

Understanding the Disparate Impacts of the Social Security Disability Insurance Family Maximum Rules

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Abstract

Many dependents of DI beneficiaries – including spouses caring for children, and minor and disabled children – are eligible for additional DI payments. The aim of this project is to understand how the DI family maximum rules affect the economic security of households with DI beneficiaries, and whether the application of these rules increases or decreases socioeconomic disparities. To do this analysis, I use the Consumer Expenditure Survey and the National Beneficiary Survey as two complementary data sources. I present information on differences by “potential dependents” – children aged under 18 and spouses where such children are present. I find that there are large gaps in income and expenditure between DI and working households that generally increase with the number of potential dependents. More surprisingly, larger DI households generally have lower incomes than smaller DI households. Having the lowest absolute income is particularly concerning when one considers that no adjustments are made here for the number of people in a household. Given that DI is generally providing similarly sized dependent payments for one dependent as for multiple dependents, and lower dependent benefits for DI beneficiaries with poor earnings histories than for DI beneficiaries with better earnings histories, these results suggest that DI is doing better at insuring smaller households with dependents than larger households. The Social Security Administration (SSA) could consider doing more in general for DI beneficiaries with dependents, especially those with many dependents.

Keywords: Disability insurance, Social Security, family maximum, dependents, income, consumption, living standards.

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1. Introduction

Social Security Disability Insurance (DI) is a vital part of the social safety net, insuring 179 million Americans against economic hardship associated with work-limiting disabilities. The Social Security Administration (SSA) regularly provides information on the payments going to DI beneficiaries. In December 2021, primary DI beneficiaries received an average monthly payment of \$1,358 (SSA, 2022). These payments have increased over time, based on cost-of-living increases and changes in average wages (Autor and Duggan, 2003; Muller, 2008).

DI has always provided auxiliary payments for some dependents of disabled workers. Currently, dependent payments can be made for children who are aged under 18, school students aged 18 or 19, or adult children who were disabled before age 22. They are also available for spouses and divorced spouses if they care for children aged under 16 or if they are aged 62 and over. In 2020, 82 percent of dependent payments were made for minor children, with eight percent for disabled adult children and seven percent for spouses or divorced spouses (SSA, 2022).

The “family maximum” rules governing these payments are complex and less generous than for Old-Age and Survivors Insurance (OASI), tending to limit support to families of disabled workers with low levels of past earnings (Romig & Shoffner, 2015). For those with extremely low levels of past earnings, DI provide no dependent benefits, while it is not until around \$2000 in Average Indexed Monthly Earnings (AIME) that dependent benefits reach 50 percent of the primary beneficiary amount, which is the maximum. Moreover, this limit means that dependent payments are the same when there are multiple dependents as when there is one dependent.

The aim of this paper is to understand how the income and economic resources of households with a DI beneficiary varies with the number of children and the presence of a spouse. This can inform our understanding of how DI family maximum rules affect the economic security of households with DI beneficiaries.

To do this analysis, I use the Consumer Expenditure Survey and the National Beneficiary Survey as two complementary data sources. Moore and Ziebarth (2014) use the Consumer Expenditure Survey (or “CE Survey”) to compare the income and expenditure of households with DI beneficiaries to households with workers. They determine what restrictions and adjustments are necessary to identify DI beneficiaries. After focusing on households with adults aged under 60 years, whose reported DI income is close to official SSA estimates, they show that the income of households with DI beneficiaries is lower than that of households with wage earners. There are

also differences in expenditures, although the gaps are smaller and more consistent over time than the gap in income. Moore (2023) extends this analysis to look at differences by race and ethnicity.

Especially when people have different sources of income and different demands on their time, we want to know how much they are spending and information about their living situation. DI payments may not translate into the same levels of consumption as someone receiving equivalent levels of wage income. One reason is that healthcare expenditures may be different, either higher because of beneficiaries' disabilities or lower because of their Medicare eligibility. Another reason is that the economic resources available to DI beneficiaries, through their own savings and the income and wealth of other household members, may be different to other households. Yet another reason is that disabled individuals have more non-work time and may shop differently (Aguiar and Hurst, 2005; Meyer and Mok, 2013).

In this paper, I present information on differences by “potential dependents” – children aged under 18 and spouses where such children are present – for households receiving DI payments using CE Survey data from 2010 to 2019. I focus on households with adults aged under 60 years, and compare the income and expenditure of households receiving DI income to similarly sized households with wage earnings but no DI income. I focus on households with between one and four potential dependents, and also conduct separate analysis for two-parent and single-parent households.

The National Beneficiary Survey (NBS) surveys DI beneficiaries and SSI recipients about the key health, employment, and socio-demographic factors that contribute to employment outcomes. In addition to surveying disability beneficiaries, the NBS data includes information from SSA administrative data. I use the public-use version of the microdata for the most recent two rounds of the NBS, as they provide fairly current information on DI beneficiaries. I focus on DI beneficiaries, including individuals receiving both DI and Supplemental Security Income (SSI), who have between one and three-or-more children aged under 18. I conduct separate analysis for married and unmarried DI beneficiaries, and those with low and high levels of DI payments (both payments to the primary beneficiary and to dependents). I consider differences by outcomes like household income, poverty, home ownership, and the fraction struggling to meet basic financial needs.

There are large gaps in income and expenditure between DI and working households that generally increase with the number of potential dependents (i.e., minor children and spouse, where

present). More surprisingly, larger DI households generally have lower incomes than smaller DI households. For example, in the CE Survey, DI Households with four or more dependents have the lowest income in both absolute terms and relative to Non-DI Households of a similar size, with income equal to 40 percent of Non-DI Households with four or more potential dependents. Having the lowest absolute income is particularly concerning when one considers that no adjustments are made here for the number of people in a household (by using an equivalence scale for the economic needs of a household). These sorts of differences appear across both data sets and for a wide variety of outcomes. Consistent with a broader literature on households, single-parent/unmarried DI households and households with low earnings histories generally have less income and economic resources than other households, and these types of households generally do particularly poorly when there are multiple children and the family is larger.

This paper is an important step in understanding the consumption and economic resources of disability beneficiaries, and especially the role of family maximum rules. DI is generally providing similarly sized dependent payments for one dependent as for multiple dependents, and lower dependent benefits for DI beneficiaries with poor earnings histories than for DI beneficiaries with better earnings histories. These results suggest that DI is doing better at insuring smaller households with dependents than larger households. The Social Security Administration (SSA) could consider doing more in general for DI beneficiaries with dependents, especially those with many dependents.

2. Background

2.1 Who can receive DI payments as a dependent?

The children of the primary beneficiary are the most common recipients of dependent benefits. In order to qualify, children must be under 18 years of age; or aged 18 or 19 and a fulltime student in high school; or judged by SSA to be disabled from a disability that started before the age of 22. Children meeting these criteria must also be unmarried.

Spouses can also be eligible for benefits if are caring for a child under age 16 or a child who was disabled before age 22, and is entitled to benefits. Dependent benefits can also be paid to spouses aged 62 or older. In both cases, divorced spouses can receive dependent benefits, depending on the length of the marriage.

In December 2021, there were 1,340,951 dependents of primary DI beneficiaries. Children under 18 accounted for 82 percent of this total, while 2.3 percent were children aged 18 or 19 years who were fulltime students and 8.5 percent were adult disabled children. Spouses accounted for 7.2 percent of the dependents (SSA, 2022).

2.2 Payments to the primary DI beneficiary and to dependents

A primary DI beneficiary's monthly cash benefit is calculated when they apply. The first step is to calculate the Average Indexed Monthly Earnings (AIME); see SSA (2022) for details about how this is done. The second step is to calculate an applicant's Primary Insurance Amount (PIA), which is the monthly payment to the primary beneficiary. This is based on their AIME using a progressive formula with two "bend points." In 2020, this was equal to 90% of the first \$960 of AIME, plus 32% of the next \$4,825 of AIME, plus 15% of AIME over \$5,785. In December 2021, the average monthly payment to primary DI beneficiaries was \$1,358.

The starting point for DI dependent payments is that they are 50 percent of the primary beneficiary's PIA. However, the total DI benefits a family receives from a worker's earnings record cannot be more than 85 percent of AIME or 150 percent of PIA. It also cannot be less than PIA, which is relevant at low levels of AIME (Romig and Shoffner, 2015). One implication of this is that DI dependent payments are the same regardless of whether there are one or multiple dependents, because of the 150-percent-of-PIA rule.

The relationship between PIA and family maximum benefits is shown in Figure 1. At low levels of AIME, there are no dependent benefits paid. This is because the 90 percent replacement rate for PIA is greater than 85 percent of AIME. In 2020, it is not until a PIA of \$1,051 – or \$91 above the lower bend point – that any dependent payments are paid. For an extra dollar of PIA above this level, primary plus dependent benefits of \$0.85 can be paid (where PIA increases by \$0.32 for every dollar in this range. This relationship continues until a "bend point" in the family maximum rules at the AIME level where the binding rule changes from the 85-percent-of-AIME rule below the bend point, to the 150-percent-of-PIA rule above the bend point. In 2020, this occurred where AIME was \$2,257. For every dollar of AIME above that level, the primary-plus-dependent DI benefits increases by \$0.48 for every dollar of PIA (i.e., 150 percent of the 32 percent replacement rate). Beyond the upper bend point, the total DI payments increase by \$0.225 for each dollar of PIA (i.e., 150 percent of the 15 percent replacement rate).

Moore et al. (2023) use the lower bend point, “family maximum” bend point, and upper bend point to analyze how DI benefits affect mortality. They use data on DI-only beneficiaries from the Disability Analysis File, and find that the lower bend point occurs at the fourth percentile of AIME, the family maximum bend point at the 30th percentile, and the upper bend point at the 84th percentile of the AIME distribution. This suggests that the bottom third of DI beneficiaries would have dependent benefits less than 50 percent of PIA, while DI beneficiaries with higher AIME values generally should have dependent payments equal to 50 percent of PIA.

