# Transgender Stratification Economics: Empirical Evaluation of Intersectional Effects in the 2015 Transgender Survey

Abstract:  Research on the economic status of transgender status has found that transgender people face pervasive discrimination from both state and non-state actors.  This paper builds upon the growing labor-economics of transgender people (Carpenter, Eppink, and Gonzales 2020; Carpenter, Lee, and Nettuno 2022; Shannon 2022) but breaks with it by considering economic precarity more broadly.  By incorporating insights from intersectional theory and Marxian Feminism, this paper seeks to argue that economic marginalization and social oppression reinforce and enable one another.  Following the intersectional methods of stratification economics, this paper compares the economic marginality of transgender people to the US population across income distributions and labor force status using the 2015 United States Transgender Survey and the 2015 American Community Survey.  Using the Blinder-Oaxaca decomposition, this paper finds the difference in mean incomes between transgender individuals and those of the remainder of the United States is mostly composed of differences in endowments, but these differences are a significant proportion of mean incomes for transgender individuals.  Transgender individuals are clustered in precarious labor force statuses which are characterized by low income.  This clustering is more pronounced for transgender women, nonbinary people, and racially marginalized people.  These transgender individuals, alongside those with disabilities and those who have experienced workplace discrimination due to their gender identity, are far more likely to engage in low-income self-employment, sex work, and illegal employment.  This is the first research, to the author's knowledge, to provide quantitative analyses of the factors contributing to engagement in sex work for transgender individuals in the United States.

## 1. Introduction

Transgender people are the subject of great public scrutiny with assaults on their capacity to exist in public, their bodily autonomy, and their very lives.  From the vantage point of the state, anti-transgender policies range from bans of gender-affirming medical care for transgender children enforced with criminal charges for physicians and parents, functional or direct bans on drag performances, state-mandated misgendering, book bans, bathroom use regulation, and preventing women from competing in sports (Hassan 2023).  Laws such as these function to stigmatize transgender people but also serve to directly undermine the physical and mental health of transgender individuals.  As of this writing, 574 laws of this sort

have been proposed in 2023 in state houses in the United States, and 83 have been signed into law ("2023 Anti-Trans Bills: Trans Legislation Tracker").

Research of the economic status of transgender status has found that transgender people face pervasive discrimination from non-state actors, from the workplace (Sears et al. 2021), to the university (Conron, O'Neill, and Vasquez 2022), and healthcare and housing (S. James et al. 2016).

Economic research on transgender people is a growing field within the field of 2SLGBTQIA+ studies and the economics of stratification, but the literature that does exist is woefully inadequate to address the myriad of problems facing transgender people. At the forefront of this, the mainstream approach of existing research on the subject seeks simply to situate the relative deprivation of transgender people in their relative inability to secure well compensated work or limits itself to explaining the impact of transgender-inclusive healthcare on individual wellbeing. The ultimate failure of these result from the inability of most economic analysis to examine seriously and directly structures of social domination and the relationships those structures have to larger economic systems of exploitation.

The goal of this paper is to analyze, using the methods of stratification economics, the class dynamics of cisheteropatriarchy[1] for transgender people living in the United States—that is to say, this paper will examine the interrelation between cisheteropatriarchy, as a system of oppression for transgender people, and the capitalist economy, as a system of exploitation of workers by capital. Specifically, this paper will do this by constructing several measures of economic precarity based on labor force status and income.

The existing literature on the economic outcomes of transgender people focuses on differences in labor market outcomes but limits this analysis to a shallow understanding of economic wellbeing by simple comparisons between incomes or employment status between transgender and cisgender people. Marginal labor market outcomes may lead to lower incomes for transgender people but the coincidence of both leaves transgender people far more exposed to adverse market conditions and further removed from benefits, like health insurance or childcare benefits, which effectively lower individual income. Precarity is not a Marxian category but is the intersection of both weakness and economic marginality—constructed measures of precarity follow from Analytical Marxian methods but serve to illustrate the complementarity

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[1]Cisheteropatriarchy is the system of social domination structured around a heterosexual and cis-gendered patriarchal household.

between economic and social weakness.  By showing the clustering of transgender people and people of color in constructed measures of precarity, this paper will illustrate the key insight of intersectional political economy and Marxian Feminism: systems of oppression, like that of cisheteropatriarchy and white supremacy, facilitate and are facilitated by the economic exploitation characterizing capitalist production.

This paper will utilize the United States Transgender Survey (USTS), collected in 2015 by the National Center for Transgender Equality, to examine the income distribution of transgender people and the forms of employment they undertake compared to that of the larger population to estimate the economic precarity of transgender people.

Shannon (2022) has already decomposed the income differences between transgender people and estimated the income gaps and differences in likelihood of economic outcomes (like employment, labor force participation, poverty, and full-time work) between respondents to the USTS and those who responded to the American Community Survey (ACS).  Shannon did not, however, explicitly examine aggregate differences between the populations or how transgender status influences racial discrimination, which this paper will do.

This paper will decompose the income differences between respondents to the ACS and the USTS overall, and along lines of gender and race.  Additionally, this paper will explicitly examine the differences in the distributions of income and labor force status between both populations, something not done by Shannon or in previous economic research on transgender people.  These differences will also be analyzed along lines of gender and race between both surveys.

While Shannon estimated differences in economic marginality cross both populations by comparing employment status and income, this paper constructs alternate measures of precarity influenced by the employment-income structure of the US economy as inferred from ACS respondent income and employment and by the Marxian concept of surplus population.

After finding, consistently, that transgender people are clustered in more marginal and precarious work compared to respondents to the ACS, this paper discusses how transgender people in precarious employment turn to self-employment, sex work, and illegal activity—white, Asian, or Latine/Hispanic transgender men who are able bodied are most likely to engage in self-employment, while transgender women, nonbinary people, disabled people, the self-employed, those out of the labor force, past victims of transphobic workplace discrimination,

Black, Indigenous, Latine/Hispanic, and multiracial people are more likely to engage in sex work or other underground economic activity.

## 2. Literature Review

### a. Transgender Economics

Research by economists on transgender people typically focuses on one of the following subjects: health, policy, or economic outcomes. Empirical research surrounding the unique health needs of transgender individuals is a rich and growing literature which, while it often justifiably engages with the unique system of health provision in the United States, tends to demonstrate the results of access to trans-inclusive or gender-affirming healthcare for the transgender population (Campbell and Rodgers 2023; Campbell et al. 2023; Everhart, Ferguson, and Wilson 2022).

Closely tied to discussions of transgender health are those surrounding policies that affect transgender people (Winter et al. 2016), like barriers to changing one's legal gender (Mann 2021), the impact of gender and racial stigma on access to state resources (Butz and Gaynor 2022), and the impact of same-sex marriage law on hate-crime incidence (Nikolaou 2022).

