8 Projects	44.2	48.0	-3.8	-7.9	5,819
Unsubsidized Housing	35.3	36.2	-0.9	-2.4	53,749
Last Quarter of Year 5					
Public Housing	48.2	43.8	4.4	10.1	3,394
Vouchers	38.5	40.0	-1.5	-3.9	3,478
Section 8 Projects	41.6	47.7	-6.1**	-12.7	5,819
Unsubsidized Housing	32.7	34.6	-1.9**	-5.5	53,749
Average Total Number of Months Receiving Food Stamp Payments, Years 1-5					
Public Housing	34.1	34.9	-0.8	-2.3	3,394
Vouchers	29.7	33.1	-3.4**	-10.3	3,478
Section 8 Projects	30.9	33.2	-2.3**	-6.9	5,819
Unsubsidized Housing	24.5	25.6	-1.1***	-4.3	53,749

DATA SOURCES: Administrative records from the Indiana Client Eligibility System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS).

NOTE: A two-tailed t-test was applied to differences between the Welfare Reform and Traditional Welfare groups. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent. Shaded cells indicate where F-test rejected the null hypothesis of equal subgroup impacts.

Appendix C

Detailed Impacts for the Later Indiana Cohort

Exhibit C.1
Two-Year Subgroup Impacts on Average Earnings and Employment for the Later Indiana Cohort

Subgroup	Welfare Reform Group	Traditional Welfare Group	Difference	Percentage Change	Sample Size
Average Earnings					
Year 1					
Assisted Housing	4,256	3,692	564*	15.3	982
Unsubsidized Housing	4,770	4,642	128	2.8	3,972
Year 2					
Assisted Housing	6,489	5,620	868	15.4	982
Unsubsidized Housing	6,788	7,110	-322	-4.5	3,972
Average Total Earnings, Years 1-2					
Assisted Housing	10,777	9,316	1,461*	15.7	982
Unsubsidized Housing	11,593	11,795	-202	-1.7	3,972
Employment					
Last Quarter of Year 1					
Assisted Housing	65.7	58.3	7.4**	12.8	982
Unsubsidized Housing	58.6	57.5	1.2	2.0	3,972
Last Quarter of Year 2					
Assisted Housing	62.2	55.7	6.5*	11.7	982
Unsubsidized Housing	55.1	56.9	-1.8	-3.2	3,972
Ever Employed, Years 1-2					
Assisted Housing	89.1	88.6	0.5	0.6	982
Unsubsidized Housing	84.3	81.3	3.0**	3.6	3,972

DATA SOURCES: Earnings and Employment data from the Indiana Unemployment Insurance wage records. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS).

NOTE: A two-tailed t-test was applied to differences between the Welfare Reform and Traditional Welfare groups. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent. Shaded cells indicate where F-test rejected the null hypothesis of equal subgroup impacts.

Exhibit C.2
Two-Year Subgroup Impacts on Average TANF Payments and TANF Receipt
for the Later Indiana Cohort

Subgroup	Welfare Reform Group	Traditional Welfare Group	Difference	Percentage Change	Sample Size
Average TANF Payments					
Year 1					
Assisted Housing	1,698	1,978	-280***	-14.1	982
Unsubsidized Housing	1,412	1,638	-226***	-13.8	3,972
Year 2					
Assisted Housing	1,043	1,303	-260***	-19.9	982
Unsubsidized Housing	712	902	-191***	-21.1	3,972
Average Total Payments, Years 1-2					
Assisted Housing	2,741	3,281	-540***	-16.4	982
Unsubsidized Housing	2,123	2,540	-417***	-16.4	3,972
Received Any TANF Payments					
Last Quarter of Year 1					
Assisted Housing	53.1	56.1	-3.0	-5.4	982
Unsubsidized Housing	35.8	42.1	-6.3***	-15.0	3,972
Last Quarter of Year 2					
Assisted Housing	41.3	41.4	-0.1	-0.2	982
Unsubsidized Housing	28.8	29.7	-0.9	-3.0	3,972
Average Total Number of Months Receiving TANF Payments, Years 1-2					
Assisted Housing	11.1	12.3	-1.2**	-10.0	982
Unsubsidized Housing	8.3	9.3	-1.0***	-10.8	3,972

DATA SOURCES: Administrative records from the Indiana Client Eligibility System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS).

NOTE: A two-tailed t-test was applied to differences between the Welfare Reform and Traditional Welfare groups. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent. Shaded cells indicate where F-test rejected the null hypothesis of equal subgroup impacts.