2.3 Background on the Consumer Expenditure Survey

The Consumer Expenditure Survey (“CE Survey”) is a household survey conducted by the Bureau of Labor Statistics designed to collect information on family income and expenditures, assets and liabilities, as well as family members’ demographic and economic characteristics. It is a rotating panel, where information on respondent households is collected over a 12-month period.

The survey design and data collection has been broadly similar since 1980, with the information collected changing slightly over time. Information on specific incomes sources, including Social Security income, has been collected since 1984. The sample is redesigned every ten years, with the most recent redesign occurring in 2020.

The CE Survey is designed to be representative of the US non-institutionalized civilian population. Each quarter, about 7,000 interviews are conducted. In April 2003, the survey mode changed from Paper and Pencil to Computer Assisted Personal Interviews (BLS, 2014). The main unit of observation is the “Consumer Unit (CU),” which essentially consists of a household with elements of joint decision making when it comes to expenditures. “CU” and “household” are used interchangeably throughout the paper.

The CE Survey consists of two main surveys: (i) the Interview Survey and (ii) the Diary Survey. For the Interview Survey, every CU is interviewed five times, or every three months over a 12-month period. Income and employment information is collected in the second and fifth interviews, while expenditure information is surveyed from the second to the fifth interview. The expenditure information collected in the Interview Survey focuses on larger expenditures such as expenditures for rent, automobiles, or major durable goods (BLS, 2014). The main purpose of the Diary Survey component, by contrast, is to focus on smaller expenditures that cannot easily

be recalled over longer time periods, such as detailed food, tobacco, and prescription drug expenditures. It is carried out in a diary form over two consecutive periods of one week each and is conducted once for each household.

Since the main purpose of this paper is not to exploit the panel structure of the CE Survey but to provide accurate measures of specific population subgroups and their relative income and expenditures, I conduct the following first sample selections. First, I focus on the data from the 2010 to 2019 period; given the redesign in 2020, this provides a large and consistent sample of recent respondents. I focus on the Interview Survey, as it contains information on income, expenditure, and housing information at the CU level. Bee, Meyer and Sullivan (2015) find that the reporting of consumer expenditures in the Interview Survey matches national account information fairly closely, while that is not the case for the Diary Survey. The large expenditures measured in the Interview Survey are also the most important ones when it comes to evaluating the well-being of different households. Second, the analysis uses information from the second interview only. Only the second and fifth interviews collect income *and* expenditure information simultaneously. Focusing on the second interview minimizes the issue of sample attrition.

Measuring DI Income in the CE Survey.

Prior research suggests that DI is reasonably well recorded in the CE Survey. Meyer, Mok and Sullivan (2009) compare the reporting of government transfers for ten of the major transfer programs in five major nationally-representative household surveys, including the CE Survey. They first compare annual dollars of Social Security income reported in the CE Survey through 2006 to administrative sources. They find that between 88 and 93 percent of dollars are reported between 1986 and 1999. The fraction is lower and more volatile from 2000 to 2006, varying between 75 and 89 percent. They estimate that the average annual reporting rates for DI income – separate from Retirement and Survivors Insurance income – are similar, although there is more year-to-year variability in the estimated coverage.

Moore and Ziebarth (2014) examine the reporting of DI income in the CE Survey in more detail. Every member of a CU is asked about whether they are receiving Social Security income, but they are not asked specifically about whether it is from DI or from the Retirement and Survivors Insurance program. Moore and Ziebarth (2014) show that age restrictions can remove nearly all individuals not receiving Social Security for DI, allowing the identification of DI

beneficiaries. They restrict the CE Survey sample to one where the head of household and spouse (where present) are aged between 18 and 59 years, and remove full-time students receiving Social Security at age 18 and 19. After doing this and comparing the CE Survey estimates to SSA administrative data, they estimate that more than 97 percent of respondents receiving Social Security income would be receiving it through the DI program. Moreover, they show that the level and trends for DI income and DI beneficiaries aged 18-59 in the CE Survey data closely match SSA administrative data between 1986 and 2011.

On that basis, the CE Survey does appear to provide information about working-age Social Security beneficiaries that is broadly consistent with official sources. I follow Moore and Ziebarth (2014) in choosing sample restrictions that allow me to use households where their Social Security income is highly likely to be coming from the DI program.

Measuring likely DI dependents and creating a comparison group of households with earnings

I focus on the households with children aged under 18 years. These account for the majority of dependent beneficiaries, especially as all spouses under aged 60 years are eligible on the basis of caring for children under 16 years of age. The BLS create a variable for the presence of children aged under 18 in the household, making it a well-measured sample restriction. Therefore, all of the data used in this analysis consists of households where the head and spouse (if present) are aged 18-59 years, as that is the age range over which we can consistently identify households receiving DI income, and where a child aged under 18 years is present. I also focus on the second interview, which includes information on income and expenditures.

From those households, I define “DI households” as a group consisting of households with any Social Security income in the previous year. While the member files are meant to record income for each member, it is not clear how households report DI dependent payments so total Social Security income is used.

The main comparison group of “Non-DI Households” consists of households no one aged over 60 years and with children where any of the members are working and earning income (but receive no Social Security income). This is an appropriate comparison group, as DI provides insurance to workers with sufficient Social-Security-covered earnings. All remaining households are dropped from the analysis.

2.4 Background on the National Beneficiary Survey

The National Beneficiary Survey (NBS) surveys DI beneficiaries and SSI recipients about the key health, employment, and socio-demographic factors that contribute to employment outcomes. In addition to surveying disability beneficiaries, the NBS data includes information from SSA administrative data. Seven rounds of the survey have been conducted, with the first in 2004 and the most recent ones in 2017 and 2019. The survey is conducted by Mathematica Policy Research using computer-assisted telephone interviewing (CATI), and computer-assisted personal interviewing (CAPI) for beneficiaries who do not respond to the CATI interview or who prefer or require an in-person interview.

I use the public-use version of the microdata for the most recent two rounds (2017 and 2019), as they provide fairly current information on DI beneficiaries. I focus on DI beneficiaries, including individuals receiving both DI and Supplemental Security Income (SSI). I use the nationally representative sample of adult SSDI beneficiaries and SSI recipients, and drop the additional module that focuses on a more targeted sample of beneficiaries and recipients.

In the public data, there is information on the size of DI payments to the primary beneficiary and also the size of DI payments to dependents. In addition, there is information on children inside and outside of the household. I focus on the variable measuring the number of own children that the beneficiary has, which is top-coded at 3 for three or more children. There is also information on the marital status of the beneficiary, and the number of adults living in the household.

As with the CE Survey, I focus on households with children under 18 years of age as they account for the majority of dependent DI payments. Moreover, the number of potential dependents is easier to judge in those households.

3. Analysis of Income and Economic Outcomes Using the CE Survey

I start with the analysis of the CE Survey to understand the outcomes of DI beneficiaries with dependents and how it differs to working households with similar numbers of children. I use the final household survey weights throughout the analysis, which creates statistics that should be representative of the US non-institutionalized civilian population (conditional on these sample restrictions).

As discussed above, I restrict the sample to households where the head and spouse (if

present) are aged 18-59 years, as that is the age range over which we can consistently identify households receiving DI income. I also restrict the sample to those where there is a child aged under 18 present.

I make some additional adjustments to create a sample of households that are comparable and also likely to be eligible for dependent benefits if a worker is eligible for DI. I also keep family types reporting their own children only, as other children may be not be eligible for dependent DI benefits. To remove the influence of outliers or coding errors, I also drop households reporting more than six children under the age of 18, which account for around 0.2 percent of respondent households with any children aged under 18 years.

I define “DI Households” as those that received Social Security income in the previous 12 months. The main comparison group of “Non-DI Households” consists of households where any of the members are working and earning income (but receive no Social Security income). All remaining households – which do not receive Social Security income or have earnings, and which represent around three percent of remaining households – are dropped from the analysis.

I define dependents or “potential dependents” as the number of children aged under 18 years plus the spouse in married households, and the number of children aged under 18 years in other households. They are “potential” both in the sense that not all may be paid DI benefits in DI Households, and in Non-DI Households they are the household member likely to be eligible for dependent DI payments if a worker became eligible for DI. For some of the outcomes, I will report characteristics for married and single-parent households, as the latter had no eligible spouse but also may have fewer economic resources.

After these restrictions, there are 14,161 households over the 2010-2019 period. As shown in Table 1, there are 366 DI Households and 13,278 Non-DI Households. Among DI Households, 82 have one dependent, 137 have two dependents, 69 have three dependents, 41 have four dependents, 21 have five dependents, and 15 have six or more dependents. In general, I will combine all households with four or more dependents, which includes 77 DI households. There are at least 1,200 households in each of the comparable family-size groups for Non-DI Households. When we break it down by two-parent households and one-parent households, there are generally enough households to be informative, although the numbers are 15 or less for single-parent DI Households with three or four-plus children.

Table 2 shows the descriptive statistics for the 2010-2019 CE Survey sample for DI/Non-

DI households and the number of potential dependents (children plus spouse, where present). The average ages for the reference person in the DI Households is slightly older than the averages for the Non-DI Household types when there are one or two potential dependents. These differences in average ages are not surprising, given that the likelihood of disabilities that limit work increase with age. Among one-or-two dependent households, there are small DI/Non-DI differences in racial composition, but larger ones for three-or-four dependent households. There are differences in terms of educational attainment, with the reference person from DI households more likely to have not completed high school or college than Non-DI Households. Marriage rates are also lower for the reference person in DI Households than in Non-DI Households. DI households with more potential dependents are more likely live in non-metropolitan areas than Non-DI Households.

3.1 Defining Income and Expenditure Measures

For each household, I use an aggregate measure of income. In the second quarter interview, every CU member is asked detailed income questions. The BLS takes these individual measures and aggregates them to the CU level, creating a variable for *Total Income after Taxes*. This variable is used as a measure of household income.

The CE Survey mainly measures consumption through expenditures. As mentioned, several categories of regular and irregular, smaller and bigger expenditures are collected in the CU-level family files. When appropriate, the BLS adds smaller individual expenditures over all CU members and includes them in the family files.