The third subject, and the topic of this paper, concerns economic outcomes most directly, with great emphasis on labor market status. Economic research on transgender people follows the groundbreaking work by Lee Badgett on labor market discrimination against lesbians, gay men, and bisexuals which found statistically significant decreases in annual income for "behaviorally" homosexual men and women (that is, queer men and women who actively date people of the same gender, as opposed to queer people attracted to people of the same gender but who do not date them) (Badgett 1995).

While some of the current research on the economic status of transgender individuals relies upon experiments (Van and Baert 2018; Van et al. 2020), increasing proportions of this research is carried out using large surveys that incorporate sexual orientation and gender identity information. From these surveys, economists can identify 2SLGBTQIA+ people and directly compare the economic outcomes of transgender individuals and the remainder of society. Consistently, researchers document that, compared to the larger cisgender population,

transgender people face worse economic outcomes: lower rates of employment, lower incomes, higher poverty rates, and worse health (Carpenter, Eppink, and Gonzales 2020; Carpenter, Lee, and Nettuno 2022; Fredriksen Goldsen et al. 2022). Additionally, this result is found in both surveys containing exclusively transgender individuals and surveys without any means to identify the gender identity of individuals apart from their birth sex (Shannon 2022). Shannon finds statistically significant evidence that transgender people have worse economic outcomes—higher rates of unemployment, higher likelihood of working part time, lower rates of labor force participation, and lower incomes—than that of men in the general public.[2] Further, Shannon finds that gender transitions have strong income effects which more closely align a transgender individual with the incomes of their cisgender peers of the same gender; transgender men see higher incomes if they transition young, whereas transgender women see lower earnings if they transition young.[3]

b. Precarity, Oppression, Stratification

This paper will rely upon a three-pronged theoretical approach, each of which will support the whole argument but only in concert with those other theories. First, theories of precarity informed by Marxian and Analytical Marxian methods will ground the subsequent analysis in power-relational terms. Next, the explanatory relationship linking the oppression of transgender people to economic outcomes will be supplied by Marxian Feminism, Black Radical Thought, and Intersectional Political Economy. Finally, the levels of analysis and discussion of policy will be informed by stratification economics.

What does it mean to precarious? Use of "precarity" as an academic analytical concept has varied widely in context, with it applied to the particular but also to the universal. Consider work and the use of precarity in such context: Kalleberg defines precarious work as "uncertain,

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2 Throughout this work the phrase "general public" will be used to describe the entire population of the United States without explicit reference to the subsections of that population who may be transgender or who may be cisgender. In the case of the ACS, it is unknown the transgender status of respondents which makes claims about these respondents as representing cisgendered people difficult. Utilizing similar sampling techniques, the HH Pulse survey captures small but nonzero response rates from self-identified transgender people, as well as others who do not identify as either transgender or cisgender, as noted by Carpenter, Lee, and Nettuno (2022). While it may be reasonable to assume the majority of respondents to the ACS are cisgender, this work will not do so.

3 As noted in Shannon (2022), there is evidence to suggest that the income gaps shrink between women who responded to the USTS and the ACS the earlier in life a transgender woman transitions socially (compared to transgender women who transition socially later in life), with the same being true for transgender men (whose income grows the earlier in life they transition, closing the gap between their incomes and that of other men). Social transitioning is the process wherein someone performs their preferred gender expression instead of the gender associated with their sex assigned with birth or their prior gender expression. Social transitions exist on a spectrum of intensity, frequency, and location and can range from someone performing their preferred gender expression with friends and loved ones only to someone changing legal documents or pursuing gender-affirming cosmetic surgery.

unstable and insecure" where "employees bear the risk of work" and "receive limited social benefits" (Kalleberg 2018). Others argue that the pervasiveness of precarity has the capacity to form social classes (Standing 2014), though this argument has received criticism (Wright 2016).[4] Still, the flexibility of such a concept is not a weakness in its own right. For this work, precarity will serve as a unifying analytic category from which to group individuals with similar labor market and income statuses. Further, this shared characterization will serve as a base to compare disparate populations.

To construct the measures of precarity utilized in this paper, it is vital to understand how this amounts to both a break and a continuation of the method of Marx and subsequent Marxians.

Marx conceptualized one's class as emerging from their relationship to the means of production in society. In capitalism, class status is determined by private ownership of capital and the subsequent ability for owners of capital—capitalists—to exploit non-owners of capital—workers—by the purchase of proletarian labor power and expropriation of surplus value arising in the production process (Marx 2013). Following this, a traditional Marxian analysis would follow from relationships individuals have with the means of production and social reproduction. Groups with similar relationships would be considered to form a class, and the relations between classes will form the conditions within which society will exist (while society also conditions these relationships).

In direct conversation with this Marxian method of class analysis is that of Max Weber. Whereas Marx and subsequent Marxians emphasized the centrality of relations of exploitation through value production, Weber emphasized the importance of power, in the abstract, as determining class. While this work will not utilize Weberian methods in analyzing class, it is valuable to mention their influence on Analytical Marxian theories of class. Erik Olin Wright popularized a synthetic class analysis that incorporated Marxian analysis of property ownership with Weberian analysis of power (Wright et al. 1982; Wright 1984). Similarly, Mohun estimates class status utilizing income measures in an attempt to track the change in managerial incomes, where managers are individuals who must sell their labor power but also exercise hierarchical control over production through asset ownership (Mohun 2016). The work of both Wright and Mohun illustrates tangible methods to apply Marxian analysis empirically; Wright's Marxian

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4 Wright argued that precarious workers cannot form a class in the Marxian sense separate from the working class due to too great of similarity between their material interest and the lack of common ground from which the precarious could organize.

analysis of workplace power alongside capital ownership allowed him to differentiate between workers who demonstrated vastly differing behavior in production while Mohun demonstrated quantitative methods to operationalize class and identify unique class structures.  Critics of this approach argue that such a departure from traditional Marxian analysis relegate the unique aspects of Marx's class analysis to a secondary status (Resnick and Wolff 2003).  Still, consideration of power, and thus of oppression, offers unique insights into the status of transgender people that cannot be explained completely by traditional Marxian analysis.

Following Wright, this paper will construct categories of precarity defined by the relative power of individuals—this relative power is operationalized a la Mohun using the incomes and labor force status of individuals compared to the broader population.  This paper will define precarity relationally, as the status of someone with lower income compared to the population and who receives that income in less stable means, such as through part time work or self-employment, or the unemployed.  The social relations of capitalism are relations of power; while the precarious are only a subset of those dominated by the capitalist class, they are particularly powerless and in particular ways.  This powerlessness is vital for the maintenance of capitalism, as precarious workers are easy to exploit and their desire to escape precarity can discipline proletarians with greater security.  Precarity can be defined positively but also negatively; to be precarious is to go without.  The precarious are, in the framing of Deborah Figart, those without good work (Figart 2021).  Therefore, this paper will also define precarity in opposition to types of work and renumeration common in an economy.