Exhibit C.3
Two-Year Subgroup Impacts on Average Food Stamp Payments and Food Stamp Receipt
for the Later Indiana Cohort

Subgroup	Welfare Reform Group	Traditional Welfare Group	Difference	Percentage Change	Sample Size
Average Food Stamp Payments					
Year 1					
Assisted Housing	2,290	2,278	12	0.5	982
Unsubsidized Housing	1,811	1,762	49	2.8	3,972
Year 2					
Assisted Housing	1,853	2,006	-153	-7.7	982
Unsubsidized Housing	1,241	1,310	-69	-5.3	3,972
Average Total Payments, Years 1-2					
Assisted Housing	4,143	4,284	-141	-3.3	982
Unsubsidized Housing	3,052	3,071	-20	-0.6	3,972
Received Any Food Stamp Payments					
Last Quarter of Year 1					
Assisted Housing	77.5	77.9	-0.4	-0.6	982
Unsubsidized Housing	52.0	53.8	-1.8	-3.3	3,972
Last Quarter of Year 2					
Assisted Housing	62.9	63.9	-1.0	-1.6	982
Unsubsidized Housing	42.9	41.6	1.3	3.1	3,972
Average Total Number of Months Receiving Food Stamp Payments, Years 1-2					
Assisted Housing	16.1	16.3	-0.2	-1.2	982
Unsubsidized Housing	11.1	11.1	0	0	3,972

DATA SOURCES: Administrative records from the Indiana Client Eligibility System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS).

NOTE: A two-tailed t-test was applied to differences between the Welfare Reform and Traditional Welfare groups. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent. Shaded cells indicate where F-test rejected the null hypothesis of equal subgroup impacts.

Appendix D

Detailed Impacts for the Delaware Cohort

Exhibit D.1
Two-Year Subgroup Impacts on Average Earnings and Employment for the Delaware Cohort

Subgroup	Welfare Reform Group	Traditional Welfare Group	Difference	Percentage Change	Sample Size
Average Earnings					
Year 1					
Assisted Housing	2,744	2,195	548***	25.0	1,002
Unsubsidized Housing	2,690	2,419	271**	11.2	2,810
Year 2					
Assisted Housing	4,069	4,026	43	1.1	1,002
Unsubsidized Housing	4,076	4,029	47	1.2	2,810
Average Total Earnings, Years 1-2					
Assisted Housing	6,813	6,222	591	9.5	1,002
Unsubsidized Housing	6,766	6,448	318	4.9	2,810
Employment					
Last Quarter of Year 1					
Assisted Housing	54.1	43.9	10.2***	23.2	1,002
Unsubsidized Housing	49.4	44.4	5.0***	11.2	2,810
Last Quarter of Year 2					
Assisted Housing	58.5	60.7	-2.2	-3.7	1,002
Unsubsidized Housing	54.1	51.5	2.6	5.1	2,810
Ever Employed, Years 1-2					
Assisted Housing	82.6	82.4	0.2	0.2	1,002
Unsubsidized Housing	81.4	79.0	2.4**	3.0	2,810

DATA SOURCES: Earnings and Employment data from the Delaware Unemployment Insurance wage records. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS).

NOTE: A two-tailed t-test was applied to differences between the Welfare Reform and Traditional Welfare groups. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent. Shaded cells indicate where F-test rejected the null hypothesis of equal subgroup impacts.

Exhibit D.2
Two-Year Subgroup Impacts on Average TANF Payments and TANF Receipt
for the Delaware Cohort

Subgroup	Welfare Reform Group	Traditional Welfare Group	Difference	Percentage Change	Sample Size
Average TANF Payments					
Year 1					
Assisted Housing	2,748	2,979	-231***	-7.8	1,002
Unsubsidized Housing	2,299	2,405	-106**	-4.4	2,810
Year 2					
Assisted Housing	1,332	1,866	-534***	-28.6	1,002
Unsubsidized Housing	968	1,285	-317***	-24.7	2,810
Average Total Payments, Years 1-2					
Assisted Housing	4,080	4,845	-765***	-15.8	1,002
Unsubsidized Housing	3,267	3,690	-422***	-11.5	2,810
Received Any TANF Payments					
Last Quarter of Year 1					
Assisted Housing	73.1	71.5	1.6	2.2	1,002
Unsubsidized Housing	59.2	57.0	2.2	3.8	2,810
Last Quarter of Year 2					
Assisted Housing	39.6	50.7	-11.1***	-21.9	1,002
Unsubsidized Housing	29.8	37.1	-7.3***	-19.7	2,810

DATA SOURCES: Administrative records from the Delaware Client Information System. Housing assistance data are from the US Department of Housing and Urban Development's (HUD) Multifamily Tenant Characteristics System (MTCS) and the Tenant Rental Assistance Certification System (TRACS).

NOTE: A two-tailed t-test was applied to differences between the Welfare Reform and Traditional Welfare groups. Statistical significance levels are indicated as *** = 1 percent, ** = 5 percent, * = 10 percent. Shaded cells indicate where F-test rejected the null hypothesis of equal subgroup impacts.

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