The main expenditure category is *Total Expenditures*. *Total Expenditures* is the sum of 14 different expenditure subcategories. I also examine the following subcategories: (i) *Food Expenditures*; (ii) *Health Care Expenditures*; (iii) *Housing Expenditures*; and (iv) *Transportation Expenditures*. *Health Care Expenditures* consist of health insurance premiums as well as out-of-pocket spending for medical services, prescription drugs, and medical supplies. This is especially relevant given the high health care needs of disabled workers. *Housing Expenditures* includes the four expenditure subcategories: “shelter,” “utilities,” “household operations,” and “house furnishing and equipment.” *Transportation expenditures* include net outlays for new and used vehicles; gas and motor oil; vehicle finance charges and costs for insurance; maintenance and repairs; expenditures for rentals, leases, and licenses; and spending on public transportation. For each category, I use expenditure for the last quarter, although I annualize it by multiplying by four

to make the values more comparable to the income measure.

3.2 Analysis of Income by Number of Dependents

The income of households with DI beneficiaries are now documented relative to other households with workers. For each income and expenditure outcome, I provide on the mean and median values for DI households and for Non-DI Households by the number of potential dependents they have (i.e., one, two, three and four-plus potential dependents). I then split the groups into two-parent (married) and single-parent households. Given that two-parent households have at least one child aged under 18 years and are assumed to have an eligible spouse, there are always at least two potential dependents. This provides some insight into dependent benefits and how it helps households with different structures and economic resources.

Social Security income if the first outcome considered, with the mean and median values presented in Figure 2. This is obviously only non-zero for DI Households, but it helps us understand how DI income varies with the number of potential dependents. Overall, there is a small increase in Social Security income with the number of dependents, although both the mean and median values are fairly constant beyond the first dependent. This is broadly in line with the policy rules, and the differences suggest that households with fewer dependents may have a slightly lower PIA on average (which lowers both primary and dependent payments). Compared to two-parent DI Households, single-parent DI Households have slightly lower mean and median amounts of Social Security income, although the low sample sizes make it difficult to infer a lot about the differences and how they vary with the number of dependents.

Post-tax income is the next outcome considered, with mean and median values presented in Figure 3 for all households, two-parent households, and one-parent households. DI Households have lower mean annual post-tax incomes than Non-DI Households, with their mean equal to 85 percent of Non-DI Households when comparing households with one potential dependent, and between 42 and 51 percent of Non-DI Households when the comparisons are made across larger households. DI Households also have lower median annual post-tax incomes than Non-DI Households, with their mean equal to 67 percent of Non-DI Households for households with one potential dependent, and between 40 and 48 percent of Non-DI Households for larger households.

Households with one potential dependent are all single-parent households, so interpretations are easier when keeping parental composition the same for both DI and Non-DI

households. For two-parent DI Households, the post-tax income is higher than the overall mean and median. However, the relative gaps between DI and Non-DI households are similar or larger than before. DI Households with four or more dependents have the lowest income in both absolute terms and relative to Non-DI Households of a similar size, with income equal to 40 percent of Non-DI Households with four or more potential dependents. Having the lowest absolute income is particularly concerning when one considers that no adjustments are made here for the number of people in a household (by using an equivalence scale for the economic needs of a household, e.g., dividing income by something like the square root of the number of household members). The median values suggest that larger two-parent DI Households have a similar income to smaller DI Households, although the point about needing to provide for more family members with that income remains.

Figure 3 also includes information on single-parent households. The post-tax income of single-parent DI Households is generally lower than two-parent DI Households, with the exception that households with four or more dependents have about the same income levels. In relative terms, the gaps between single-parent DI Households and single-parent Non-DI Households are generally smaller. Single-parent DI Households with one potential dependent have a mean annual post-tax income that is 95 percent as large as for Non-DI Households with one potential dependent, while in relative terms DI Households have income that is between 70 and 89 percent of the income of Non-DI Households when the comparisons are made across larger households. Similar patterns are observed using median income values, although the gaps between DI and Non-DI households are larger using this measure. Given that DI is providing similarly sized dependent payments for one dependent as for multiple dependents, this suggests that DI is doing better at insuring smaller households with dependents than larger households (on the assumption that other households of a similar size with earners provides an appropriate comparison).

3.3 Expenditure Measures

As discussed in the introduction, expenditure patterns do not necessarily match income patterns. The value of the CE Survey is that these can be considered for the same sample of households. This is especially information in this paper, as families with minor children may have access to other social safety net programs that provide in-kind or other support that means their

expenditure can be even more different from their income than other households. Single parents may have access to additional forms of support relative to two-parent families.

Similar information to that presented for post-tax income is now presented for total expenditure in Figure 4. I will primarily focus on results where expenditure patterns provide different or new insights relative to the patterns for post-tax income that have already been discussed. Note that total annualized expenditure in the CE Survey does not necessarily represent all spending made by a household (Fernández-Villaverde and Krueger, 2007). Therefore, it is difficult to directly compare the income and expenditure results in levels. Rather, it is useful to consider the relative differences by DI status and the number of potential dependents.

In those terms, there are some similarities and some differences between these results and those for post-tax income. The overall patterns in Panels A and B, which combines two-parent and single-parent households, are qualitatively similar to those presented for post-tax income. When the analysis is restricted to two-parent households, the patterns are also similar. DI Households with three or four-plus dependents have the lower expenditure in both absolute terms and relative to Non-DI Households of a similar size. Their expenditure is equal to around 62 percent of Non-DI Households of a similar size, while it is equal to 80 percent for DI Households with one dependent. Again, having lower absolute expenditures with growing family size is concerning, and suggests larger two-parent DI Households have low levels of equivalized spending.

The expenditure patterns for single-parent DI Households are more promising than the income analysis. In relative terms, the gaps between single-parent DI Households and single-parent Non-DI Households are generally smaller. Single-parent DI Households with one potential dependent have a mean annual expenditure that is 99 percent as large as for Non-DI Households with one potential dependent, while in relative terms DI Households have income that is between 85 and 102 percent of the income of Non-DI Households when the comparisons are made across larger households. Using median expenditure, single-parent DI Households with three or four-plus potential dependents actually have higher values than single-parent Non-DI Households of the same size (the relative amounts are 143 and 111 percent, respectively). The income measure suggested that DI is doing better at insuring smaller households with dependents than larger households, while this suggests that when combined with broader support or non-income sources that larger DI Households are doing relatively well in terms of expenditure (at least relative to working single-parent households of a similar size).

I consider other types of expenditure, focusing on median spending by two-parent and single-parent households in Figure 5. Particular types of expenditure may be more relevant to judging well-being than other expenditure categories. One is food expenditure, which is important for understanding the day-to-day well-being of households. Other relevant measures are spending on housing and on healthcare. Generally, these results support the analysis for total expenditures. Two-parent DI Households with two dependents (i.e., one child) are spending the same or more than Non-DI Households of a similar size and also larger DI Households with two parents, who are also doing relatively worse than Non-DI Households of a similar size. Single-parent DI Households spend more on food than Non-DI Households at all household sizes, and are generally spending similar amounts on housing and healthcare.

4. Analysis of Income and Economic Outcomes Using the National Beneficiary Survey

We can now use the NBS to understand more details about the outcomes of DI beneficiaries with dependents. One advantage of the NBS is that there is more information about DI beneficiaries, including DI program information. Another advantage is that the survey has larger numbers of DI beneficiaries. The main disadvantage is that we cannot compare households with DI beneficiaries to working households with similar numbers of children.

I use all respondents reporting DI program participation that have children aged under 18 years. DI beneficiaries with three or more children are grouped together in the public data. I now report the characteristics and outcomes for DI beneficiaries based on the number of children, as there are not working households that make it easier to see the impact of household composition. However, I report results separately for married and non-married households, and the results for married households by number of children should closely represent the number of dependents minus one (i.e., a married household with two children potentially has three dependents in the household). I use the survey weights throughout the analysis.

There is direct information here on the size of monthly dependent payments. Figure 1 already shows the relationship between the family maximum benefits and the PIA, which suggests that DI beneficiaries with low levels of AIME should have no dependent benefits and DI beneficiaries with AIME above around \$2000 should have payments of about 50 percent of PIA coming from their record. In the NBS, these data are not as clean as implied by the SSA formulas. Figure 6 shows the densities of PIA both for DI beneficiaries who do not have a dependent payment

recorded and those that do have one. Those without a dependent payment do tend to have lower PIA values, but the distributions are overlapping.

For each DI beneficiary, I calculate the ratio of DI dependents benefits to DI primary benefits. There are many DI beneficiaries with children who receive no dependent benefits or benefits equal to approximately 50 percent of the primary benefit, it is just that these ratios have a looser relationship to PIA. Restricting the sample of DI beneficiaries to those with a PIA below \$800 appears to create a group with almost no dependent payments, as dependent benefits average only 1.4 percent of the primary benefit. At the other end of the PIA distribution, restricting the sample of DI beneficiaries to those with a PIA above \$1300 appears to create a group with dependent payments equal to 29 percent of the primary benefit, which is around the largest ratio that can be obtained through sample restrictions. (Note that a PIA of \$1300 occurs with an AIME of just over \$2000, which fits with the family maximum formula. The NBS does not report AIME values.)

Therefore, in addition to reporting outcomes for all DI beneficiaries based on the number of children aged under 18 years, I also split the sample by married/unmarried status and by whether PIA is below \$800 (“low PIA”) or above \$1300 “high PIA (and dropping the approximately half of respondents with PIA values between \$800 and \$1300). As shown in Table 3, among DI beneficiaries with children, 593 have one child, 300 have two children, and 187 have three or more children. When I break it down by marriage and PIA values, there are generally enough respondents to be informative, with the lowest numbers being for the PIA-based sample split, with around 40 respondents in each PIA group for DI beneficiaries with three or more children.