Intersectionality is an emerging and popular method of analysis designed for application in contexts where multiple axes of oppression—such as those constituted by race, gender, ability, nationality, etc.—intersect.  Attempts to bring intersectionality to bear on the relationship between economic status and oppression have originated in both Marxian (Bohrer 2019) and non-Marxian (Folbre 2020; 2021) contexts, but both strands tend to agree: oppression enables exploitation which enables oppression.  This conception of the connection between oppression and exploitation is also found in the Marxist-Feminist literature (Bhattacharya 2017; Ferguson 2016) and the Black Radical tradition (Du Bois 1998; Combahee River Collective 1977).  Following the convergence of these analyses of oppression in capitalism[5], this work will connect

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[5] These approaches may converge in their assessment of the interconnection of oppression and exploitation but reach this agreement from vastly different ideological roots and further advocate vastly differing responses to this oppression and exploitation.

the oppression of transgender people—understanding this oppression to emerge along transgender status alongside gender identity and race—to economic precarity.

Stratification economics is a method of analysis of economic problems that assumes that the processes by which social groups are formed and stratified leads to significant and persistent differences in the material and social status of individuals within those groups (Chelwa, Hamilton, and Stewart 2022; Davis 2019; W. Darity 2005; 2022; W. A. Darity, Hamilton, and Stewart 2015; Lewis, Asare, and Fields 2021).  With this, stratification economists utilize these groups as levels of analysis, examining differences between groups and within them (Burnazoglu et al. 2022).  In that consideration of internal stratification, where differences within a group are considered, the similarities between the stratification economics framework and an intersectional analysis become clear—stratification economics is an intersectional approach.[6]  In that tradition, this paper will utilize the larger framework of stratification economics to discuss the material results of stratification of the United States between transgender individuals and the remainder of the population but will also examine the stratification internal to the transgender population along lines of gender, race, and class.  This method is illustrated graphically in Figure 1.

## Stratification Economics Method



Compare/Contrast Between Groups

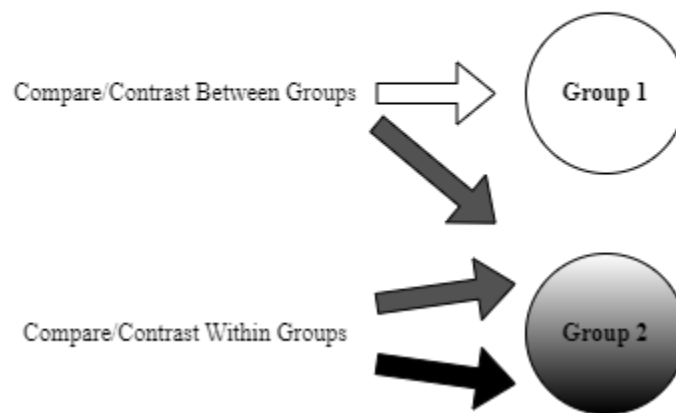Group 1

Compare/Contrast Within Groups

Group 2

**Figure 1**

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[6] Stratification economics lends itself well to intersectional analysis but practitioners have been criticized for failing to do so (Bradshaw 2021).

## 3. Data

The larger 2SLGBTQIA+ literature is dominated by research on cisgender people and relative data availability is a component of this—until recently there has been a dearth of data concerning transgender individuals, with serious limitations surrounding each source. Within the United States, the largest sources of available data have been produced by the Centers for Disease Control and Prevention and Census Bureau, and the nonprofit advocacy group National Center for Transgender Equality (NCTE). Still, smaller datasets have been collected across the United States. Schilt and Wiswall (2008) surveyed transgender conference attendees and website users regarding income changes following gender transitions. Internationally, differences in data availability have allowed scholars to study transgender individuals, as was the case when Geijtenbeek and Plug utilized Dutch administrative data (Geijtenbeek and Plug 2018).

The dataset containing explicit information about transgender people collected by the federal government for the longest is the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System (BRFSS). The purpose of the BRFSS is to estimate the general health of the population of the United States but had first surveyed respondents about their sexual orientation and gender identity starting in 2014. Each state can choose whether to include modules of the BRFSS when residents of their states are surveyed, and the number of states collecting sexual orientation and gender identity questions has increased from 19 in 2014 to 31 in 2022 (Centers for Disease Control and Prevention 2023). Alongside sexual orientation, gender information, and explicit questions concerning the transgender status of the respondent, the BRFSS collects an array of more directly economic variables, such as income, employment, and disability status.

The newest survey collected by the United States federal government containing information on sexual orientation and gender status of the respondent is the Household Pulse Survey (HH Pulse), created and administered by the Census Bureau. These data were created following the start of the COVID-19 pandemic in 2020 to gauge national wellbeing and began collecting sexuality, gender, and sex information in 2021, with such collection continuing at least until the time of this writing. While the sexuality and gender information collected in the BRFSS was contingent on the ascension of individual states cooperating with the Centers for Disease Control and Prevention, thus raising concerns about the representativeness of BRFSS information about transgender people, the Household Pulse Survey is more nationally

representative as it collects such information across each state and Washington DC (Carpenter, Lee, and Nettuno 2022).

The largest survey of transgender people collected by a non-state entity is the United States Transgender Survey (USTS), which is distributed by the NCTE. The USTS is collected infrequently, with waves issued in 2009, 2015, and 2022, the 2015 release features the largest data source on transgender people in the United States, with 27715 respondents. The USTS relies on a snowball sampling technique which is decidedly unrepresentative[7], unlike the BFRSS and the HH Pulse which seek nationwide representative samples (though these aspirations may be dashed upon the rocks of states' choice in module availability in the case of the BFRSS). The specificity offered by the USTS as to issues effecting transgender people is its primary strength, where no other large survey offers the amount of information about transgender people.

The 2015 USTS was designed to gauge experiences of discrimination and measures of inequality experienced by transgender individuals over the age of 18 living in the United States or its overseas possessions or military bases. Of the 36000 people who responded to the survey, 27715 who took the survey were eligible to do so and thus had their responses recorded (S. E. James et al. 2019). This paper will consider 26,957 of these responses—those removed had ambiguous labor force statuses or gender identities difficult to classify.[8]

The survey questions can be split into three categories. First, respondents provided extensive demographic information, with great attention focused on the gender identity of participants and pronoun use. Importantly, this demographic information also included assigned sex at birth, age, race, ethnicity, state of birth and residence, household structure (number of people living together, marital status, number of children), citizenship status, disability status, and income range. Next, participants were asked about their experiences of discrimination in myriad situations, from employment and housing to relationships and religious ties. Finally, respondents were asked about their political ideology and priorities.

