

The Labor Force Outcomes of Mothers with Disabilities

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Abstract. Labor force participation among those with disabilities is important to establish independence and promote recovery. However, we know very little about the patterns and trends of labor force participation of women with disabilities, and particularly of mothers with disabilities. In this study, I use two publicly available secondary data sets – the Current Population Survey (CPS) and the National Survey of Beneficiaries (NSB) – to provide insight on how motherhood is associated to labor force outcomes for women with disabilities; whether the associations between motherhood and work vary by SSI and SSDI receipt; and finally whether/how trends in the labor force participation of women/mothers with disability changed over the last three decades (1988-2013). Results suggest that although women with disabilities are selected from disadvantaged socioeconomic groups, mothers with disabilities tend to present *better* labor force outcomes than non-mothers with disabilities, even net of controls. Whereas motherhood is associated with decreased labor force participation for women without disabilities, it is associated with increased labor force participation for women with disabilities. Motherhood seems to be particularly positively associated with labor force participation for SSDI recipients; however, these same recipients are less likely to be employed (conditional on being in the labor force) and earn less (conditional on being employed) when they are mothers.

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1. Introduction

Employment can be an important milestone in the recovery of those who have disabilities (López et. al 2010). Nevertheless, people with disabilities struggle to find and keep employment (Kelley 2013; Rogovsky 1991). They have lower participation rates, lower rates of full time work, and earn significantly less than those without disabilities (e.g. Jones 2008). Difficulties in participating in the labor force may be particularly salient for women with disabilities (Brooks and Deegan 2017; Johnson and Lambrinos 1985; Vick and Lightman 2010) and are likely to increase or intensify as they become mothers. Although several studies found a persistent negative relationship between motherhood and employment for all women (e.g. Bianchi and Raley 2005), no study has addressed the unique experience of mothers with disabilities. In this study, I offer a descriptive portrait of how motherhood is linked to the labor force outcomes (e.g., labor force participation, employment, and earnings) of women with disabilities. Specifically, I provide insight on how motherhood is associated to labor force outcomes for women with disabilities; whether the associations between motherhood and work vary by SSI and SSDI receipt; and finally whether/how trends in the labor force participation of women/mothers with disability changed over the last three decades (1988-2013)¹.

2. Background

2.1. The labor force outcomes of mothers

Women's labor supply has been the center of an extensive empirical literature. After a steep increase in female labor force participation after 1950 in the U.S., women's employment peaked in the late 90s (Juhn and Potter 2006). Women's participation in the labor force has sparked academic curiosity in part because of women's role within the family unit. Traditionally (in the 50s and 60s), U.S. families followed a breadwinner model, in which mothers stayed at home with children while fathers earned the family income (Craig et. al 2010). But as women have moved into the labor force, and as couples became more dependent on having dual income, parents (and particularly parents of young children) have had to deal with the stress of balancing a professional career and child-rearing responsibilities (Craig and Mullan 2009; Jacobs and Gerson 2004; Joshi 1998). Whereas withdrawing from work can lead to significant and cumulative material disadvantages, remaining in the labor force can lead to negative effects on health and well-being due to stress (Sigle-Rushton and Waldfogel 2007; Strazdins and Loughrey 2007)

Although the time dedicated to child care by both mothers and fathers has gone up over time, as parents engage in more "intensive parenting" (Bianchi 2000; Gauthier, Smeeding, and Furstenberg 2004; Sullivan 2006), women have historically done more of the extra work that child care requires (Craig 2007). Despite the fact that fathers are increasingly involved in child-

¹ One of the original goals of this project was to also describe how family composition moderated the association between motherhood and labor force outcomes for women with disabilities. I found, however, no statistically or substantially significant associations with family composition. Thus, family structure does not seem to moderate the association between motherhood and labor force outcomes for women with disabilities. Given that results from this analyses were not interesting or informative, they were not included in this report.

rearing, mothers are still the ones most likely to cut back on work in order to meet the demands from youngsters in the family (Bianchi and Raley 2005; Kaufman and Uhlenberg 2000).

Difficulties in participating in the labor force may be particularly salient for women and mothers with disabilities (Johnson and Lambrinos 1985; Vick and Lightman 2010). Several studies have demonstrated that poor health and disabilities are associated with premature exits from the labor force or other negative labor force outcomes (see review in Currie and Madrian 1999; Vick and Lightman 2010). Given that people with disabilities already represent a vulnerable group in terms of work outcomes, would motherhood compound the barriers to labor force for women with disabilities? In order to shed light on this question, the present study will create a descriptive portrait of the labor force outcomes of women with disabilities, comparing those who are mothers to those who are not.

2.2. Social Security programs and labor force outcomes

Since 1970, the employment rate of people with disabilities has dropped by 20 percentage points (Bound and Waidmann 2002; Bound and Burkhauser 1999). At the same time, disability program expenditures have risen: in 1970, the US spent about 20 billion dollars through the Social Security Disability Insurance (SSDI) program, and this number rose to over 120 billion dollars in 2010. Though not as dramatic, there has also been an increase in the expenditures associated with the Supplemental Security Income (SSI) program for adults with disabilities: from less than 10 billion dollars in the 1970s, to over 30 billion dollars in 2010. Research has found that these increases in expenditures are driven by a growing fraction of people with disabilities out of the labor force. From 1980 to 2010, the percent of the population with work-related disabilities has remained virtually constant at about 8%, but the fraction of this population that is employed has decreased (from 35% to 22%) and the fraction that receives SSI or SSDI benefits has increased (from 33% to 51%) (Burkhauser and Daly 2009). Studies investigating the reason behind this increase argue that changes in the disability insurance screening process are its most important contributor (Burkhauser and Daly 2009; Garcia-Gómez 2011).

Though the increased number of women in the labor force could only explain about a sixth of the total increase in SSDI receipt among people with disabilities (Autor and Duggan 2006), no research, to my knowledge has investigated how transition to motherhood may impact women's take-up rates in programs like SSDI and SSI. Social policies such as these can affect women's ability to combine work and motherhood responsibilities (Himmelweit and Sigala 2004; Lewis 2009). In the case of women with disabilities, these policies may work to support or discourage their permanence in the labor market after motherhood. Over the last few decades, increases in women's labor force participation, reductions in the wages gender-gap, and the American with Disabilities Act of 1990, all may have contributed to make labor force participation more attractive to women with disabilities. On the other hand, changes made by the Social Security Administration to lower requirements of SSDI and SSI programs (Burkhauser and Daly 2009; Garcia-Gómez 2011) may have made working less attractive and less profitable, especially when women with disabilities consider the demands of motherhood.

Because disability benefits are known to be linked to labor force participation (e.g. Gruber 2000; Autor and Duggan 2001), it is important to investigate whether the studied associations between motherhood and labor force outcomes vary for women with disabilities who do and who do not receive benefits, and between those who receive SSI and those who receive SSDI. Mothers who receive SSDI and SSI may differ in their work histories, skill sets,

interest in returning to work, and barriers faced to participate in gainful employment. After all, each program has different regulations, offer different ‘safety nets’² to return to work, and target different groups of people³. These programs may also capture women with different fertility behaviors, which may in turn be associated with different work dynamics. Specifically, the SSI captures low income women who may be more likely to have children at younger ages, outside of wedlock, and to have children with multiple partners (e.g. Bumpass and Lu 2000; Furstenberg, 2014).

2.1 The Present Study

This study describes the work characteristics and employment efforts of women with disabilities by motherhood and beneficiary status. Specifically, it aims:

- 1- To describe the work characteristics and employment efforts of women with disabilities by motherhood and beneficiary status;
- 2- To identify how labor force outcomes of women with disabilities vary by motherhood status;
- 3- To investigate whether the association between motherhood and labor force outcomes for women with disabilities vary by benefits receipt;
- 4- To describe trends over time (1988-2013) in the labor force participation of women and mothers with disabilities;

Gaining a deeper understanding of how motherhood is associated with labor market activities for women with disabilities could inform Social Security Administration (SSA) programs to better support mothers with disabilities’ return to work.

3. Methods & Data

3.1. Data

In this project, I use the publicly available data from the 1988-2017 Current Population Survey (CPS; <https://cps.ipums.org/cps/>) and the 2015 wave of the National Survey of Beneficiaries (NSB; <https://www.ssa.gov/disabilityresearch/>). The CPS is a cross-sectional annual survey that interviews household units over the year (a total of eight times in a 15 month period). It is the most often used survey for labor statistics in the US and it has been extensively used to compare labor outcomes for the working-age population with and without disabilities.⁴

² For example, under the SSDI program, beneficiaries are allowed a trial work period of nine months, along with a grace period of three additional months, in which they can earn any amount and still receive benefits. After that, if a beneficiary’s earnings reach substantial gainful activity, benefits are suspended. In contrast, SSI monthly benefits are reduced \$1 for every \$2 of earnings (after \$65 of earnings and a \$20-per-month general income exclusion), so SSI recipients lose cash benefits gradually as earnings rise. Eligibility for Medicare/Medicaid also vary by program.