Table 4 shows the descriptive statistics for all beneficiaries and the PIA sample split, with the fraction married among the characteristics reported. In terms of age and sex, DI beneficiaries with more children are generally younger and more likely to be male than those with fewer children. The biggest difference in these characteristics is across the PIA groups; the fraction male in the Low PIA groups is around 30 percent, while it is generally more than double that amount in the High PIA groups. DI beneficiaries with fewer children are more likely to be White and less likely to be Black or Hispanic than beneficiaries with more children. There are also differences in terms of educational attainment. Educational attainment generally declines with the number of children, while all of the Low PIA groups have lower educational attainment than the equivalent High PIA groups. Low PIA groups are less likely to be married than the equivalent High PIA

groups. There are also differences in the terms of program outcomes, with the PIA and the size of payments to the primary beneficiary decreasing with the number of children, and the likelihood of receiving SSI increasing with the number of children.

4.1 Analysis of Income by Number of Children

The income of DI beneficiaries is now documented. For each income and expenditure outcome, I provide the mean and median values for DI households by the number of children they have. I then split the groups into married and unmarried primary beneficiaries, then into Low PIA and High PIA groups. This provides some insight into dependent benefits and how it helps households with different structures and economic resources.

DI income for dependents is the first outcome considered, with the mean and median values presented in Figure 8. Across all DI beneficiaries and within the subgroups, dependent benefits are highest for DI beneficiaries with two minor children and lowest for those for households with three or more children. These differences have to come from PIA differences, as dependent benefits are the same for one or multiple dependents. Married DI beneficiaries have higher payments than unmarried ones.

Household income is the next outcome considered, with mean and median values presented in Figure 9 for all households; married and unmarried primary beneficiaries; and Low PIA / High PIA groups. The patterns are broadly similar to those in Figure 8. DI beneficiaries with two children do better than DI beneficiaries with one child and also three or more. For example, the median household income for DI beneficiaries with two children is \$30,000, while it is around \$24,000 for the other two groups. For unmarried DI beneficiaries, median household income is between 40 and 67 percent the size of married beneficiaries with the same number of children. Unmarried beneficiaries with three or more children have an average income of around \$19,000 and median income of \$16,000, suggesting that they have few resources outside of DI benefits. These are the lowest values for any of the marriage-children combinations, which is consistent with the CE Survey analysis.

To reiterate, having the lowest absolute income is particularly concerning when one considers that no adjustments are made here for the number of people in a household (by using an equivalence scale for the economic needs of a household, e.g., dividing income by something like the square root of the number of household members). The analysis of Low PIA households also

points to a lack of household income among larger, low-income families. Beneficiaries with two children have the lowest mean and median income values, while DI beneficiaries with three or more children have only slightly higher values.

4.2 Analysis of Other Economic Outcomes by Number of Children

Finally, I report some additional outcomes in Figure 10, focusing on the outcomes by for children when split by marriage status and Low PIA / High PIA. Consistently, larger families are more likely to report they struggle to meet basic needs, with half of all married DI beneficiaries with three or more children reporting this. The fraction below the poverty line also increases with number of children, with approximately 80 percent of unmarried DI beneficiaries with three or more children living below the poverty line. Finally, I show that home ownership is generally lower for DI beneficiaries with three or more children than for other DI beneficiaries with minor children. Consistent with the CE Survey results, these outcomes suggest that DI is doing better at insuring smaller households with dependents than larger households.

5. Conclusion

There are two main conclusions from this paper. First, there are large gaps in income and expenditure between DI and working households that generally increase with the number of potential dependents (i.e., minor children and spouse, where present). Second, larger DI households generally have lower incomes than smaller DI households.

I had intended to work out how different payment amounts would affect household income levels under different payment rules. However, the data for the NBS respondents do not match the policy rules so more research is needed before making these calculations. However, back-of-the-envelope calculations suggest that a consistent 50 percent payment per dependent could marked increase the income of larger households and make them better off than smaller DI households in absolute terms. Adopting the OASI rules would lead to slight improvements, but given the poor outcomes of household with three or four potential dependents, by itself it would only have a small impact on closing the gap between those households and other ones.

I plan to do more on alternate rules in future research.

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Figure 1 Relationship of the Primary Insurance Amount to Average Indexed Monthly Earnings and the Family Maximum Payments

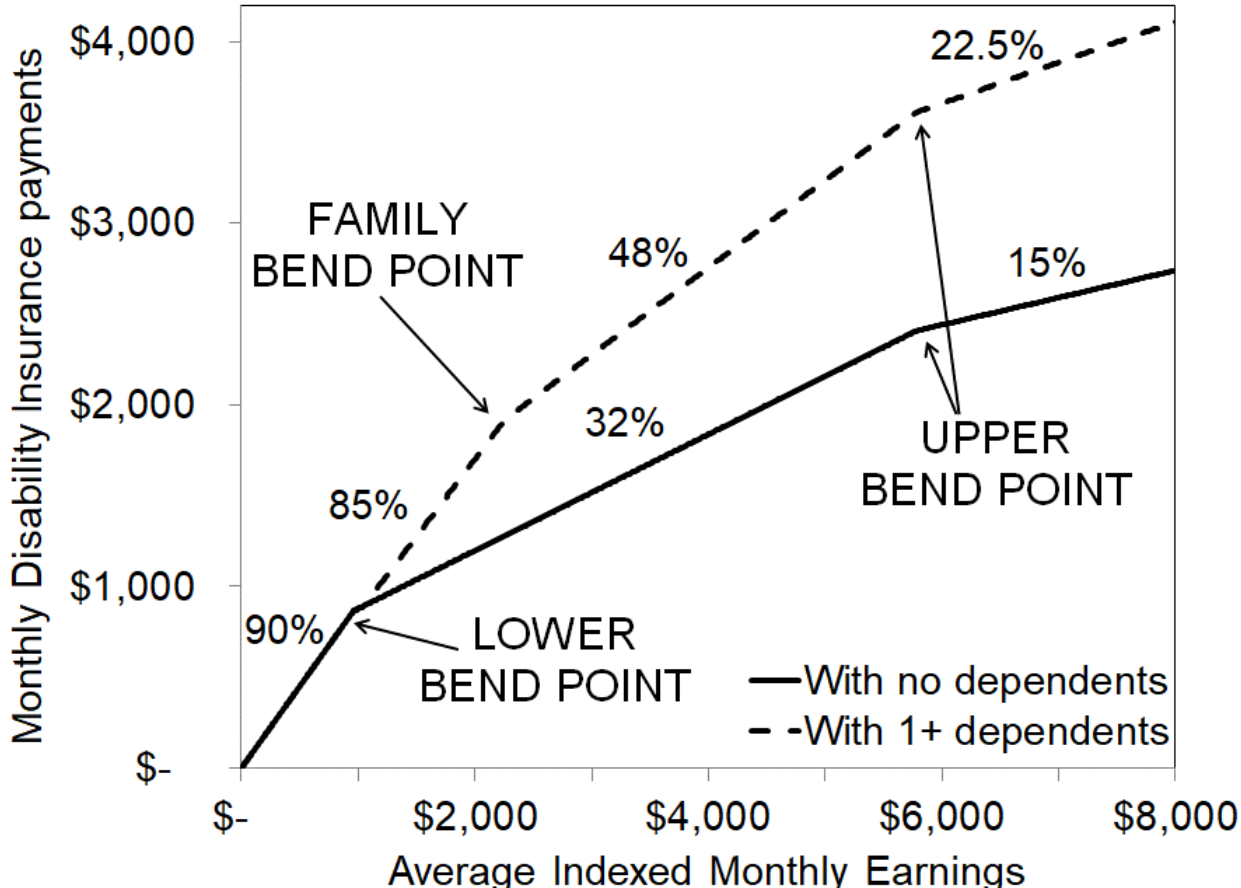


Figure 2 Social Security Income of Households with DI Income by Potential Dependents, Consumer Expenditure Survey

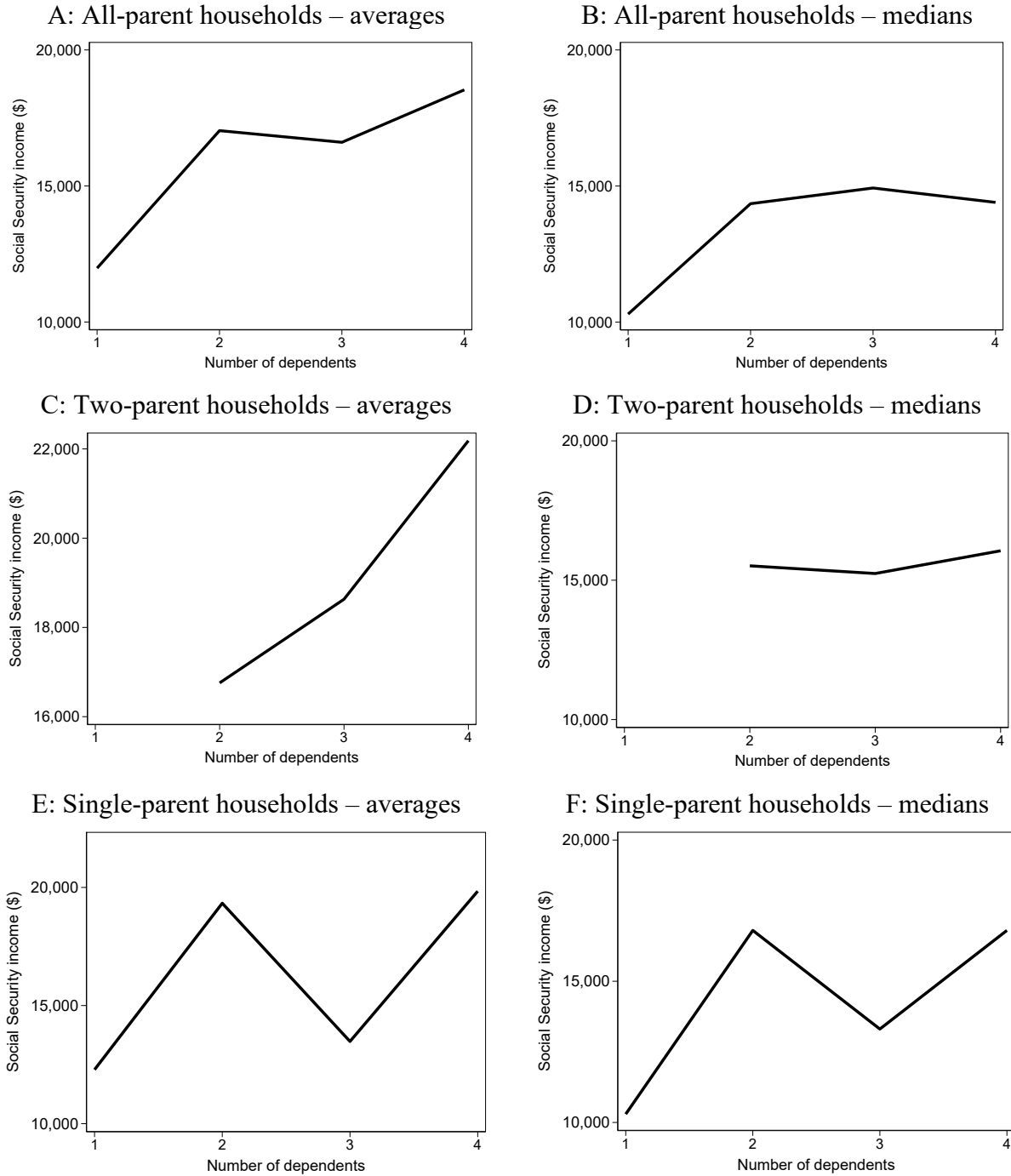


Figure 3 Post-Tax Income of Households with DI Income by Potential Dependents, Compared to Non-DI Households with Earnings in the Consumer Expenditure Survey