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[7] A snowball sampling technique relies upon survey respondents to further spread the survey and encourage further engagement. This method of sampling leads to selection bias (Parker, Scott, and Geddes 2019), though the USTS utilizes a weighting scheme that yields a sample more similar to the US population.

[8] Specifically, this analysis did not consider individuals who reported, alone, working at an internship or those who self-identified as crossdressers. The variability within the working and renumeration conditions of an internship made classification difficult, while crossdressing forms an older form of transgender identity that does not lend itself well to modern classification as a nonbinary identity or as an identity applicable to either a transgender man or transgender woman.

It is important to explain, too, the use of the USTS as opposed to other existing datasets from surveys that explicitly identify transgender individuals.  First, while the method of distribution implies the respondents from the USTS do not constitute a representative sample of the transgender population in the United States, the data provided constitute the largest existing collection of confirmed transgender individuals yet released.  Further, BRFSS and HH Pulse gender classifications are ambiguous, which limits the ability of researchers utilizing those datasets to research transgender people.  Ambiguity in the BRFSS gender categories likely leads to counts of transgender people in that dataset falling below the sampled population who are not cisgender (Carpenter, Lee, and Nettuno 2022) and leads to researchers overestimating the respondents are not cisgender (Carpenter, Eppink, and Gonzales 2020), though the same may likely be true in the case of the HH Pulse survey.[9]  It is likely, in both uses of the BRFSS and the HH Pulse, the populations labeled as non-cisgender are overestimations of the population sampled who are truly not cisgender.  Strong evidence suggests the respondents to the USTS are whiter and more financially secure than the general population of transgender people in the United States (Shannon 2022).  This paper utilizes measures of precarity based on low incomes and unstable work or unemployment.  Because the transgender population has even lower incomes than the USTS respondents, even with the influence of weighting, estimates provided later in this paper will likely be underestimates.  Further, because the USTS respondents are whiter and later evidence suggests that white people are less likely to be precarious or engage in activities like self-employment, sex work, and illegal activity compared to people of color, the following estimates of engagement in those activities are also undercounted.  This undercount of precarity is further exacerbated by the method of distribution of the USTS (though this would also affect the ACS), where precarious people may not have the ability to answer a survey if called or received via email—they may lack a phone or internet access, but they may also not have time or energy to respond.  While the influence of survey format may lead to disproportionate undercounting of either potential respondents to the USTS or the ACS, the results of an undercount of the precarious would be an underestimation of the relationship between a population, such as the transgender, with a status, like precarity.  As

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[9] Carpenter, Eppink, and Gonzales (2020) find many respondents to the BFRSS who indicate a birth sex but do not identify as transgender or as cisgender, a response these authors identify as nonsensical.  The authors group these responses into a larger "gender nonconforming" category of responses.  Such a broad categorization of responses into a single category, which is then tested as though it was sufficiently like a category respondent who may be gender-nonconforming, nonbinary, or unwilling to identify as transgender likely underestimates the influence of transgender or gender-nonconformity on economic outcomes.  With the HH Pulse survey, Carpenter, Lee, and Nettunno (2022) make a similar assumption as to the gender status of individuals who identified with a gender other than that of their assigned birth sex.  Still, making assumptions about the intentions of survey responses may be justifiable when surveying the public and utilizing concepts like gender and sex in differing ways.

such, it is likely that this paper's estimates of transgender precarity discussed are lower-bound estimates.

## 4. Method

Following established research in stratification economics and that first done by Shannon (2022), this paper will utilize the data from the USTS to examine inequalities between the surveyed populations—comparing USTS respondents to ACS respondents—and within the populations—analyzing inequalities along lines of gender, race, and economic status within both samples. Table 1 provides summary statistics for both respondents to the USTS and the ACS.

Table 1: Summary Statistics for Both Surveys

|  | ACS | USTS |
| --- | --- | --- |
| Mean Income, Employed | $ 52892.74 | $ 47439.84 |
| Mean Age | 47.12 | 30.52 |
| % HS Graduates | 87.10 | 97.50 |
| % College Graduates | 28.08 | 37.28 |
| % Disabled | 15.73 | 38.85 |
| % White | 64.45 | 62.44 |
| % Black | 11.96 | 12.70 |
| % Indigenous | 0.62 | 0.67 |
| % Latine/Hispanic | 15.48 | 16.79 |
| % Men | 48.63 | 30.17 |
| % Women | 51.37 | 34.29 |
| % Nonbinary | * | 35.54 |
| Labor Force Participation Rate | 57.89 | 55.71 |
| Unemployment Rate | 5.80 | 14.70 |
| Unweighted N | 2,490,616 | 26,957 |
| Weighted N | 247,876,467 | 26,159 |

**All Values in this Table are Weighted, unless stated otherwise.**
**\* It is impossible to determine the composition of the ACS who may nonbinary.**

Alongside the data from the 2015 USTS, the 2015 ACS will be utilized as a benchmark (United States Census Bureau 2016). The creators of the 2015 USTS designed their survey to

provide direct comparison with other surveys and many of the demographic questions in the 2015 USTS were designed explicitly to mirror those asked in the 2015 ACS (S. E. James et al. 2017).  Additionally, both surveys were conducted temporally close to one-another, with the 2015 USTS conducted in August and September of 2015 and the ACS conducted over the course of 2015.  Further, such a comparison was utilized in past research utilizing the USTS (Shannon 2022).  As such, the use of the 2015 ACS data is the nationally representative survey which provides the most accurate benchmark to compare demographics in the 2015 USTS.

The ACS utilizes frequency weights which restructure those sampled to fit the demographic structure of the entire US more accurately.  The respondents to the USTS tend younger, poorer, and whiter than the US population, and so survey weights constructed by the survey designers are used that increase the weighted average age, increase the weighted average income, and lower the weighted population percentage that is white and increase those for Black and Latine/Hispanic respondents.  The weighted USTS respondent values correspond to a population more like that of the weighted ACS and it is between these two weighted populations that intergroup differences will be measured.

To measure intergroup inequality, the weighted USTS survey data will be used to compare the impact of racial and gender identity on economic outcomes to that of the whole weighted population.  Due to the ability of the weights in transforming the USTS data to closely resemble that of the ACS and due to assumptions about the population structure of the larger transgender community in the United States, all following USTS and ACS data will utilize the weights.  For the sake of brevity, then, hereafter all references to "USTS data" or "ACS data" will be shorthand to refer to those data after weighting has been applied; the weighted USTS or ACS data will be referred to just as USTS data or ACS data.  See Appendix B for more about the impact of the weighting schemes used.