³ While SSDI benefits would be available to women/mothers with disabilities and established work histories, SSI would be available to working-age women/mothers with disabilities who have a limited income. Note that low income SSDI beneficiaries may also be eligible for SSI. Also note that people with qualifying medical conditions can receive SSDI if they have a parent who receives retirement or survivor status.

⁴ Alternatively, this project could rely on the American Community Survey (ACS), which is well suited to the study of relatively small groups such as people with disabilities due to its large sample size. The decision to use the CPS (despite its smaller sample size) was due to disability

The NBS provides detailed information about employment efforts of a representative sample of beneficiaries of the Social Security Administration (SSA). The CPS and the NBS have different strengths and weaknesses in the way that they measure disability, SSI/SSDI receipt, and in their sample sizes. Pairing results from these two surveys to address different goals provides a more accurate portrait of the labor force outcomes of mothers with disabilities. In each survey, the analytic samples are restricted to women ages 25 to 60 (when education is expected to be completed and retirement has not yet been initiated). Part of the results for the analyses using the NBS are presented in the appendices.

3.2. Measures

Broad (6-questions) measure of disability status. In 2008, the CPS adopted the American Community Survey (ACS) measure of disability, which relies on six consecutive questions that ask whether a person has one or more of six types of difficulties (i.e., hearing, vision, cognitive, ambulatory, self-care, independent living).⁵ Differently than the SSA definition, the 6-questions measure does not tie the self-reported difficulty to inability to engage in gainful activities. Despite the fact that scholars have not reached a consensus on whether a sample of people with disabilities identified through these six questions should be used to inform policies that address disability benefits' recipients,⁶ these questions have the benefit of capturing a large⁷ group of people with disabilities. These questions may identify people with serious pathologies or impairments who are nevertheless working and do not consider themselves to have a work limitation – and who should arguably be captured in a portrait of the labor force participation of people with disabilities. Furthermore, capturing a broader group of people with disabilities is in line with definitions of disability used by the American with Disabilities Act, the World Health Organization, and the International Classification of Functioning, Disability, and Health (ICF), which define disability as the health condition-based presence of an impairment, activity limitation, and/or participation restriction.

Work-based measure of disability. One of the benefits of the CPS, however, is that, in addition to these six questions, it contains a single work limitation-based question to identify

measures available in the CPS, and to the fact that the CPS differentiates SSI and SSDI recipients.

⁵ The ACS questions do not identify people with upper body disabilities or back problems and are unlikely to capture people with mental illnesses or learning disabilities. Unless these issues result in self-care or independent living disability, persons with such issues would not be identified as having a disability.

⁶ For example, Altman and colleagues (2017) found that about three-quarters of clients of benefit programs are captured within this broader group of people with disabilities in the ACS. They conclude that the ACS questions can be used to inform policy without bias because, despite not capturing all persons who receive benefits, the ACS sample is *not* a poor representation of the target policy population. On the other hand, Burkhauser and colleague (2014) found that the using ACS-type questions *alone* may yield a selective sample of the working-age population with disabilities and biased estimates of key social policy parameters, such as overestimate their employment rates and underestimate the share receiving benefits.

⁷ The six questions were developed by a federal inter-agency workgroup in order to identify the areas of functioning that captured the largest proportion of the population with disabilities (Brault, Stern & Raglin, 2007)

disability. This question may be more in line with SSA's definition of disability. It has, however, also been criticized for numerous reasons, such as: (i) it was developed as a screener question and it was not cognitively tested, and (ii) it included no time reference, which means that it could capture short-term work limitations (Hale 2001; Kaye 2002).⁸ Despite criticisms to the CPS work-related measure, it was been widely used by scholars (Burkhauser and Houtenville, 2006). The data collection for this measure is not consistent since 2014, however. Please refer to **Appendix A** for a discussion of changes in this variable that have not been properly publicized by CPS or discussed in prior literature. Due to these changes in data collection of the work-related measure after 2014, and to the bias it causes in the sample, it is not used in the multivariate analyses (Goals 2 and 3); it is, however, the measure used in the longitudinal analysis of this study (Goal 4) because it is the only measure collected over time. Due to limitations associated with this measure, however, longitudinal analyses will be restricted to the years between 1988 and 2013.

Joint measure of disability. Previous studies suggest that using the 6-questions *alone* or using the work-limitation measure *alone* may not be appropriate (Burkhauser et al. 2002). In order to conceptualize how the samples captured by these different measures are related, and how they relate to the ICF definition of disability, one can imagine that the work-limitation measure captures a *subgroup* of the broad six questions measure, and that SSA beneficiaries represent a *subgroup* of those with work-limitations. Burkhauser and colleagues (2014), however, found evidence that this conceptualization does not take place in practice. Instead of reflecting a *subsample* of the population with disabilities captured through the six questions, the work-limitation measure only *partially overlaps* with the group defined through the six questions, as portrayed in **Figure 1**. Because each survey captures different disability populations who have different employment and program participation rates, it is important that both populations are analyzed separately and together (see details on Burkhauser et al, 2014). Burkhauser and colleagues (2014) actually suggest that the 6-measure *and* the work-limit question should be used together to represent the broadest group of people with disabilities. Though the joint (or composite) measure of disability is used to describe the population of women with disabilities (Goal 1), it will not be used in the multivariate analyses (Goals 2 and 3) because of biases associated with the work-related measure of disability (see **Appendices A and B**).

SSA-based measure of disability. All NBS respondents are people who have disabilities according to SSA's definition (i.e., "the inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or which has lasted or can be expected to last for a continuous period of at least 12 months"), and are (or were within the 5 years prior to the survey) SSI or SSDI beneficiaries.

⁸ After 2014, the work-based measure of disability in the CPS started including a time frame in the question and explicitly including "short-term" health conditions: "Q59AR. At any time in [*in the prior year*] (did you/did anyone in the household) have a disability or health problem which prevented (you/them) from working, *even for a short time*, or which limited the work (you/they) could do?" Thus, the 2017 CPS work-related question on disability still may capture people who were only out of work for a short period of time. This means that it could capture people outside of the definition of disability held by the SSA, which considers a person as disabled if they are unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that is expected to last for *at least 12 months* or to result in death.

Results based on NBS data may be the most directly applicable to SSA's goals. However, the NBS also has limitations: it fails to capture people with disabilities who have always successfully participated in the labor market and people with disabilities who have failed to apply for or to secure benefits. Due to small sample sizes and to the aforementioned limitations, NBS use is restricted to descriptive analyses and used a benchmark for CPS data (as discussed in **Appendix B**).

Receipt of SSI and SSDI benefits. I created a categorical variable that indicates whether a person receives: (i) SSI, (ii) SSDI; (iii) SSI and SSDI; (iv) neither. Due to small sample size of category (iii), it is dropped from multivariate analyses. Since 2001, the CPS allows identification of both SSI and SSDI recipients separately through self-report. Studies comparing estimates produced using CPS data matched to administrative data suggest that self-reported data in the CPS slightly underreports OASDI⁹ receipt and significantly underreports SSI receipt (Davies and Fisher, 2009). A brief discussion of how this underreporting may lead to a biased sample of women with disabilities is presented in **Appendix B**.

Labor force outcomes. Labor force outcomes are measured in the CPS through: labor force participation (i.e., in the labor force, out of the labor force), employment status (for those who *are* in the labor force, this outcome measures whether they are employed or not employed), and earnings in dollars.

Reasons for not working. The NBS will also be used to provide information on reasons for not working among SSI/SSDI recipients.

Motherhood status. In the CPS, women will be classified as mothers if they have a *co-resident* child under the age of 18. Though the NBS allows for a more precise identification of motherhood status as it asks beneficiaries whether they have coresident or non-coresident children under 18, in order to ensure comparability with the CPS, I will only classify as mothers NBS respondents who have coresident children. As a robustness analysis, I also investigated whether the associations between disability and labor outcomes vary for mothers with *young* children (children under the age of five). These results are highlighted throughout the analysis, when pertinent.

Controls. Multivariate analyses using the CPS rely on a series of controls, namely: respondent's age, education, marital status, race, state of residence, and rural/urban residency.