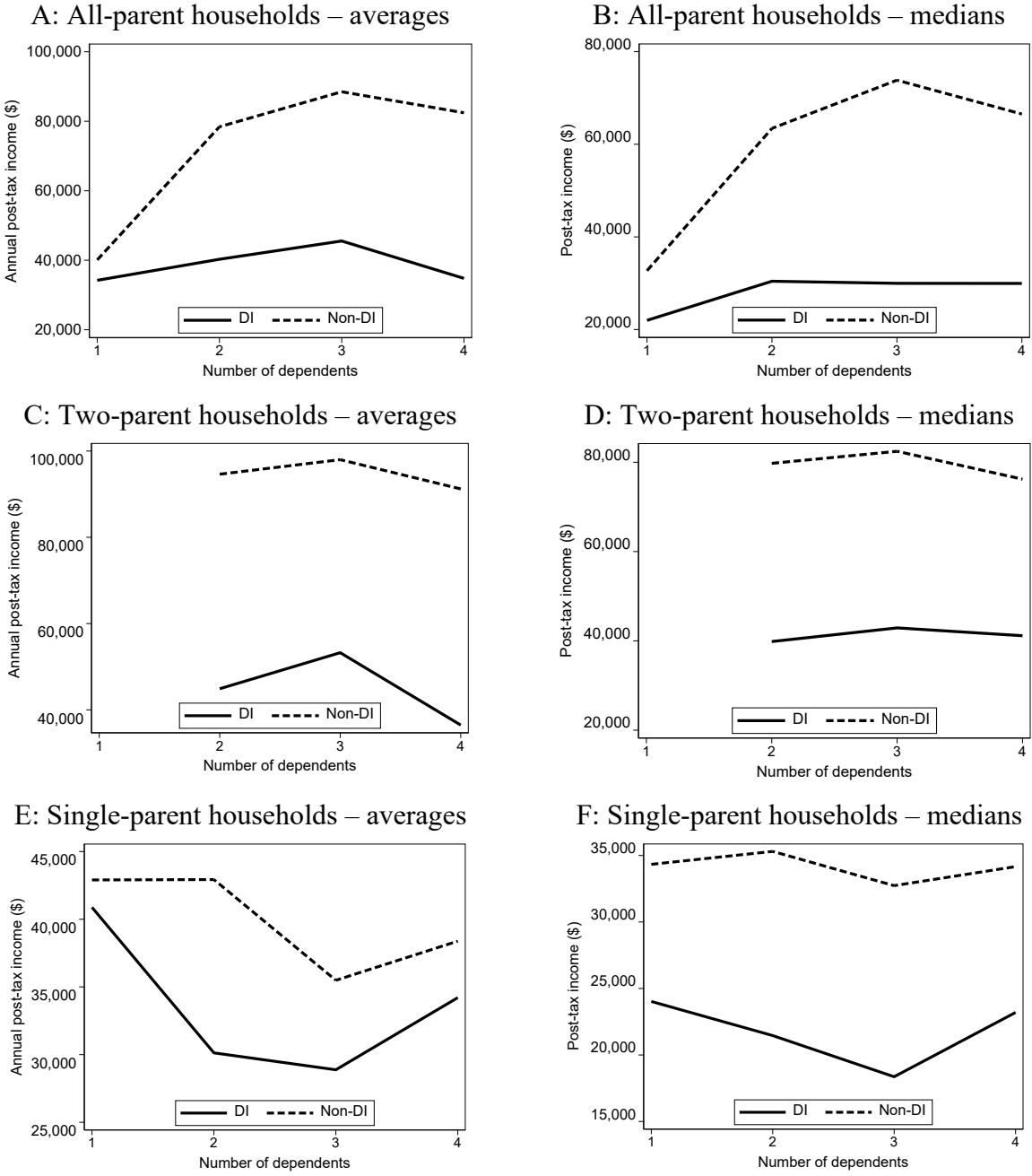


Figure 4 Total Annual Expenditure of Households with DI Income by Potential Dependents, Compared to Non-DI Households with Earnings in the Consumer Expenditure Survey

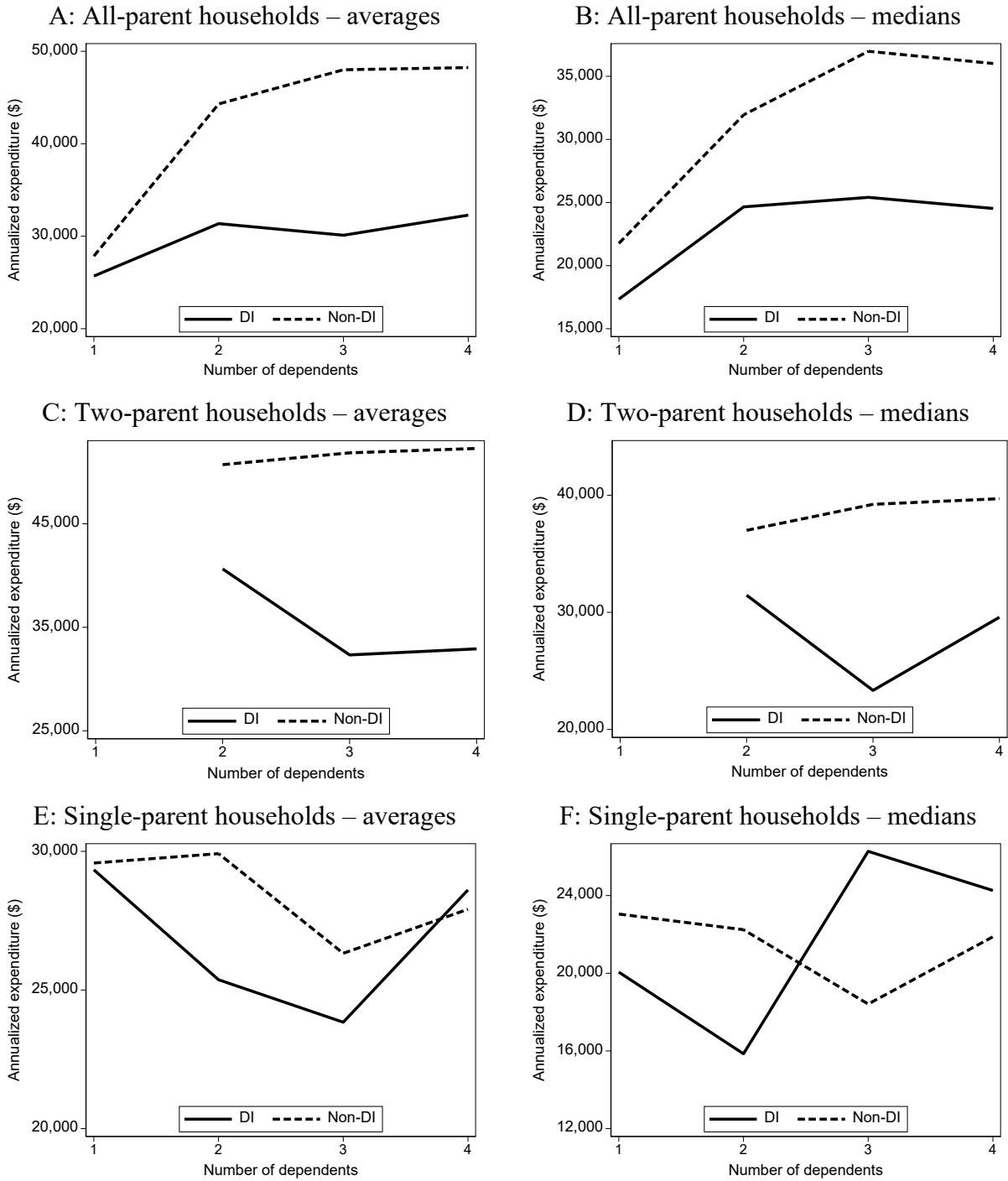


Figure 5 Total Annual Expenditure of Households with DI Income by Potential Dependents, Compared to Non-DI Households with Earnings in the Consumer Expenditure Survey