## 5. Results

### a. Income Distributions

Examining the overall population as shown in Figure 2, respondents to the ACS tended to have higher incomes—measured by both the mean and median incomes—than those who responded to the USTS.  Within the sample, more than 30% of USTS respondents had incomes at or below $5000 compared to only 18% for those in the ACS.  On the other end of the income distribution, ACS respondents are far more likely to earn high incomes, with 7.55% of respondents earning more than $100,000 compared to only 5.71% of USTS respondents.

While the median income for ACS respondents is between $25000 and $29999, the median income for transgender respondents is between $12500 and $14999. For context, a full-time worker earning the federal minimum wage of $7.25 will earn more: $15080 per year before tax.[10] While abstracting from other theoretically relevant information concerning the distribution of wages within these populations (race, gender, age, education, location, and labor force status are all relevant to the estimation of differences between transgender people taking the USTS and those who responded to the ACS (Shannon 2022)), this relatively greater clustering of transgender people at lower incomes compared to the larger population indicates a greater degree of economic marginalization for USTS respondents.



Figure 2: Kernal Density Est. of Income in the USTS and ACS

Sources: 2015 USTS, 2015 ACS
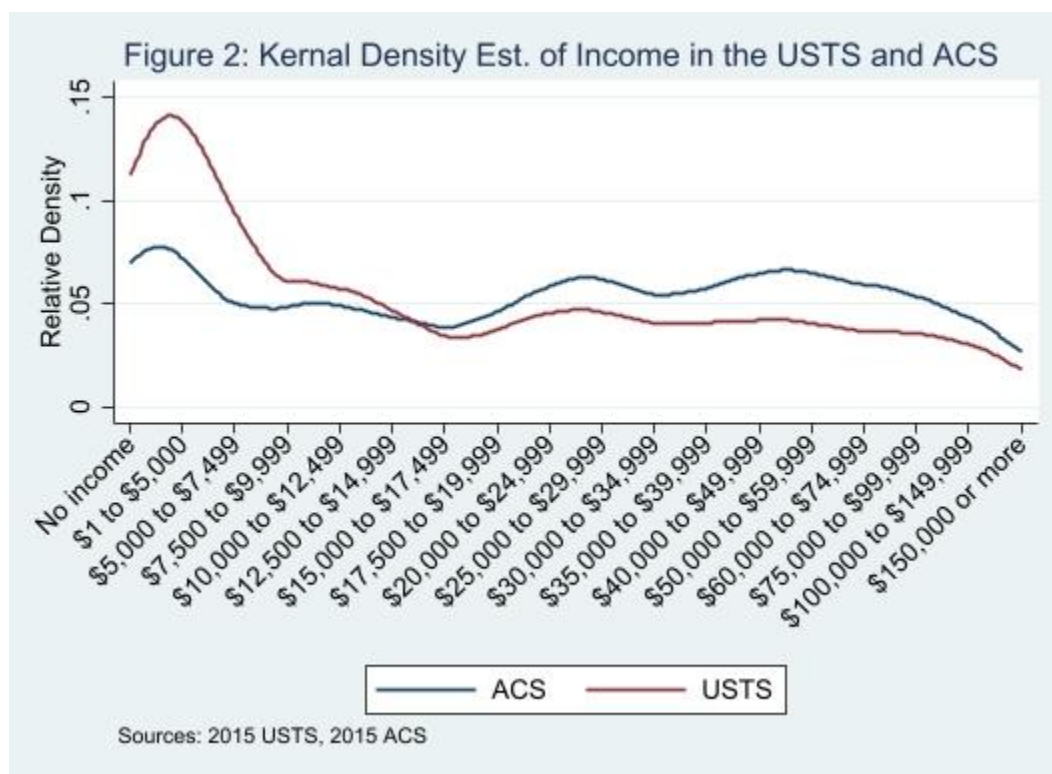
By gender, such disparities continue.[11] As shown in Table A2, transgender men and nonbinary people are clustered in the lowest income bins, while men who responded to the ACS

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[10] Minimum wages are subject to state, county, and municipal regulations but are not lower than the federal minimum wage. There are many types of work exempt from minimum wage standards, including farm workers, seasonal workers, tipped employees, students, disabled people, and many care workers ("Elaws - Employment Law Guide - Minimum Wage and Overtime Pay" n.d.; "Questions and Answers About the Minimum Wage" n.d.).

[11] It is difficult to compare by and across gender categories in a context wherein the definitions of gender vary so broadly. It is also insufficiently rigorous to claim the gender listed in ACS estimates correspond to the actual gender of the individual surveyed as social pressure may discourage an individual from revealing their true gender when surveyed due to concerns they will face discriminatory retaliation or be subject to pressure to conform to expected gender norms. The binary framing of gender in demographic surveys of many types will also heavily dissuade if not entirely prevent individuals whose gender exists outside such rigid categories from identifying as such in these settings. There is no way for a gender non-conforming or nonbinary individual to list their gender accurately in many

were clustered in the upper end of the income distribution.  Compared to women responding to the ACS, women who responded to the USTS were far more likely to earn incomes near the very top of the income distribution, but both groups of women reported similar and high proportions of their population who earn no or a small income.  Transgender men and women whose gender presentation more closely aligns with social expectations do see their income converge with that of the remainder of the population with the same gender[12] (Shannon 2022).

Along racial lines, the differences between both USTS and ACS respondents continue. While all racial groups who are not white are far more likely to be clustered in low incomes across both surveys, this is exacerbated further in the USTS population.  More than 60% of Asians (61.11%), multiracial people (64.57%), and Latine/Hispanic people (60.64%) earn less than $15,000, the upper end of the median income bin for transgender people.[13]  More than 60% of Indigenous (64.62%), Black (60.65%), and Latine/Hispanic people (63.01%) earn incomes below the upper bound of the median income for the ACS of $25,000.[14]  Still, the forms of clustering below the median income across both surveys are uneven; the proportion of Indigenous people who receive incomes less than $15,000 is roughly equal to that of the whole transgender population who earn incomes below that amount, but Indigenous peoples in the ACS have a far higher proportion earning as much or less than the median income.  In both surveys, however, white people are less clustered below the median income than other populations; 52.82% of transgender whites earn less than $15,000 (the transgender median income upper bound), but 45.81% of the overall white population earn less than $25,000 (the ACS median income upper bound).

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surveys and the 2015 ACS is no exception.  The importance of such a methodological choice is impossible to estimate from these data and the accuracy of surveys or censuses that allow for a multitude of possible answers to the inevitable "what is your gender" question will almost certainly suffer for as long as making such information available to elements of the state, capital, or public puts such a person at risk for discrimination and retaliation.  Even such inclusive surveys will assuredly lead to "undercounting" transgender or gender non-conforming populations.