4. Analytic Strategy

This descriptive study provides a portrait of the labor force outcomes of mothers with disabilities and it is not intended to make causal inferences. First, I show means and proportions that describe the characteristics of women with disabilities using different measures of disabilities. Other tables also show nationally representative descriptive statistics regarding the socioeconomic and demographic characteristics of women with disabilities by motherhood status, and of mothers by beneficiary status. For this analysis, I use the most current data from the CPS (2017). Because of limitations associated with self-reported data regarding SSDI and SSI receipt, descriptive results using the 2017 CPS are benchmarked using the 2015 NBS (see **Appendix B**).

Second, I use the 2017 CPS to conduct a series of multivariate analyses. These analyses identify whether labor force outcomes (i.e. labor force participation, employment, and earnings) of women with disabilities vary by motherhood status and whether associations between

⁹ In addition to SSDI, this category includes old-age and survivors benefits.

motherhood and labor force outcomes for women with disabilities vary by SSA benefits receipt. In order to provide some additional insight on the labor force outcomes of SSI and SSDI recipients, the 2015 NBS is used to inform on reasons for not working of SSA beneficiaries. The multivariate analyses using the CPS rely on 6-item measure of disability. This measure was chosen because it is still unclear how the current measure of work-based disability in the CPS (implemented after 2014) may affect the selection of people with short-term disabilities in the sample. Though uncovering this biases is beyond the scope of the present study, preliminary results (presented in **Appendices A and B**) suggest that the sample using the work-based measure in the CPS is more biased than the one created using the 6-item measure.

Finally, I show how trends in labor force participation of women and mothers with disabilities have changed over time using CPS data from 1988 to 2013. I compare trends in labor force participation of mothers with and without disabilities and of women with disabilities by motherhood status. This analysis relies on the work-based measure of disability, which is the only measure that is collected over time in the CPS. Previous studies found that, despite underestimating *levels* of labor force participation among people with disabilities, this work-based measure is still useful for estimating time *trends* in the labor force participation of people with disabilities (see Burkhauser, Daly, Houtenville, and Nargis 2002). In fact, the CPS is generally considered as the most appropriate data set to investigate trends over time in the labor force participation of people with disabilities. Because of changes in the way the work-based measure questions were asked in the CPS after 2013, the years 2014-2017 are dropped from this analysis (see **Appendix A** for detailed explanation).

5. Results and Discussion

5.1. The work characteristics and employment efforts of women with disabilities

Table 1 compares women with varying definitions of disabilities to those without disabilities. Regardless of the measure of disability used, results indicate that women with disabilities are selected from disadvantaged groups: they are less educated, less likely to own a home, less likely to be married, and more likely to be in poverty than women without disabilities. Results also indicate that women with disabilities are older, less likely to have resident children, less likely to be in the labor force, less likely to be working if they are in the labor force, and earn less if they are working.

How surveys identify people with disabilities, however, may influence these results. Women with disabilities identified through the use of the 6-item measure are slightly different than those identified using the work-related disability question. First of all, a lower proportion of them are mothers (20.1% vs. 23.4%) or mothers with young children (5.3% vs. 7.4%). They are also more likely to be in the labor force (30.7% vs. 24.7%), but slightly less likely to be working if they are in the labor force (87.6% vs. 88.2%). Finally, they are less likely to receive SSI (19.3% vs. 24.3%) or SSDI (5.9% vs. 12.8%). These results suggest that the 6-item measure captures a broader population with disabilities, including people with disabilities that do not affect their work participation and outcomes and who do not need to apply for disability benefits. This may be a result of the fact that the 6-item measure does not identify people with upper body disabilities or back problems and are unlikely to capture people with mental illnesses or learning disabilities.

Though the 6-item measure captures a broader population with disabilities, it does still seem to do a better job representing the population of beneficiaries than the 2017 work-based, as can be seen in **Appendix B** (this also corroborates previous studies, see Altman et al 2017).

5.2. The labor force outcomes of women with disabilities by motherhood status

Table 2 compares mothers and non-mothers by ability status (using the 6-item measure). Among women with disabilities, those who are mothers are younger (40 vs. 50), more educated, and more likely to be married (53.2% vs. 36.2%). In terms of labor force outcomes, they are slightly less likely to be in the labor force (88.1% vs. 89.2%), but more likely to be working if they are in the labor force (45.7% vs. 29.4%), and earn more if working (\$16,032 vs. \$10,129) when compared to non-mothers. Despite having better work outcomes, on average, women with disabilities who are mothers are less likely to own a home (49.0% vs. 57.1%) and are more likely to be in poverty (31.2% vs. 28.2%) than non-mothers. Much of these differences in the average labor force and economic outcomes are likely explained by the fact that mothers with disabilities are younger than non-mothers with disabilities. They are also more likely to receive SSDI (11.6% vs. 8.8%) and less likely to receive SSI (13.8% vs. 20.3%), despite experiencing higher risks of poverty. This may result from the fact that mothers with disabilities are younger, more likely to be working (i.e., have established working histories), and earn more on average. Due to the fact that the SSI only serves people with disabilities that have a limited income, mothers with disabilities may be less likely to benefit from this program – despite the fact that their age and the presence of dependents in the household increase the probability that they experience poverty.

Table 2 also allows us to compare mothers with and without disabilities. It indicates that mothers with disabilities are less educated and less likely to be married (53.2% vs. 71.1%) than mothers without disabilities. They are also less likely to be in the labor force (88.1% vs. 95.8%), less likely to be working if in labor force (45.7% vs. 73.9%), and earn less if working (\$16,032 vs. \$32,101). Though mothers with disabilities have better average work outcomes than non-mothers with disabilities, they have worse outcomes than mothers without disabilities – which is to be expected given that people with disabilities are disadvantaged in the labor market.

Table 3 shows results of regression-adjusted models. It indicates that, net of socioeconomic and demographic controls, mothers with disabilities are substantially more likely to be in the labor force than non-mothers with disabilities (predicted probabilities = 40.3% vs. 29.8%). They are, however, still slightly less likely to be working conditional on being in the labor force (predicted probabilities = 88.9% vs. 90.8%) and do not earn significantly differently than non-mothers with disabilities, conditional on working (linear prediction = \$35,319 vs. \$34,400).

Overall, it seems that labor outcomes for mothers and non-mothers with disabilities are similar, net of socioeconomic and demographic controls, except for their labor force participation. Predicted probabilities of being in the labor force by motherhood and disability status are presented in **Figure 2** below. **Figure 2** suggests that differences in labor force participation between mothers and non-mothers are more salient for women with a disability. Whereas having a resident child is associated with a 0.2 percentage point decrease in the probability of being in the labor force for women without a disability, it is associated with a 10.5 percentage point *increase* in the probability of being in the labor force for women with a disability. This unexpected association suggests that motherhood has different implications for the decision to work among women with and without disabilities.

Disparities in labor force participation between mothers and non-mothers associated with disabilities are even wider if we consider only mothers with young children (under the age of 5). **Figure 3** suggests that a resident young child is associated with a 10.9 percentage point decrease

in the probability of being in the labor force for women without a disability, and that it is still associated with an 11.8 percentage point increase in the probability of being in the labor force for women with a disability. This suggests that labor force participation of women without disabilities is more responsive to the presence of young children relative to older children than the labor force participation of women with disabilities. Both of these figures also suggest that, differently than for women without disabilities, motherhood status is associated with an increase in labor force participation for women with disabilities. The data used in this project is unable to parse out *why*, net of socioeconomic characteristics, women with disabilities who are mothers are more likely to be in the labor force. It might be that motherhood is only attainable to a select group of women with disabilities that is more advantaged than the general population of women with disabilities (which is suggested by descriptive results in **Table 2**)

5.3. How the association between motherhood and labor force outcomes for women with disabilities vary by benefits receipt.

Mothers with disabilities also represent a heterogeneous group, as shown on **Table 4**. SSDI recipients are the most socioeconomically advantaged group: they are the most educated, the most likely to be married, and the most likely to be White. SSI recipients, on the other hand, are the least educated, the most likely to be divorced, separated, or never-married, and the most likely to be Black. Mothers with disabilities who receive SSDI are the most likely to have young children (43.5%), they are also the most likely to be in the labor force (68.6%), to be working if in the labor force (96.9%), and to earn more if working (\$33,835). Conversely, mothers who receive SSI are the least likely to be in the labor force (9.5%), to be working if in the labor force (70%), and earn the least if working (\$713). SSI recipients are at most risk for experiencing poverty (55.3%), which is to be expected given that the SSI is means-tested. Of course, as previously discussed, there are concerns with self-report of SSI/SSDI receipt in the CPS. As a robustness check, I compared all women who reported receiving SSI/SSDI in the CPS (restricted to women who were classified as disabled by different kinds of measure) to descriptive statistics collected using the NBS. These results are presented in **Appendix B**.