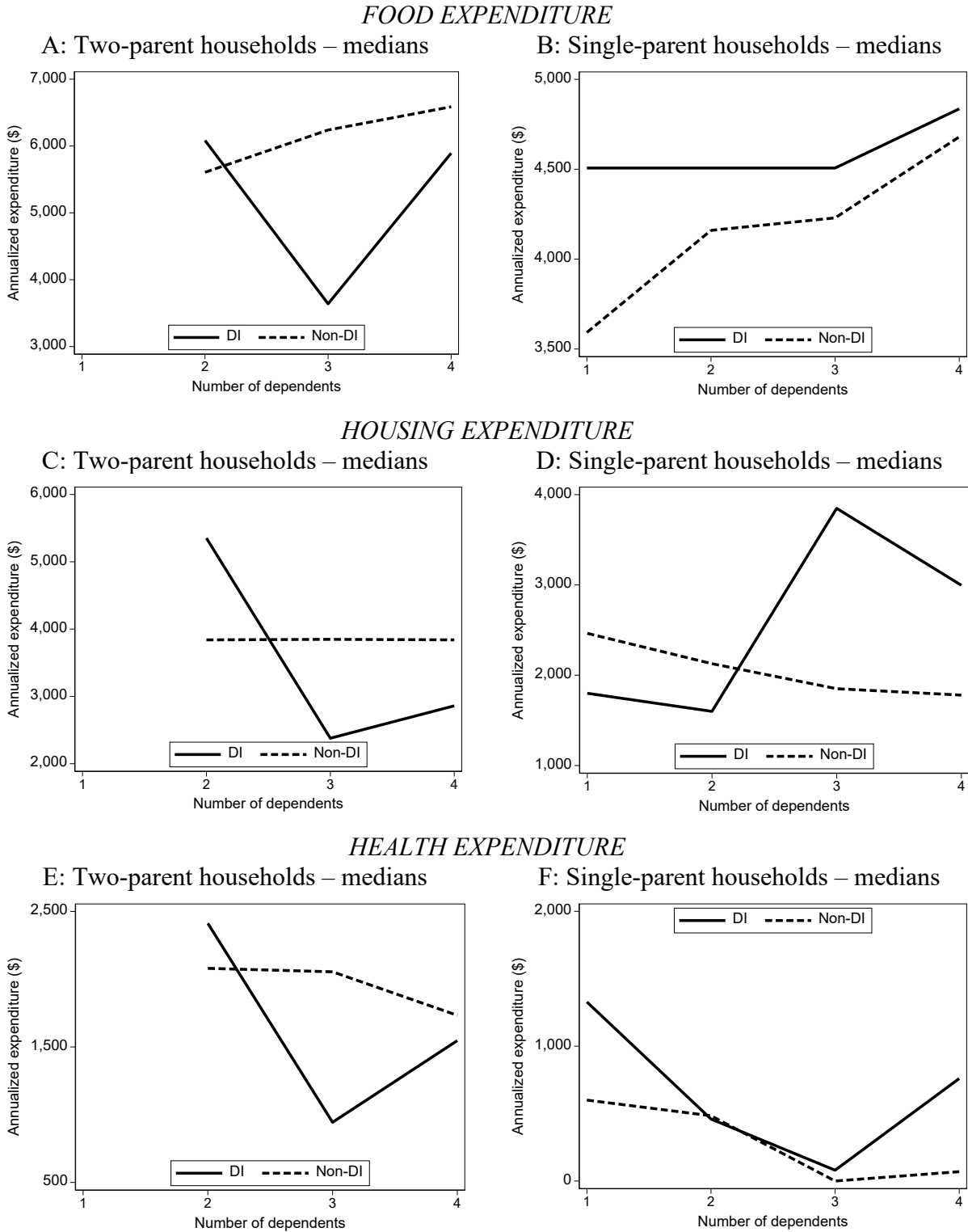
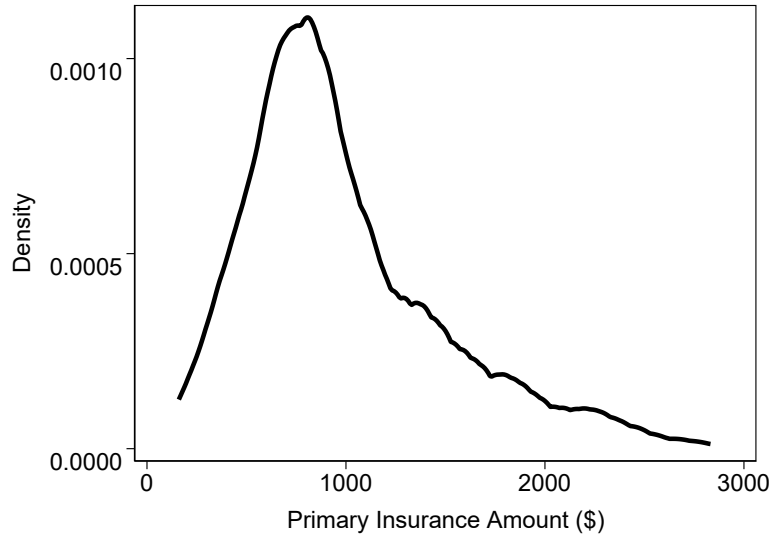


Figure 6 Distribution of Primary Insurance Amounts Among DI Beneficiaries with Children Aged Less Than 18 Years, National Beneficiary Survey

A: DI beneficiaries with no dependent payments



B: DI beneficiaries with dependent payments

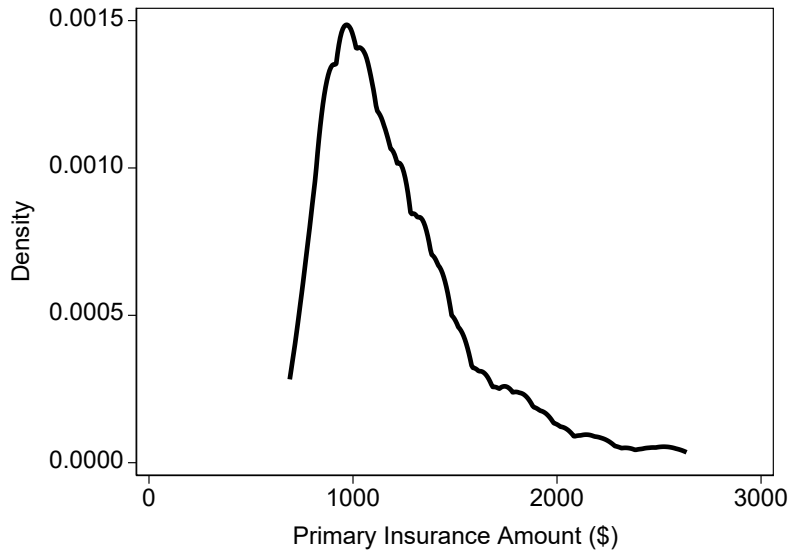


Figure 7 Distribution of Dependent Payments Relative to Primary Beneficiary Payments, Among DI Beneficiaries with Children <18 Years in the National Beneficiary Survey

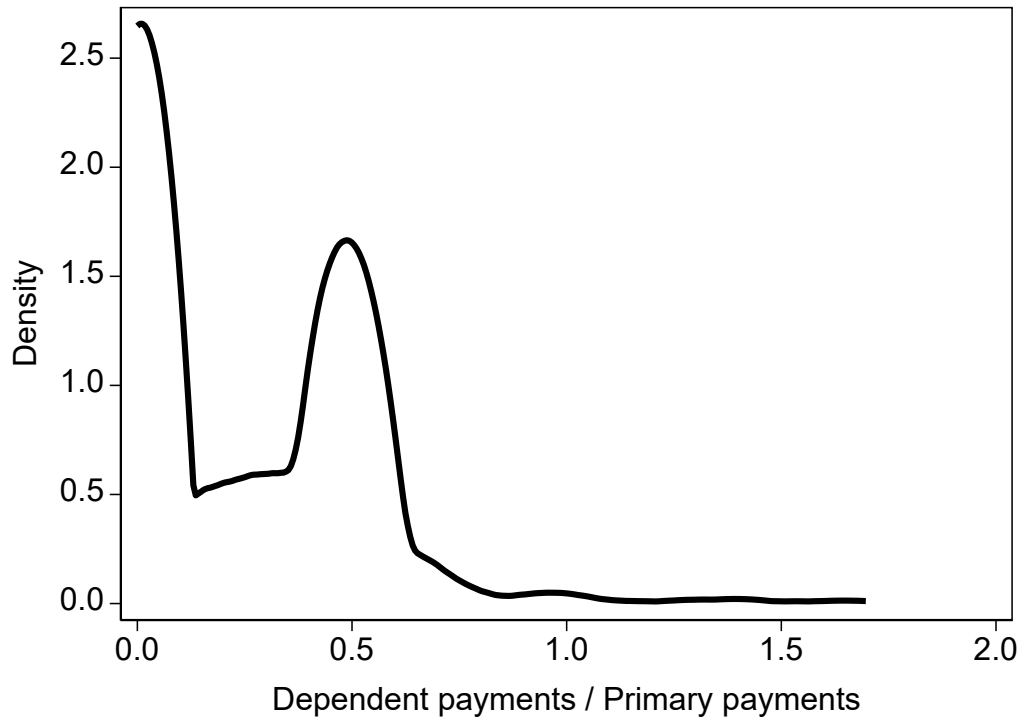


Figure 8 Dependent DI Payments by Number of Children, Among DI Beneficiaries with Children <18 Years in the National Beneficiary Survey