12 Specifically, the congruence between an individuals' gender performance and social expectations of that gender performance (and the assessment of that individual of the congruence between their social performance and the expectations of others) has statistically significant income effects, with transgender women who have socially transitioned and whose gender presentation is congruent with that expected of women (that is, they "pass" as women) earning lower incomes than that of transgender women who have not transitioned and are not informing others of their transgender status (that is, they are not "out").  Transgender women who have socially transitioned but do not consider their performance congruent with what is expected of women have lower incomes than that who do consider their performance congruent.  Transgender men who transition and whose gender performance is congruent with social expectations do not have statistically significant differences between their income and that of transgender men who have not transitioned or told others of their transgender status.  Transgender men who have transitioned but do not consider their performance convincing have lower average incomes than that of transgender men who consider their performance congruent with social expectations.

13 54.04% of Indigenous people, 55.08% of Black people, and 52.04% of people of other races responding to the USTS reported incomes below $15,000.  See Table A3 for more information.

14 52% of Asian people, 57.05% of multiracial people, and 56.71% of people of other races responding to the ACS reported incomes below $25,000.  See Table A3 for more information.

b.  Labor Force Status

Typically, state institutions divide the labor force into three sections: the employed, the unemployed, and those out of the labor force.  The employed are those who currently have work and can include people who may have a temporary break from work.  The unemployed are people without work and who are currently looking for work.  Together, the employed and unemployed constitute the labor force; those outside of the labor force include anyone without work and who is not looking for a job.  This may include students, retirees, or people who have been unemployed so long they cease looking for work.

While both the ACS and USTS present labor force participation data in an aggregated way, with all types of employment combined and without differentiating as to why someone is out of the labor force, available data allows for the creation of such information.  As such, this paper will categorize someone's labor market status more broadly, in one of seven categories.  Someone may be employed full-time or part time, self-employed, unemployed, a student, retired, or may be out of the labor force.  See Figure 3 for an illustration of labor force status determination and Table A4 for the distributions of labor force status overall, by gender, and by race.
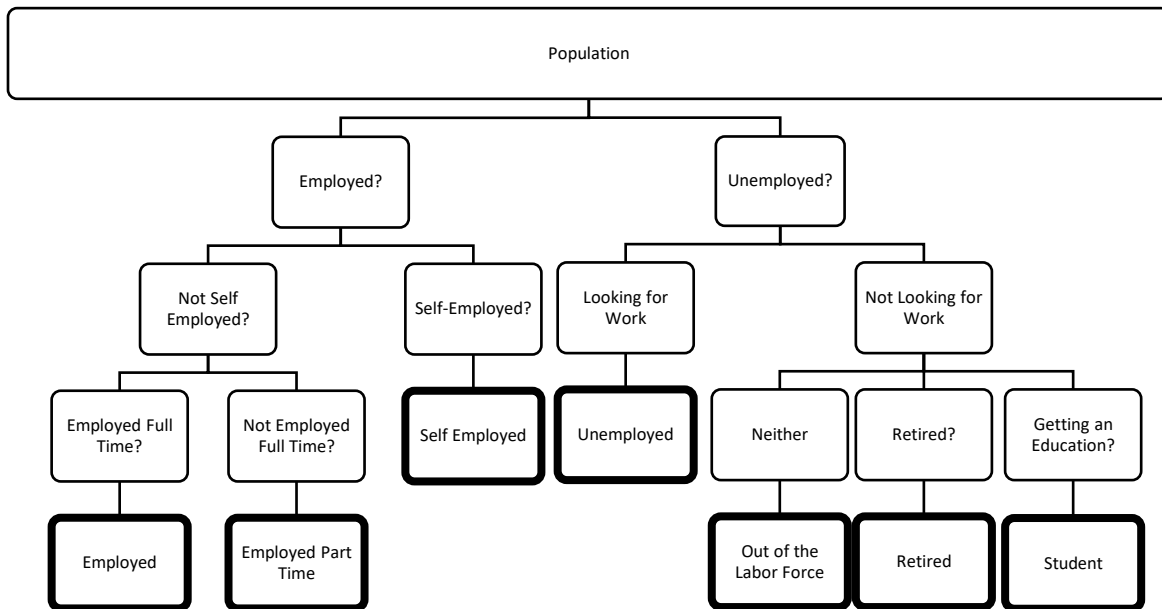


**Figure 3: Labor Force Status Determination**

**This figure illustrates the categorization of individuals from both the USTS and ACS into discrete labor force statuses.  It is presented as a decision tree, where the categorization decisions follow from if a question,**

**given in a box, is applicable to an individual. Bold outlines surround final labor force statuses used in this analysis.**

A full-time employee is someone employed with more than 35 hours of work per week, while someone who is employed part-time has fewer than 35 hours of work per week. The self-employed are not employed by others but earn an income from a business, incorporated or not, that they own. Unemployment is defined in the same way as before, where it categorizes all people without work who are looking for work.

Whereas typical labor force statistics broadly define people as outside the labor force, aggregating discouraged workers, the unworking disabled, students and retirees, this paper will separate students and retirees from the remainder of people who cannot find work nor are looking for it.[15] The relationship students and the retired have to the economy, writ large, is different than that of others outside the labor force. Students may rely upon debt accrual and educational grants to subsidize their time without an income and retirees can rely upon savings, state subsidies, and pensions, both public and private, to cover living expenses.[16]