Results from regression-adjusted models indicate that, net of controls, women who do not receive SSA benefits are the most likely to be in the workforce, followed by women who receive SSDI benefits. **Figure 4** shows that having a child substantially increases the probability that SSDI recipients are in the labor force (from 9.7% to 24.7%). This result is driven by mothers with *young* children (under the age of five). Motherhood status, however, does not do the same for those who do not receive any benefits or who receive SSI benefits. For example, for SSI recipients, having a child is associated with an increase in the probability of being the labor force of 2.2 percentage points only.

Figure 5 shows that, once in the labor force, having a child is associated with *decreased* likelihood of having a job for SSDI recipients (from 96.5% to 72.3%), but for an *increased* likelihood of having a job for SSI recipients (from 62.1% to 88.4%). These results suggest that mothers who are SSDI recipients may need to be focus of interventions to ensure employability, whereas mothers who are SSI recipients may be focus of interventions that stimulate their entrance in the labor force. Descriptive analyses using the NBS data and presented in **Table 5** suggest that, regardless of the type of benefit received by mothers with disabilities, those who are not working are much more likely than non-mothers to say they cannot work because they are taking care of someone. SSI recipients are also much more likely to say that they are not working because employers do not want to give them a chance or because they need personal assistance.

5.4. Trends over time in the labor force participation of women and mothers with disabilities

The labor force participation of women has reached a plateau and remained virtually constant since the late 1980s, regardless of motherhood status. As shown in **Figure 6**, women without children and without disabilities are the ones most likely to participate in the labor force, followed by mothers without disabilities. Whereas the first group's rate of labor force participation has remained virtually constant since 1988, at about 80%, the latter group's rate of labor force participation has fluctuated around 70%. Rates of labor force participation for mothers and non-mothers with disabilities have been much lower over the past decade, and have decreased over time.

Figure 7 shows only the rates of labor force participation for women with disabilities by motherhood status. Whereas, in 1988, 38% of mothers with disabilities were in the labor force and 26% of non-mothers with disabilities were in the labor force, by 2013 only 22% of mothers and 17% of non-mothers with disabilities were in the labor force. For mothers with disabilities, this represents a decrease of 16 percentage points and for non-mothers, of 11 percentage points. This trend is concerning because it may suggest that barriers to labor force participation increased over time for women with disabilities, and especially for mothers with disabilities. It could also result from selection of different demographic groups into the category of "disabled" over time.

In order to investigate whether this decrease results from changes in the characteristics of disabled women and mothers, or to changes in the effects of these characteristics or other barriers to labor force participation, I conducted multivariate analyses controlling for demographic characteristics that are arguably exogenous to labor participation (i.e., race, education, age, and marital status) as well as year fixed effects. Results presented on **Figure 8** suggest that changes over time in these demographic characteristics do not explain the downward trend in labor force participation of women/mothers with disabilities. In fact, net of controls, labor force participation for mothers without disabilities *increases slightly* instead of remaining constant; labor force participation for women/mothers with disabilities, however, still decreases. In fact, it decreases by more than prior to the inclusion of controls. For mothers with disabilities, rates of labor force participation drop from 42% in 1988 to 21% in 2013; for non-mothers with disabilities this drop is from 34% to 16%. Downward trends in labor force participation of women with disabilities may be explained by factors not included in this analysis; it may also be explained by changes in other barriers to accessing work over time.

Finally, **Figure 9** shows trends in the labor force participation of mothers with disabilities by benefit receipt. These results suggest that labor force participation of SSI recipients has remained constant and low over time, and that the downward trends observed in the full sample of mothers with disabilities is driven by decreases in the labor force participation of SSDI recipients, and of mothers with disabilities who do not receive any benefits.

6. Conclusions

Labor force participation among those with disabilities is important to establish independence and promote recovery. However, we know very little about the patterns and trends of labor force participation of women with disabilities, and particularly of mothers with disabilities. In this study, I use two publicly available secondary data sets – the Current Population Survey and the National Survey of Beneficiaries – to provide insight on how

motherhood is associated to labor force outcomes for women with disabilities; whether the associations between motherhood and work vary by SSI and SSDI receipt; and finally whether/how trends in the labor force participation of women/mothers with disability changed over the last three decades (1988-2013). This project yielded some data and policy insights, which are summarized below.

First, results from this project suggest that the manner through which surveys identify people with disabilities may alter the description of people with disabilities. The ACS or 6-item measure of disability is currently the most broadly used measure to identify people with disabilities, but it has some important limitations when it comes to identifying SSA recipients since it does not tie disability to work-limitation. My results suggest that the 6-item measure captures a *broader* population with disabilities, including people with better labor outcomes who self-identify as having a disability (these people may have disabilities that do not affect their work participation and outcomes); The 6-item measure may also include people who do not need to apply for disability benefits (and who are not, therefore, the population served by SSA). The work-limitation measure in the CPS is also limited as it is more likely to capture people with *short-term* disabilities. It seems particularly likely to capture people with short term disabilities *after 2013*, when the question in the CPS screener survey changed. Specifically, the new work-based measure in the CPS is much more likely to capture people with short term difficulties to work who *are* in the labor force (see **Appendix A**). It also seems much more likely to capture mothers, and particularly mothers with young children, who classify themselves as having a short-term “disability or health problem” which limited the amount of work they could do. Though this is beyond the scope of this analysis, future research should investigate whether mothers with newborns are selecting into this group due to considering maternity leave as a “health problem” that prevented them from working for a short period (see **Appendix B**).

Second, this work suggests that women with disabilities are selected from disadvantaged groups in terms of education, marital status, and labor force outcomes. However, within women with disabilities, those who are mothers seem to have better labor force outcomes than those who are not mothers. They are also more likely to be younger, more educated, and more likely to be married. Despite having better work outcomes, on average, women with disabilities who are mothers are slightly *more* likely to be in poverty than non-mothers. Poverty for these otherwise more advantaged women with disabilities may result from the need to support a dependent child. Despite experiencing higher risk of poverty, mothers with disabilities are less likely to receive SSI, which is a means-tested program. This may be because they are in the labor force and earn too much to receive SSI – despite being poor. On the bright side, mothers with disabilities may be particularly responsive to programs that will help them to enter the labor force. Net of socioeconomic and demographic controls, they are substantially more likely to participate in the labor force than non-mothers with disabilities. Surprisingly, whereas motherhood is associated with decreased labor force participation for women without disabilities, it is associated with increased labor force participation for women with disabilities. This may result from selection of more advantaged disabled women into motherhood. My results suggest that, instead of incentivizing mothers with disabilities to *enter* the labor force, programs and policies should aim at promoting training that will increase earnings and employability for this demographic group who already presents high rates of labor force participation.

Third, descriptive results indicate that SSDI recipients are the most socioeconomically advantaged group of women with disabilities. They are also the ones most likely to be mothers or mothers with young children. Mothers who receive SSDI are particularly likely to be part of the

labor force compared to non-mothers who receive SSDI. Motherhood status, however, does not alter the likelihood of being in the labor force for SSI recipients. Whereas SSA may want to establish programs to encourage SSI recipients to enter the labor force (regardless of motherhood status), this may not be as necessary for SSDI recipients. Mothers who are SSDI recipients, however, are less likely to have a job when they are in the labor force. Thus, they may benefit from training and other programs that assist with job searches.

Finally, this study suggests that labor force participation for women with disabilities (regardless of motherhood status) has decreased overtime – even net of socioeconomic and demographic controls. This trend does not mirror trends for women without disabilities, whose labor force participation has remained virtually constant over the last three decades. The decrease in labor force participation is driven by mothers who do not receive benefits and also by those who receive SSDI benefits. Thus, despite having higher rates of labor force participation than SSI recipients, SSDI recipients' labor force participation has been decreasing over time. Future work should investigate why this is the case.