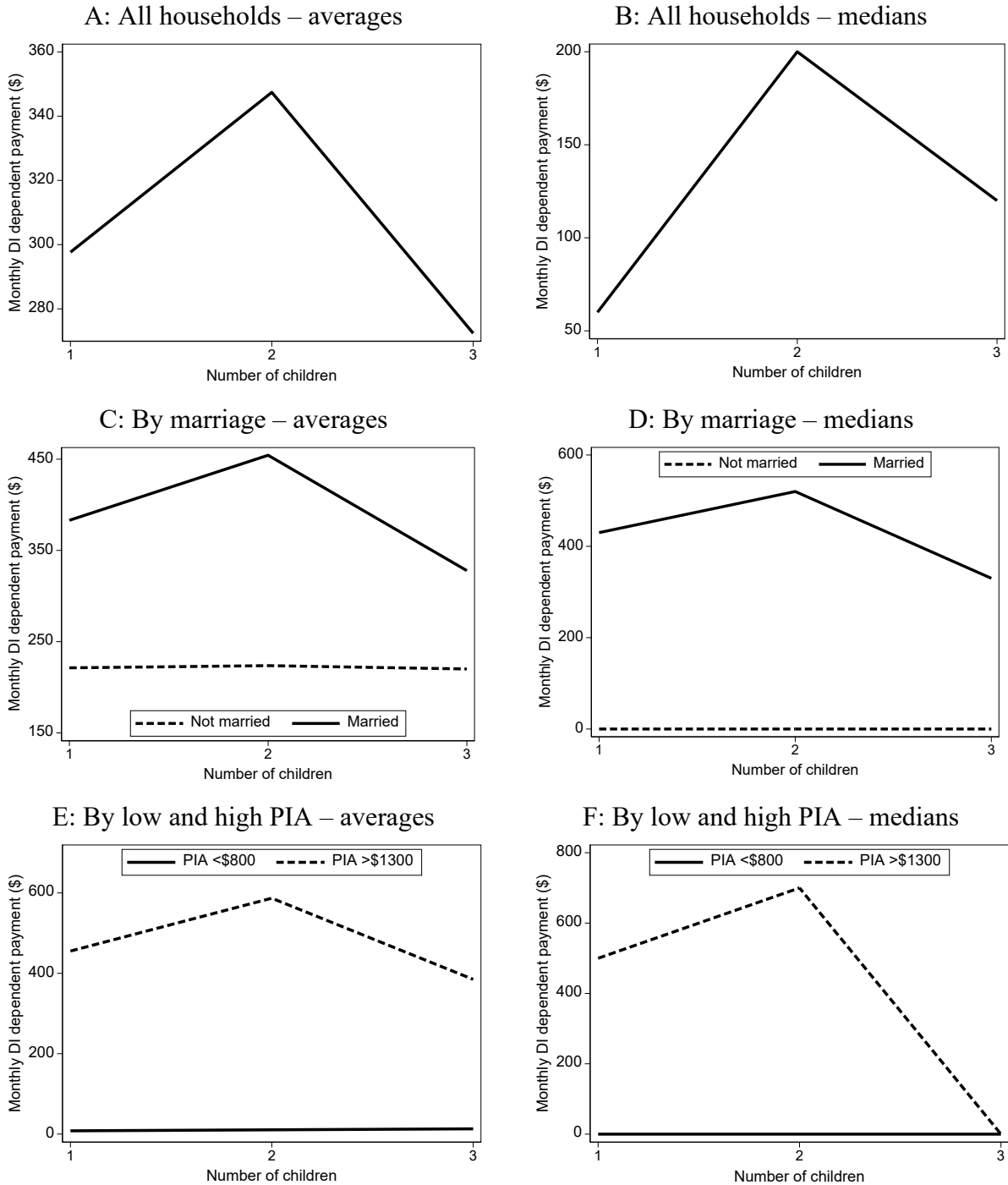


Figure 9 Household Income by Number of Children, Among DI Beneficiaries with Children <18 Years in the National Beneficiary Survey

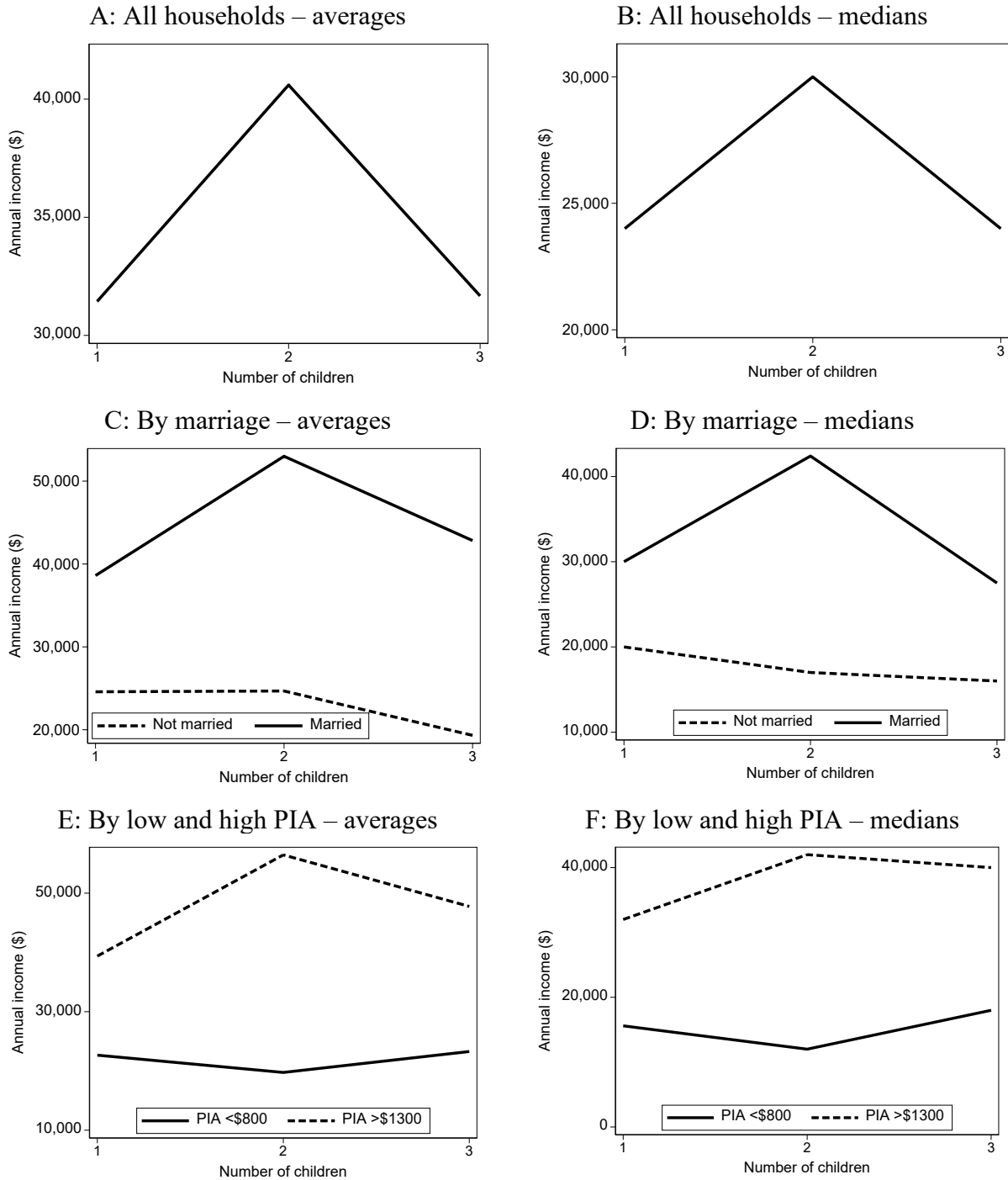
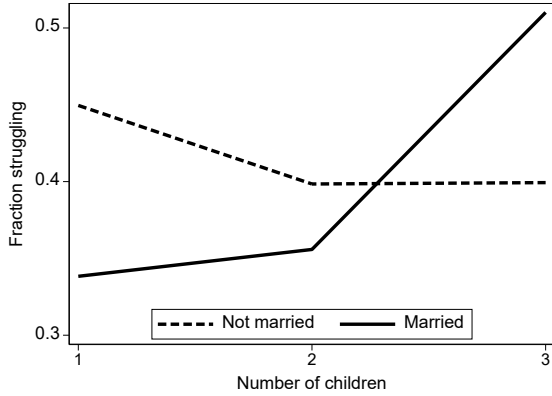


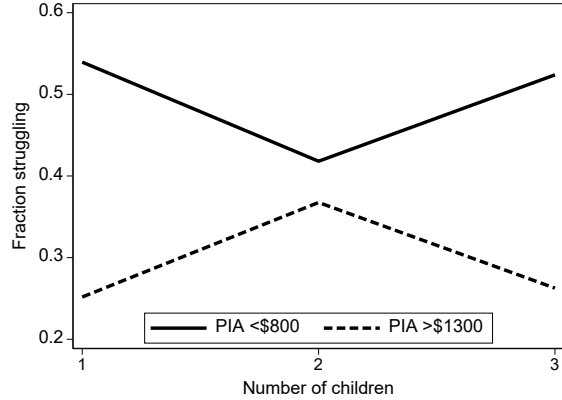
Figure 10 Other Economic Outcomes by Number of Children, Among DI Beneficiaries with Children <18 Years in the National Beneficiary Survey