Figure 4: Labor Force Status by Survey

Sources: 2015 USTS, 2015 ACS

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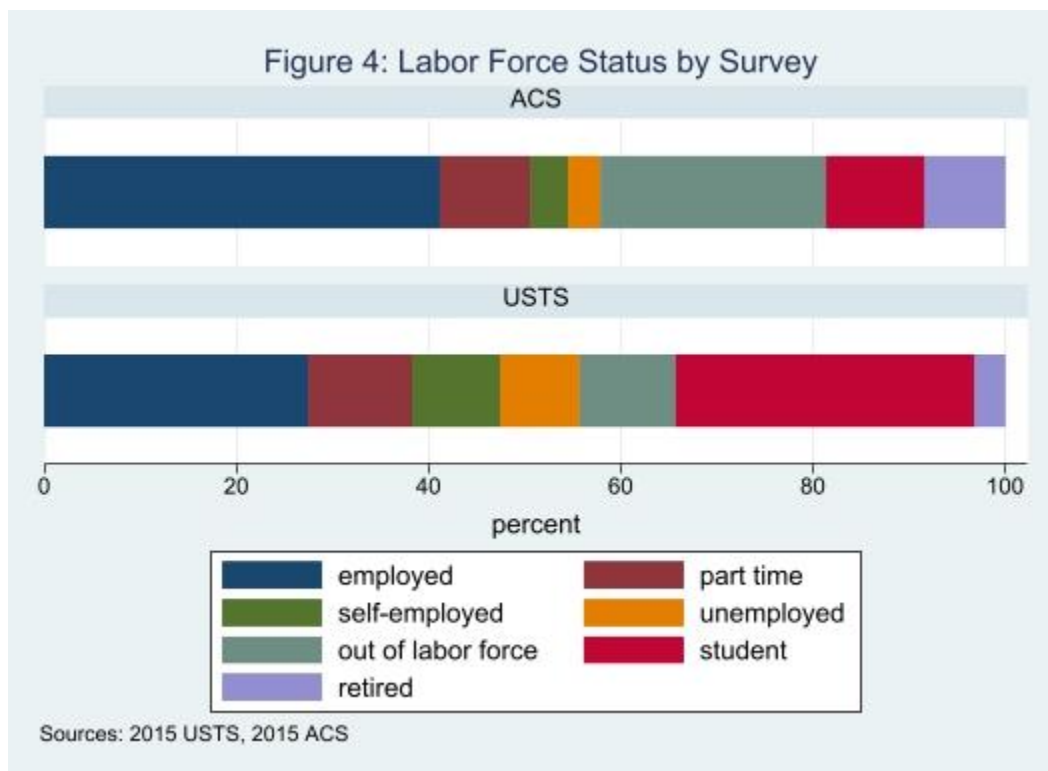
[15]  See Appendix C for an in-depth description of the construction of these categories using ACS and USTS surveys.
[16] Here, the use of "students" and "retirees" follows the labor-force categories. In popular parlance, both descriptors can be utilized to describe people who may have or be looking for work, but categorizing those individuals by their labor-force status means they cease to be "students" or "retirees" and become, simply, employed or unemployed. To be out of the labor force, and thus to be "students" or "retirees", means to not hold or seek a job.

As shown in Figure 4, both populations have wildly differing labor force status distributions. USTS respondents are more highly concentrated in part time work, self-employment, and unemployment and are more commonly students than ACS respondents. Compared to this, ACS respondents are more likely employed full time, retired, or out of the labor force. While it is likely the differing age distributions are partially to blame, as USTS respondents are so young survey weight designers had to adjust for underage (and thus illegitimate) responses (S. E. James et al. 2017), these differences persist even when controlling for age.

Labor force status is highly differentiated along lines of gender, as shown in Figure 5. This is borne out by the data, with large variation in the proportions of subpopulations who are employed either full time or part time, self-employed, unemployed, outside the labor force, students, or retired.

Men responding to the ACS were the most likely to be employed full-time and least likely to be employed part-time of all genders across both surveys. Men responding to the ACS reported the lowest proportion of their population as students (9.70%) and had the highest proportion who are retired (8.49%). Men responding to the ACS had higher rates of full-time employment and self-employment compared to both transgender men and nonbinary people who responded to the USTS.

Such relative advantage seen when comparing men taking the ACS to all others is not as clear when considering the status of women responding to the ACS compared to USTS respondents. While women responding to the ACS were more likely to be retired and less likely to be unemployed than women or nonbinary people responding to the USTS, transgender women had higher rates of full-time employment and self-employment than their counterparts responding to the ACS, who also reported high rates (28.95%) who were out of the labor force. This higher proportion amongst women who responded to the ACS out of the labor force likely follows the division of labor within the patriarchal household: Women in the United States are far more likely than all others to claim to be a home-maker (Hipple 2015). Compared to this, there are low rates of respondents to the USTS reporting status in that role.

Of the transgender population, transgender women report far higher rates of self-employment than all other genders across both surveys, and they report high rates of full-time employment and lower rates of part-time employment than other transgender respondents to the USTS. Concurrently, however, transgender women report the largest proportion of their

population who are unemployed or out of the labor force out of all genders across both surveys (see Table A4). This result stands in contrast with the differences within the transgender population surrounding labor force participation and unemployment rates, where nonbinary people report the lowest labor force participation rate and highest unemployment rate of all USTS respondents.

Transgender women report higher labor force participation rates than other transgender people while their unemployment rate, which is far higher than that for either gender of ACS respondent, sits in the middle of USTS unemployment rates; transgender men have lower labor force participation and unemployment rates than transgender women. The low labor force participation rates seen in the populations of both transgender men and nonbinary people correspond with high proportions of both populations who report being students. These proportions who are students range from more than three to more than four times as high as those seen in the ACS respondents.



Figure 5: Labor Force Status by Gender and Survey

Sources: 2015 USTS, 2015 ACS
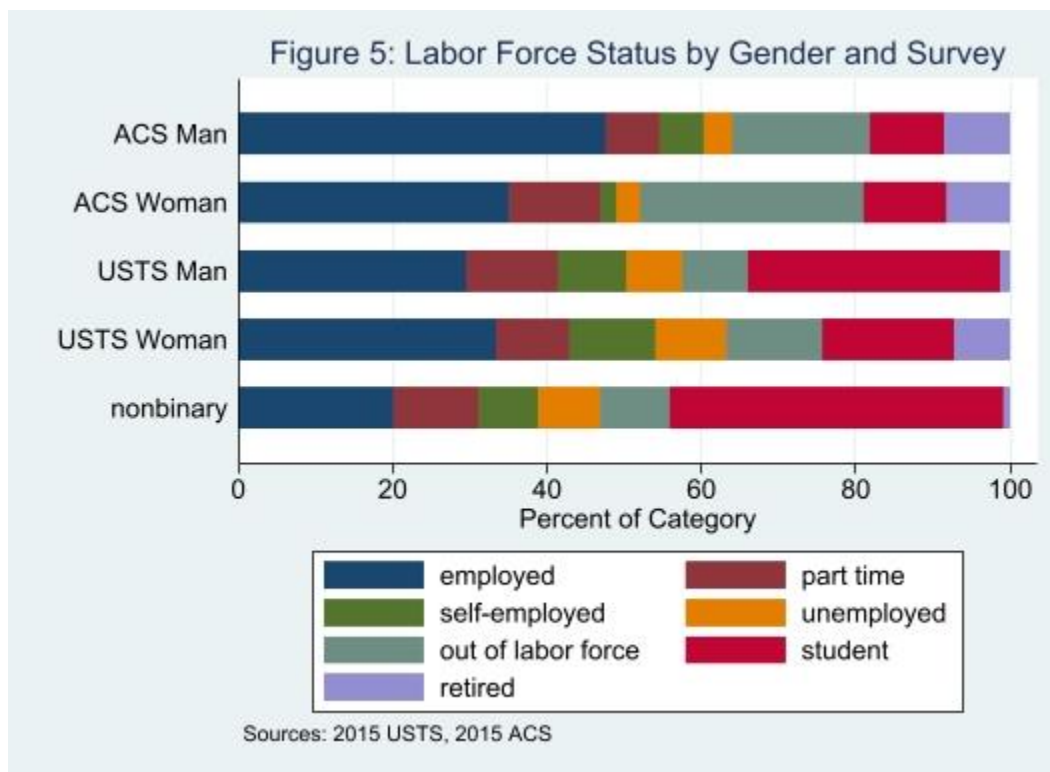
Comparing labor force status by race across surveys yields results consistent with results found overall. Respondents to the ACS were more likely to report full time employment or to be retired and less likely to be unemployed compared to those of the USTS. Similarly, part