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Table 1. Descriptive Statistics by Disability Status across Disability Measures

	ACS measure		Work disability		Composite measure	
	No disability	Disability	No disability	Disability	No disability	Disability
Age	40.67	48.30	40.53	48.53	40.33	47.80
Motherhood status						
Has child	0.377	0.201	0.376	0.234	0.382	0.236
Has child under 5	0.146	0.0526	0.145	0.0736	0.148	0.0749
Age at first birth	26.85	26.85	26.86	26.76	26.86	26.79
Labor force participation	0.736	0.307	0.748	0.247	0.756	0.333
Employment status ^a	0.962	0.876	0.962	0.882	0.964	0.889
Earnings ^b	31,207	10,055	31,688	8,532	32,162	11,521
Benefit receipt						
SSI receipt	0.0127	0.193	0.00482	0.243	0.00354	0.188
SSDI receipt	0.00824	0.0593	0.000438	0.128	0.000317	0.0946
Own home	0.640	0.525	0.639	0.547	0.642	0.552
Poverty status	0.120	0.308	0.116	0.315	0.112	0.289
Education						
Less than high school	0.0866	0.177	0.0863	0.166	0.0838	0.161
High school or GED	0.247	0.345	0.244	0.367	0.241	0.352
Some college	0.308	0.316	0.309	0.308	0.309	0.311
College or more	0.358	0.162	0.361	0.159	0.366	0.176
Race						
White	0.601	0.637	0.602	0.628	0.600	0.628
Black	0.126	0.179	0.124	0.188	0.123	0.179
Asian or Pacific Islander	0.0731	0.0213	0.0732	0.0283	0.0749	0.0287
Hispanic	0.179	0.126	0.180	0.124	0.181	0.132
Other	0.0207	0.0372	0.0210	0.0321	0.0205	0.0325
Marital status						
Married	0.545	0.356	0.544	0.395	0.549	0.402
Separated/Divorced	0.125	0.277	0.123	0.269	0.120	0.254
Widowed	0.0247	0.0749	0.0247	0.0674	0.0230	0.0676
Never married	0.305	0.292	0.308	0.268	0.308	0.276
Live in metropolitan areas	0.875	0.810	0.876	0.806	0.878	0.813
Number of observations	52,962	4,450	52,184	5,228	50,225	7,187

Notes: Data from 2017 Current Population Survey, weighted to be nationally representative. (a) Proportion conditional on being in the labor force; (b) salary conditional on being employed.

Table 2. Descriptive Statistics by Motherhood and Disability Status

	Non-Mothers		Mothers	
	No disability	Disability	No disability	Disability
Age	41.81	50.36	37.92	39.50
Age at first birth	27.16	26.02	26.77	27.31
Labor force participation	0.967	0.892	0.958	0.881
Employment status ^a	0.766	0.294	0.739	0.457
Earnings ^b	32,200	10,129	32,101	16,032
Benefit receipt				
SSI receipt	0.00260	0.203	0.00507	0.138
SSDI receipt	0.000396	0.0879	0.000188	0.116
Own home	0.653	0.571	0.625	0.490
Receive rent subsidy	0.00669	0.0376	0.0135	0.0351
Poverty status	0.0930	0.282	0.143	0.312
Education				
Less than high school	0.0759	0.172	0.0967	0.127
High school or GED	0.248	0.369	0.230	0.296
Some college	0.323	0.293	0.285	0.367
College or more	0.353	0.166	0.388	0.210
Race				
White	0.630	0.640	0.552	0.590
Black	0.122	0.181	0.126	0.170
Asian or Pacific Islander	0.0732	0.0269	0.0776	0.0343
Hispanic	0.154	0.121	0.225	0.168
Other	0.0206	0.0308	0.0204	0.0378
Marital status				
Married	0.449	0.362	0.711	0.532
Separated/Divorced	0.124	0.270	0.114	0.205
Widowed	0.0304	0.0836	0.0110	0.0157
Never married	0.397	0.285	0.164	0.247
Live in metropolitan areas	0.881	0.809	0.873	0.827

Notes: Data from 2017 Current Population Survey, weighted to be nationally representative. (a) Proportion conditional on being in the labor force; (b) salary conditional on being employed.

Table 3. Coefficients from regression-adjusted models

	(1)	(2)	(3)
	Labor Force	Employment Status	Earnings (in dollars)
Disability	-1.936*** (0.000999)	-1.253*** (0.00259)	-6993.7*** (1399.6)
Mothers	-0.00905*** (0.000555)	-0.262*** (0.00140)	2821.0*** (477.7)
Disability*Mothers	0.473*** (0.00200)	0.0496*** (0.00469)	-1902.8 (2750.1)
Controls	YES	YES	YES
Constant	-0.322*** (0.00229)	1.767*** (0.00592)	-6454.6** (2291.5)
N	57412	40148	38523

Standard errors in parentheses. * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Notes: Models (1) and (2) are logistic regression models. Model (3) is ordinary least squares. Motherhood status is determined by having a coresident child under the age of 18. Controls include: respondent's age, education, marital status, race, state of residence, and rural/urban residency

Table 4. Descriptive Statistics by Benefit Receipt Status for Mothers

	Mothers			
	No receipt	SSI	SSDI	Both
Age	39.51	39.55	39.34	40.56
Motherhood status				
Has child under 5	0.310	0.275	0.435	0.0604
Age at first birth	27.23	26.59	28.91	24.50
Labor force participation	0.488	0.0950	0.686	0.225
Employment status ^a	0.869	0.700	0.969	1
Earnings ^b	16,229	713.5	33,835	4,095
Own home	0.503	0.299	0.620	0.556
Receive rent subsidy	0.0361	0.0607	0	0
Poverty status	0.297	0.553	0.116	0.498
Education				
Less than high school	0.126	0.203	0.0329	0.217
High school or GED	0.281	0.412	0.249	0.455
Some college	0.385	0.313	0.324	0.134
College or more	0.207	0.0710	0.395	0.194
Race				
White	0.594	0.526	0.653	0.385
Black	0.164	0.247	0.0973	0.539
Asian or Pacific Islander	0.0343	0.0175	0.0568	0
Hispanic	0.168	0.171	0.174	0.0761
Other	0.0407	0.0387	0.0189	0
Marital status				
Married	0.556	0.301	0.654	0.382
Separated/Divorced	0.193	0.301	0.174	0.136
Widowed	0.0175	0.0143	0.00601	0
Never married	0.233	0.383	0.166	0.482
Live in metropolitan areas	0.829	0.777	0.887	0.634

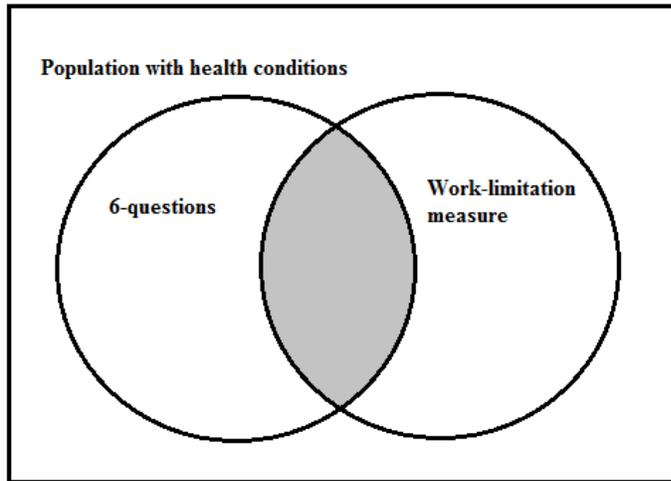
Notes: Data from 2017 Current Population Survey, weighted to be nationally representative. (a) Proportion conditional on being in the labor force; (b) salary conditional on being employed.

Table 5. Reasons that NBS respondents cannot work

Reason to not work	SSI		SSDI	
	Non-mother	Mother	Non-mother	Mother
Physical or mental disability	0.952	0.897	0.976	0.966
Not qualified for jobs	0.285	0.251	0.309	0.197
Transportation	0.280	0.327	0.179	0.109
Taking care of someone	0.0903	0.603	0.0528	0.285
Does not want available jobs	0.0806	0.118	0.0981	0.0973
Going to school	0.0314	0.0424	0.0406	0.0588
Accessibility to job site	0.323	0.413	0.251	0.302
Does not want to lose benefits	0.204	0.217	0.153	0.125
Discouraged	0.375	0.413	0.351	0.354
Others do not believe person can make it	0.307	0.292	0.240	0.183
Employers do not want to give a chance	0.175	0.277	0.143	0.121
Cannot find job	0	0	0.0130	0.00705
Lack skills	0.00289	0.0232	0	0
Need personal assistance	0.0964	0.180	0.123	0.112
Others do not believe person can make it	0.0457	0.0226	0.0921	0.0503