FRACTION REPORTING STRUGGLING TO MEET BASIC FINANCIAL NEEDS

A: By marriage status

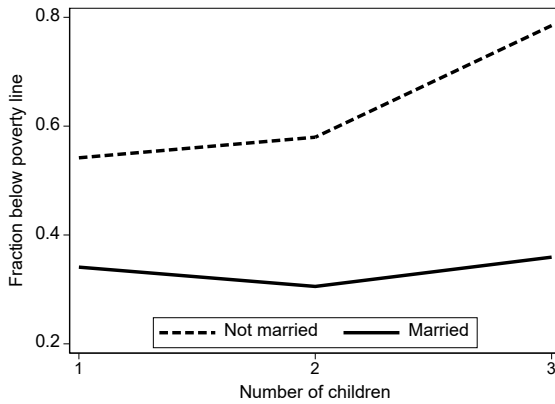


B: By low and high PIA

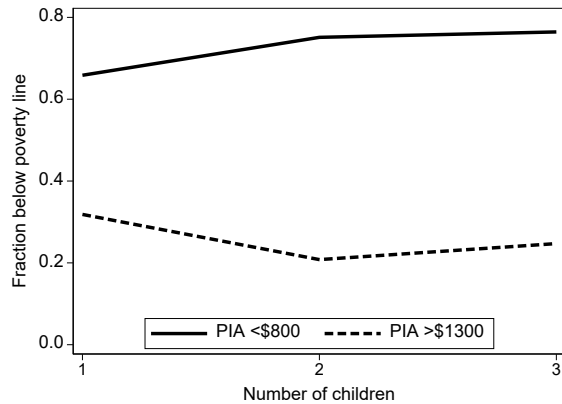


FRACTION BELOW POVERTY LINE

C: By marriage status

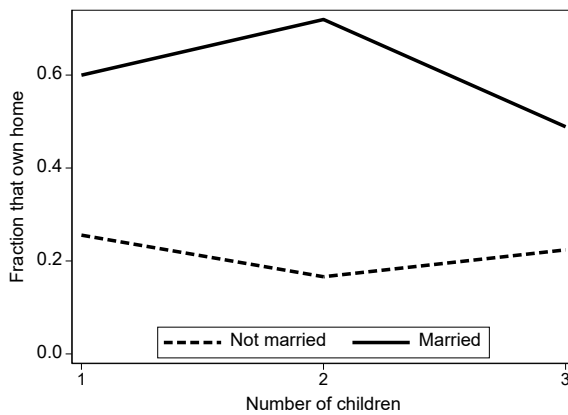


D: By low and high PIA



FRACTION THAT OWN THEIR HOME

C: By marriage status



D: By low and high PIA

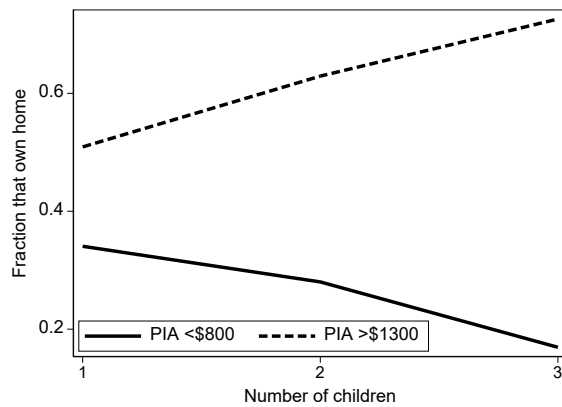


Table 1 Consumer Expenditure Survey Sample of Households, by Potential Dependents and Whether has DI Income or Earnings

	Potential dependents (children + spouse if present)			
	1	2	3	4
All households				
DI Households (had DI income)	82	137	69	77
Non-DI Households (have earnings)	1241	4284	4676	3052
Two-parent households				
DI Households (had DI income)	--	41	38	36
Non-DI Households (have earnings)	--	2043	2814	1970
Single-parent households				
DI Households (had DI income)	46	47	12	15
Non-DI Households (have earnings)	734	595	183	205

Notes: Sample is weighted using the final survey weight.

Table 2 Characteristics of Households in the Consumer Expenditure Survey,
By Number of Potential Dependents and Whether it has DI Income or Earnings

	One potential dependent		Two potential dependents		Three potential dependents		Four potential dependents	
	Has DI income	Others with earnings	Has DI income	Others with earnings	Has DI income	Others with earnings	Has DI income	Others with earnings
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Reference person characteristics								
Age	45.5 (0.86)	39.7 (0.26)	44.6 (0.73)	40.2 (0.14)	40.8 (0.91)	39.1 (0.11)	39.9 (0.74)	38.2 (0.12)
Male	0.083 (0.031)	0.200 (0.011)	0.369 (0.042)	0.458 (0.008)	0.396 (0.062)	0.486 (0.007)	0.393 (0.058)	0.445 (0.009)
Non-Hispanic White	0.522 (0.055)	0.494 (0.014)	0.692 (0.039)	0.617 (0.007)	0.711 (0.053)	0.629 (0.007)	0.525 (0.056)	0.103 (0.005)
Non-Hispanic Black	0.271 (0.05)	0.283 (0.013)	0.143 (0.029)	0.121 (0.005)	0.153 (0.044)	0.089 (0.004)	0.162 (0.042)	0.582 (0.008)
Hispanic	0.171 (0.043)	0.168 (0.01)	0.129 (0.028)	0.174 (0.006)	0.110 (0.037)	0.195 (0.006)	0.278 (0.049)	0.249 (0.007)
HS dropout	0.206 (0.046)	0.082 (0.008)	0.160 (0.032)	0.072 (0.004)	0.214 (0.052)	0.091 (0.004)	0.309 (0.055)	0.145 (0.006)
HS grad or some college	0.601 (0.056)	0.636 (0.014)	0.710 (0.040)	0.510 (0.008)	0.650 (0.060)	0.470 (0.007)	0.533 (0.06)	0.479 (0.009)
College graduate	0.181 (0.044)	0.281 (0.013)	0.126 (0.029)	0.416 (0.008)	0.135 (0.043)	0.438 (0.007)	0.149 (0.043)	0.373 (0.009)
Married	0.069 (0.029)	0.058 (0.007)	0.518 (0.044)	0.806 (0.006)	0.768 (0.053)	0.944 (0.003)	0.692 (0.055)	0.923 (0.005)
Household characteristics								
People in household	2.558 (0.096)	2.219 (0.014)	3.249 (0.068)	3.189 (0.009)	4.078 (0.072)	4.015 (0.007)	5.097 (0.136)	5.112 (0.017)
Lives in non-metro area	0.119 (0.037)	0.113 (0.009)	0.242 (0.038)	0.102 (0.005)	0.339 (0.06)	0.110 (0.005)	0.221 (0.05)	0.132 (0.006)
Observations	82	1241	137	4284	69	4676	77	3052

Notes: Means are provided that are weighted using the final survey weights. Standard errors of the means are provided in brackets.

Table 3 National Beneficiary Survey Sample of Households with Children <18 Years,
Overall and by Whether Married and by Low and High Levels of PIA

	Number of children aged <18 years		
	1	2	3
All households	593	300	187
By marriage			
DI Households (had DI income)	313	139	96
Non-DI Households (have earnings)	280	161	91
Low and high Primary Insurance Amounts			
PIA < \$800	107	55	41
PIA > \$1300	238	112	38

Notes: Sample is weighted using the survey weight.

Table 4 Characteristics of DI Beneficiaries with Children <18 Years in the National Beneficiary Survey, By Number of Children and Primary Insurance Amount

	All DI beneficiaries			Low PIA (PIA < \$800)			High PIA (PIA > \$1300)		
	1 child	2 children	3+ children	1 child	2 children	3+ children	1 child	2 children	3+ children
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Household size	3.30 (0.052)	3.82 (0.065)	4.39 (0.089)	3.33 (0.102)	3.61 (0.125)	4.05 (0.198)	3.42 (0.096)	3.99 (0.12)	4.84 (0.149)
Age 18-40	0.197 (0.018)	0.362 (0.026)	0.424 (0.033)	0.358 (0.041)	0.473 (0.054)	0.575 (0.06)	0.099 (0.024)	0.196 (0.039)	0.269 (0.068)
Age 41-55	0.457 (0.022)	0.490 (0.027)	0.373 (0.032)	0.377 (0.041)	0.358 (0.052)	0.326 (0.057)	0.395 (0.04)	0.52 (0.049)	0.345 (0.073)
Age 56+	0.345 (0.021)	0.148 (0.019)	0.203 (0.027)	0.265 (0.037)	0.17 (0.041)	0.099 (0.036)	0.506 (0.041)	0.284 (0.044)	0.386 (0.075)
Male	0.463 (0.022)	0.526 (0.027)	0.567 (0.033)	0.27 (0.038)	0.293 (0.049)	0.29 (0.055)	0.566 (0.041)	0.66 (0.047)	0.8 (0.062)
Non-Hispanic White	0.63 (0.021)	0.547 (0.027)	0.477 (0.033)	0.539 (0.042)	0.620 (0.053)	0.356 (0.058)	0.709 (0.037)	0.535 (0.049)	0.633 (0.074)
Non-Hispanic Black	0.084 (0.012)	0.108 (0.017)	0.078 (0.018)	0.099 (0.025)	0.083 (0.03)	0.013 (0.014)	0.083 (0.023)	0.044 (0.02)	0.063 (0.037)
Hispanic	0.106 (0.014)	0.151 (0.019)	0.137 (0.023)	0.095 (0.025)	0.109 (0.034)	0.148 (0.043)	0.089 (0.023)	0.124 (0.032)	0.053 (0.034)
HS dropout	0.163 (0.016)	0.207 (0.022)	0.210 (0.027)	0.209 (0.034)	0.426 (0.054)	0.435 (0.061)	0.106 (0.025)	0.118 (0.032)	0.016 (0.019)
HS grad or some college	0.68 (0.021)	0.639 (0.026)	0.673 (0.031)	0.746 (0.037)	0.554 (0.054)	0.533 (0.061)	0.599 (0.04)	0.612 (0.048)	0.547 (0.077)
College graduate	0.139 (0.015)	0.152 (0.019)	0.117 (0.021)	0.033 (0.015)	0.02 (0.015)	0.032 (0.022)	0.259 (0.036)	0.27 (0.044)	0.437 (0.077)
Married	0.472 (0.022)	0.536 (0.027)	0.485 (0.033)	0.344 (0.04)	0.331 (0.051)	0.297 (0.056)	0.566 (0.041)	0.698 (0.045)	0.735 (0.068)
<i>Program characteristics</i>									
DI dependent benefits (\$)	298 (16.4)	347 (20.7)	272 (21.6)	8 (4.8)	11 (7.2)	13 (6.6)	455 (37)	587 (41.1)	385 (64.7)
Dependent benefits / Primary benefit	0.217 (0.011)	0.258 (0.014)	0.249 (0.02)	0.014 (0.01)	0.014 (0.009)	0.018 (0.009)	0.267 (0.021)	0.372 (0.024)	0.244 (0.039)
SSA benefits to primary beneficiary (\$)	1545 (34)	1483 (38.5)	1341 (40.3)	749 (9.3)	746 (14.5)	702 (22.3)	2167 (57.9)	2096 (63.2)	2076 (81.9)
Primary Insurance Amount (\$)	1269 (23.7)	1179 (24)	1082 (29.6)	625 (14.6)	612 (17.8)	570 (21.1)	1767 (31.6)	1621 (27.4)	1767 (43.6)
Receiving SSI	0.139 (0.015)	0.157 (0.02)	0.238 (0.028)	0.595 (0.041)	0.564 (0.054)	0.639 (0.059)	0.01 (0.008)	0.018 (0.013)	0.021 (0.022)
Observations	82	1241			137	4284		69	4676

Notes: Means are provided that are weighted using the final survey weights. Standard errors of the means are provided in brackets.