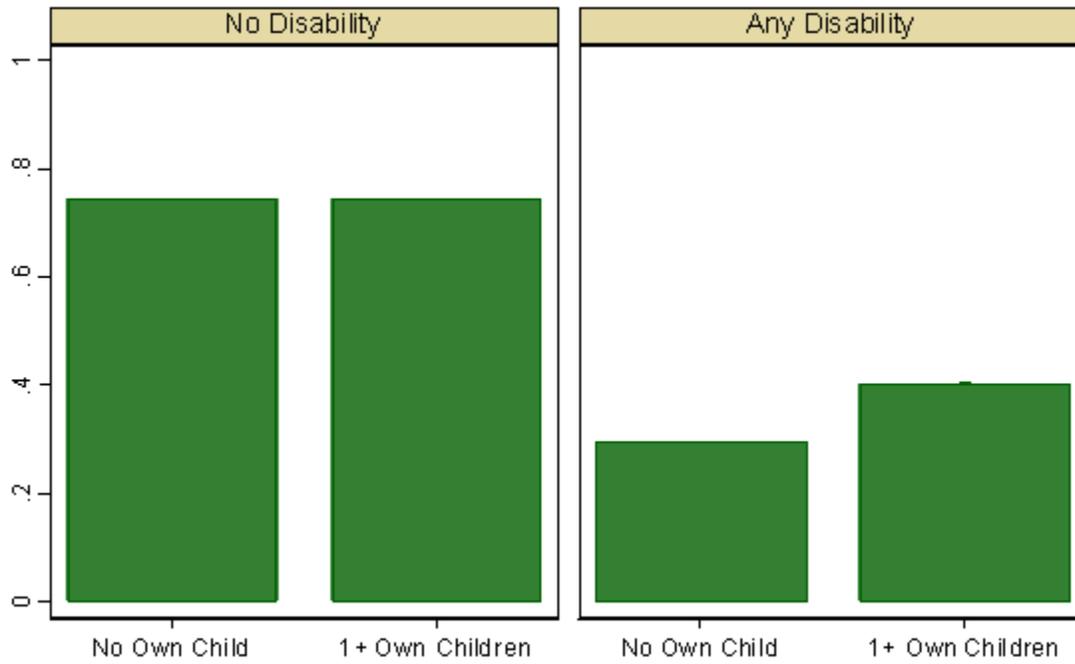
Note: Sample is restricted to women ages 18 to 55.

Figure 1. Conceptual model of disability definitions as overlapping circles



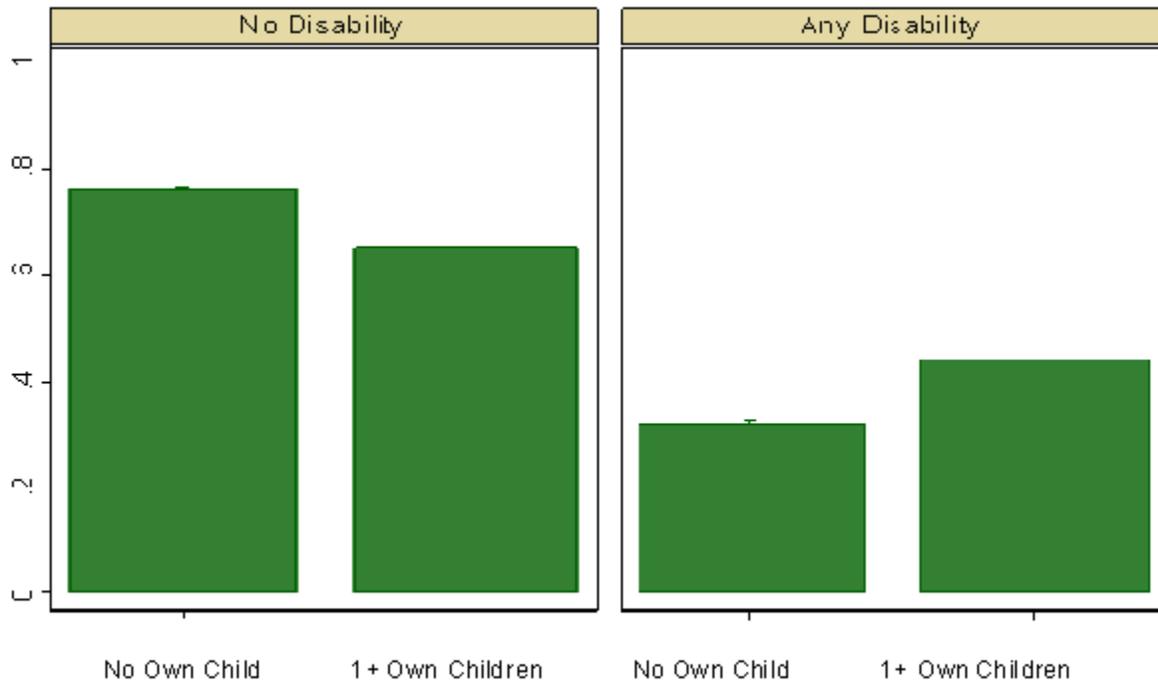
Source: Adapted from Burkhauser et. al, 2014

Figure 2. Predicted probability of being in the labor force for women, by disability and motherhood status



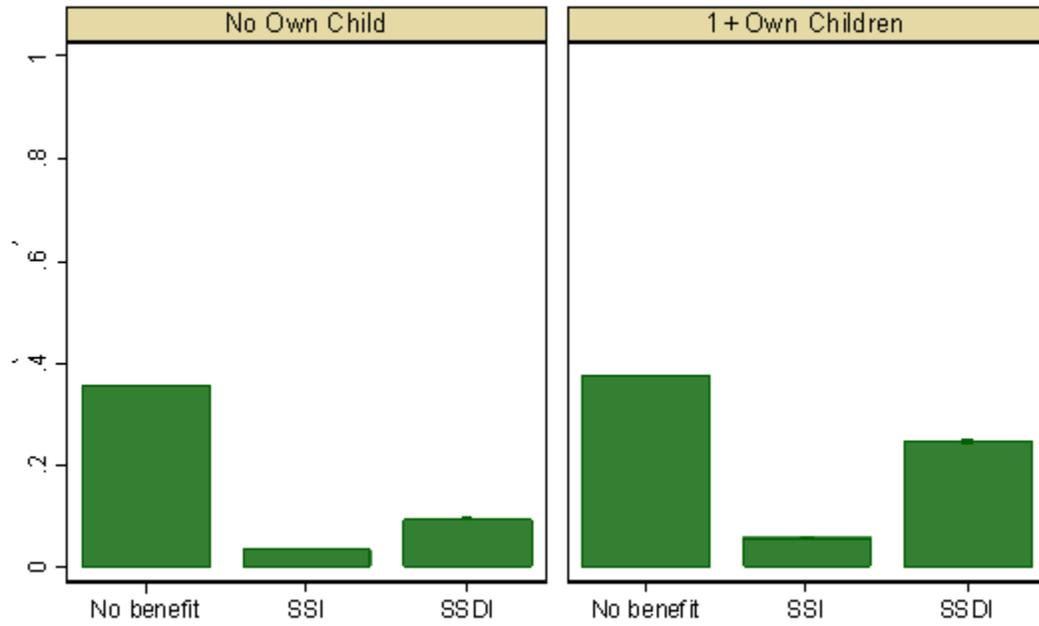
Note: Data from the 2017 CPS survey, weighted to be nationally representative.

Figure 3. Predicted probabilities of being in the labor force for women, by disability and motherhood status (restricted to having a child under the age of 5)



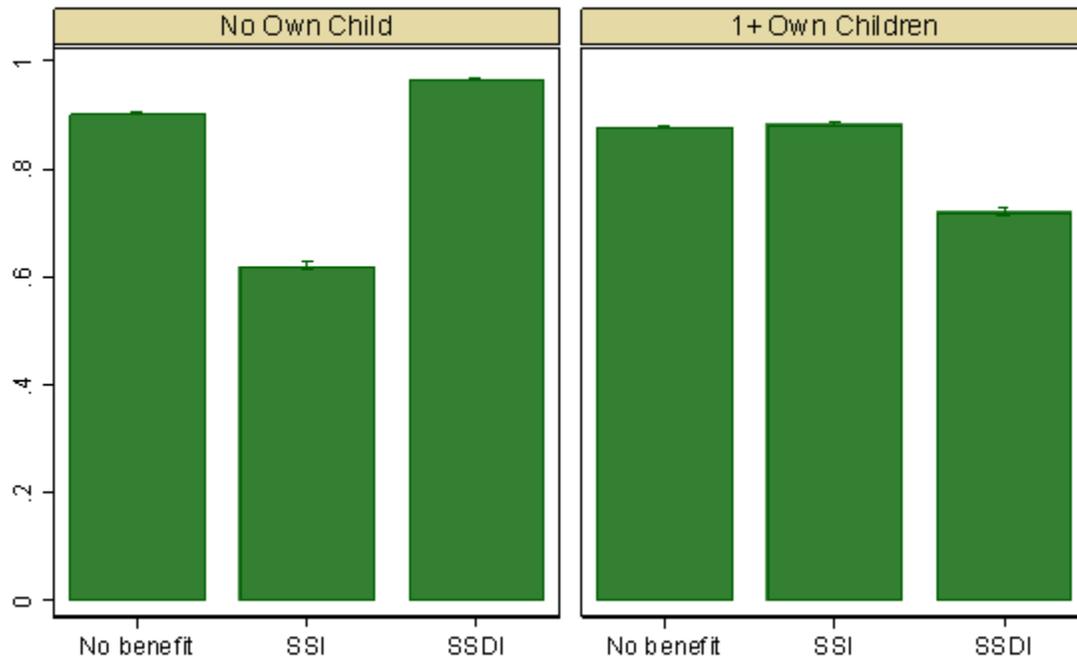
Note: Data from the 2017 CPS survey, weighted to be nationally representative.

Figure 4. Predicted probability of being in the labor force for women with disabilities, by motherhood status and benefit receipt



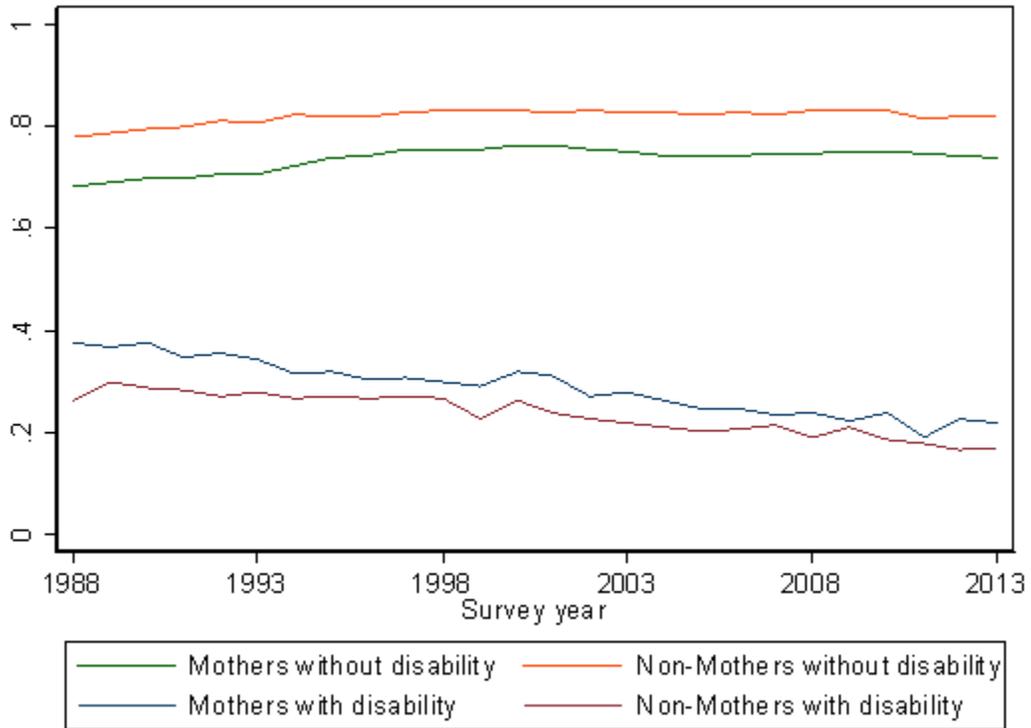
Note: Data from the 2017 CPS survey, weighted to be nationally representative.

Figure 5. Predicted probability of being employed for women with disabilities, by Motherhood states and Benefit receipt



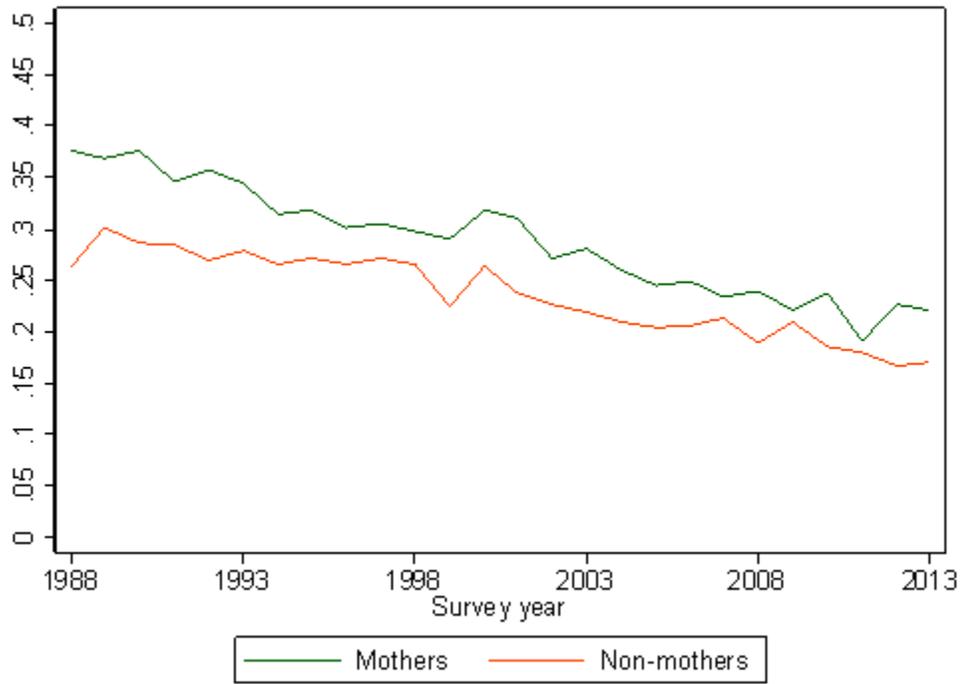
Note: Data from the 2017 CPS survey, weighted to be nationally representative.

Figure 6. Rates of labor force participation for women by disability and motherhood status



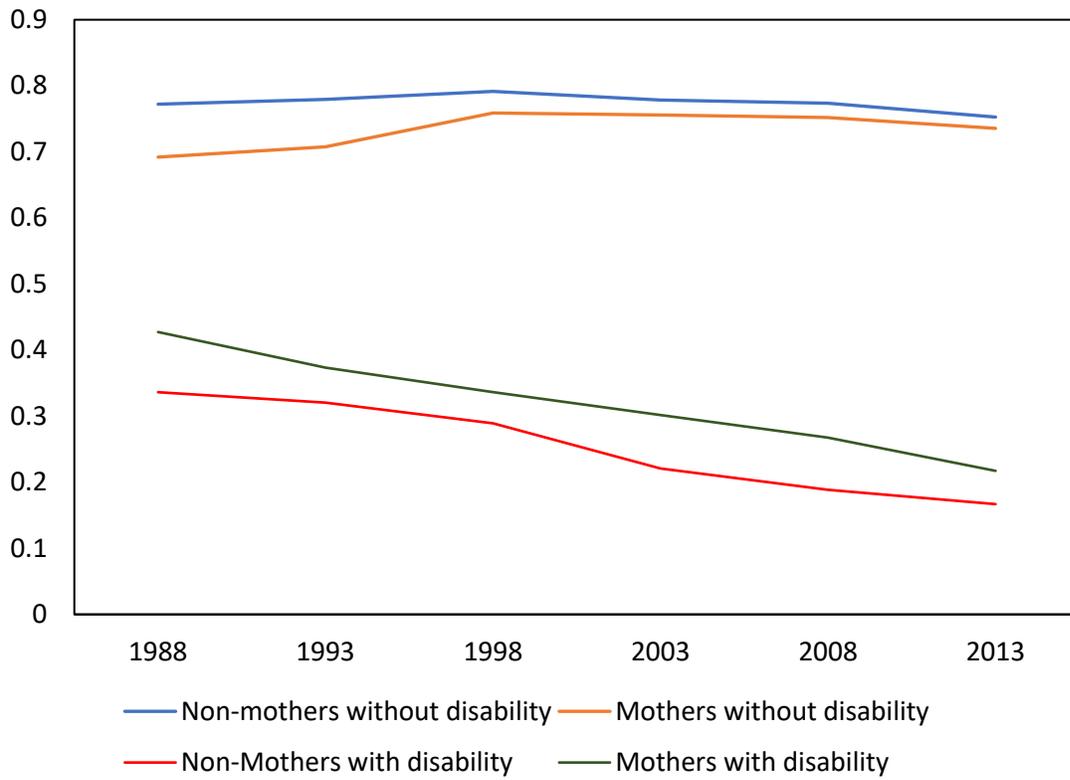
Note: Data from the 1988-2013 CPS surveys, weighted to be nationally representative.

Figure 7. Rates of labor force participation for women with disabilities, by motherhood status



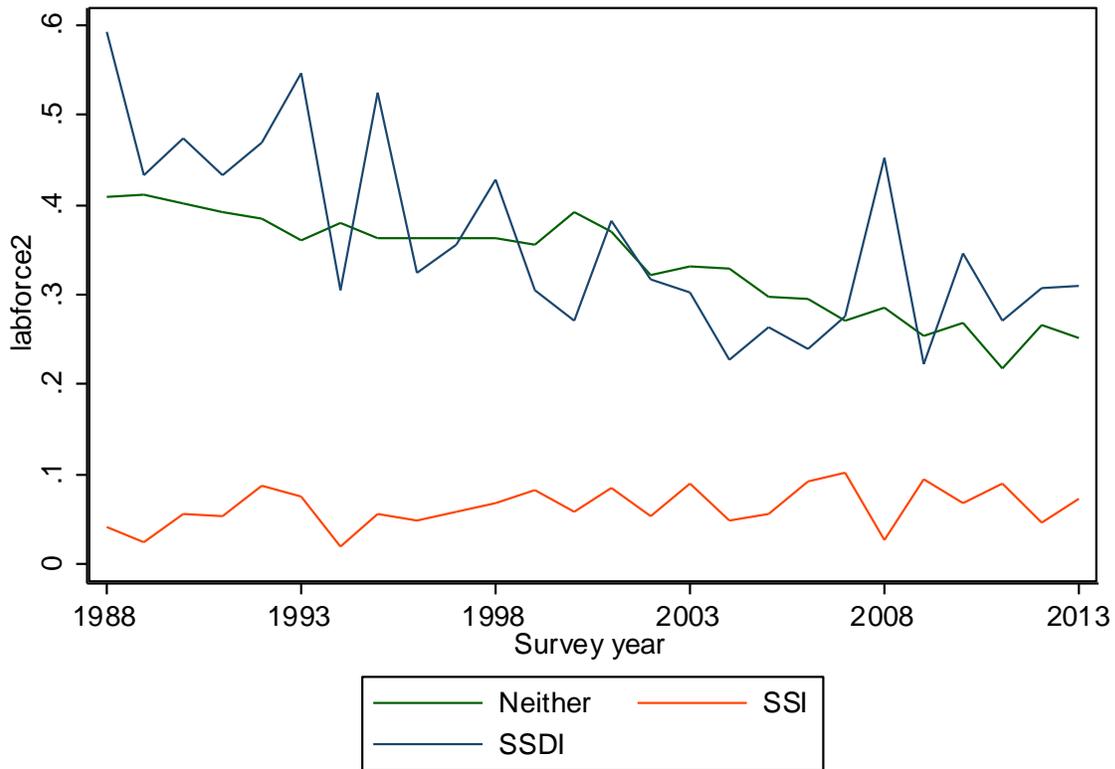
Note: Data from the 1988-2013 CPS surveys, weighted to be nationally representative.

Figure 8. Predicted probabilities of labor force participation for women, by motherhood and disability status



Note: Data from the 1988-2013 CPS surveys, weighted to be nationally representative. Model includes controls for race, education, age, marital status, and year.

Figure 9. Rates of labor force participation for mothers with disabilities, by beneficiary status



Note: Data from the 1988-2013 CPS surveys, weighted to be nationally representative. Model includes controls for race, education, age, marital status, and year.

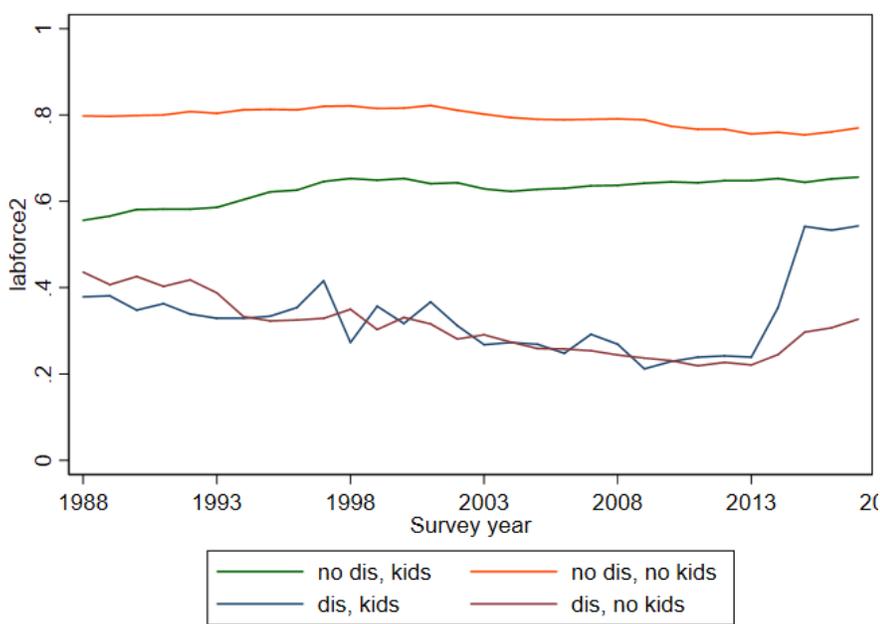
APPENDIX A: Changes to the Work-Based Measure in the Current Population Survey.

Since 1981, the CPS has asked a screener question on work-related disability. This question has been extensively used for longitudinal analyses of patterns of labor force participation among people with disabilities. One of the criticisms of this measure has been that it included no timeframe. In 2014, presumably in an attempt to address this and other criticisms, the CPS changed this question in the survey. From 1981 to 2013, this question asked: “Q59A. (Do you/Does anyone in the household) have a health problem or disability which prevents (you/them) from working or which limits the kind or amount of work (you/they) can do?” After 2014, this question was changed to: "Q59AR. At any time in [the prior year] (did you/did anyone in the household) have a disability or health problem which prevented (you/them) from working, even for a short time, or which limited the work (you/they) could do?”

Unfortunately, this change in the question was not well-publicized by the Census Bureau, and it led to an important break in the time trend, which makes it difficult to compare current estimates using this measure with estimates collected before 2013. Recognizing this bias is an important (and unplanned) contribution of the present study.

Figure A1 shows trends in labor force participation for women by parental and disability status. It shows that women without disabilities kept a high and nearly constant labor force participation over the studied period (increasing slightly for mothers without disabilities over time). The labor force participation of women with disabilities is very similar regardless of whether they have children; however, this participation declined slightly over time. **Figure A1** also shows a drastic increase in labor force participation of women with disabilities (and particularly of mothers with disabilities) after 2014. This increase in the labor force participation of women with disabilities is driven by changes in the way work-based disability questions were asked.

Figure A1. Labor force participation of women by motherhood and disability status (1988-2017)



APPENDIX B: Comparing CPS and NBS measures

Since 2001, the CPS allows identification of both SSI and SSDI recipients separately through self-report. Studies comparing estimates produced using CPS data matched to administrative data suggest that self-reported data in the CPS slightly underreports OASDI receipt and significantly underreports SSI receipt (Davies and Fisher, 2009). This means that our sample of SSDI/SSI recipients in the CPS may be biased.

Table B1 below benchmarks the CPS samples using the NBS. Overall, among SSI recipients, the CPS captures less mothers, less non-Hispanic and non-White women, more married women, and more educated women. This suggests that the CPS sample (regardless of using a work-based or a 6-item based measure of disability) captures a more advantaged group of women than that which SSA serves, which is represented in the NBS. Similarly, SSDI recipients identified through the 6-item measure in the CPS, are also more socioeconomically advantaged than those captured in the NBS survey, and are also less likely to be mothers. However, the 2017 work-based measure used in the CPS (as discussed in **Appendix A**) may be subject to a particularly high bias. Note that these women are both much more likely to be working *and* much more likely to be mothers than in any other sample. This brief analysis provides additional support to the use of the 6-item measure in the CPS for analyses of women who are SSA's beneficiaries.

Table B1. 2017 CPS data benchmarked using the 2015 NBS, both weighted to be nationally representative

	SSI			SSDI			Both		
	NBS	6-item	work	NBS	6-item	work	NBS	6-item	work
Working	0.0516	0.261	0.0229	0.0975	0.1567	0.476	0.0848	0.0295	0.0697
Mother	0.208	0.165	0.178	0.241	0.161	0.335	0.188	0.075	0.096
Race									
Hispanic	0.0953	0.131	0.121	0.087	0.136	0.14	0.105	0.155	0.106
White	0.548	0.59	0.584	0.642	0.658	0.682	0.568	0.505	0.562
Other	0.356	0.25	0.27	0.27	0.16	0.15	0.33	0.28	0.30
Married	0.104	0.194	0.221	0.349	0.356	0.509	0.133	0.219	0.289
Education									
Less than high school	0.419	0.291	0.269	0.138	0.114	0.0828	0.281	0.205	0.218
High school	0.417	0.391	0.406	0.396	0.316	0.301	0.436	0.488	0.472
Some college	0.13	0.255	0.257	0.299	0.334	0.342	0.213	0.236	0.235
College or more	0.00987	0.0629	0.0683	0.138	0.236	0.274	0.0249	0.0708	0.0759
Other	0.0242			0.0291			0.0448		
Number of observations	513	794	1,159	592	183	518	329	69	117