time employment was far more common for transgender individuals than the general public, and this holds along racial lines. As before, transgender people were far more likely to be self-employed or unemployed but were far less likely to be out of the labor force (except as students). The result of this are comparable labor force participation rates across races by survey.

Across races, unemployment rates for transgender people were almost always higher (the exception to this are individuals who identified with a race other than those listed on their survey) and these differences were typically large. White transgender individuals saw an unemployment rate nearly three times that of white people in the general public. For racial groups with unemployment rates above average in the ACS, the difference between the unemployment rates of the population and the transgender population were smaller; for example, the Black unemployment rate grows from 10.56% for ACS respondents to 17.42% for USTS respondents—an increase of nearly 65%. Both are far higher than the national average, but the difference is not nearly as large, proportionally, as the increase in the unemployment rate for whites, which grew by 181.7%. Indigenous people show similar patterns, with the unemployment rate for transgender Indigenous people rising from 12.02% (for the whole population) to 15.35%, an increase of 27.7%.

While labor force status information does provide a more complete picture of transgender economic status, it is insufficient as a means to explain differences in economic outcomes seen for transgender people.

### c.  Decomposing Income Differences

While the above evidence overwhelmingly points to transgender individuals having differing labor force statuses and lower incomes than similar people in the ACS, this result does not explain the sources of the differences between the two populations that leads to that result. Consider the definition of a linear regression conditioned on membership in some group $i$:

$$Y_i = \beta_i X_i + \varepsilon_i$$

The value of the dependent variable could vary based on differences in either the coefficients of that regression, the mean values of the independent variables used in the estimation, or both. To determine why transgender people report lower incomes, this paper will utilize a Blinder Oaxaca decomposition.

The Blinder-Oaxaca decomposition (hereafter a BO decomposition) is a workhorse of the labor economics discrimination literature (Jann 2008b; Rahimi and Hashemi Nazari 2021). The decomposition compares the difference in mean outcomes in a dependent variable across two groups by comparing differences in estimation coefficients and in underlying means for independent variables. When estimating the influence of discrimination, the differences in both the mean values of the dependent variables and the estimated coefficients are valuable information, as either could follow from discriminatory practices (Jann 2008a; Sinning, Hahn, and Bauer 2008). In this context, however, estimating differences in the coefficients across both surveys can indicate, directly, differences in the relationship transgender people have to economic outcomes compared to the remainder of the population.

The BO decomposition estimates the differences between the results of interval regressions across surveys and attributing that difference to differences in means or in coefficients. For each decomposition, the overall difference in estimated means between the two surveys is composed of differences in the means of the independent variables in the regression and in the coefficients used to estimate the mean values of the dependent variable. In this paper, the BO decomposition takes the form:

$$\bar{Y}_{ACS} - \bar{Y}_{USTS} = \beta_{ACS}(X_{ACS} - X_{USTS}) + X_{ACS}(\beta_{ACS} - \beta_{USTS})$$

Where $\bar{Y}_{ACS} - \bar{Y}_{USTS}$ is the difference in mean income between both surveys, $\beta_{ACS}(X_{ACS} - X_{USTS})$ is the element of the difference in mean incomes between both surveys attributable to differences in the means of the independent variable and $X_{ACS}(\beta_{ACS} - \beta_{USTS})$ are differences in mean incomes attributable to differences in the coefficients of the independent variables.

To understand the differences in the influence of independent variables across both surveys, it is necessary to expand the BO decomposition to decompose the difference in means and coefficients across all independent variables. Due to the interval-form of the income variable used here and the subsequent lack of detail produced in the nonlinear BO decomposition code, this paper will follow the method of Jackman and Lorde (2021) and produce the BO decomposition in stages. This will serve to break down the influence of individual variables in the overall decomposition, something the statistical software used is incapable of, by showing the changes in the BO decomposition with the addition of differing model variables. Further, this will extend the methods of Jackman and Lorde to this particular context, by producing different BO decompositions conditioned on the gender of respondents.

This will serve to compare how the influence of the independent variables is, itself, contingent on the gender of people being compared.

Table 1 presents the stages in which the BO decomposition used in this paper was constructed.  In Stage 1, the BO decomposition decomposed the differences between both surveys on the difference in mean outcomes with the independent variables of age, age squared, education, and marital status.  In Stage 2, the BO decomposition included the independent variables from Stage 1 as well as those for labor force status.  Stage 3 included all the independent variables from Stage 2 as well as those for race, and will serve as the baseline model going forward.

In Stage 1, the raw difference between the means for income across surveys—corresponding to $\bar{Y}_{ACS} - \bar{Y}_{USTS}$.—was \$9806.51.  With the ACS as the reference group[17], \$9487.72 of that could be attributed to differences in the means of the independent variables across surveys, but \$318.79 could be attributable to differences in the coefficients.  With the ACS still as the reference group and moving to Stage 2 and Stage 3, the raw difference grew to \$9930.87 and then \$9937.98, and the difference attributable to differences in means grew as well, from \$9651.64 to \$9653.06.  With the addition of labor force status in Stage 2, the amount of the difference in means attributable to differences in the coefficients fell to \$279.23 and rose slightly in Stage 3 to \$284.92, with the further consideration of race.  The final row for the ACS reference group shows the proportion of the raw total that the differences in coefficients makes up.  This proportion is the percent difference that would remain between the mean incomes across both groups if both the USTS and ACS respondents had equivalent traits except for transgender status.

To compare, then, the influence of a specific set of variables on the BO decomposition, it is necessary to compare the change in the values before and after the addition of that set of variables.  Across all three stages, the addition of further independent variables has led to an increase in the raw difference between the two mean incomes and much of that change has been explainable by the differences in mean values across both populations for those independent variables, as shown by the fall and stabilization of the percent difference attributed to differences in the coefficients for both surveys.  Specifically, between Stage 1 and Stage 2

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[17] The BO decomposition can be constructed utilizing differing weighting schemes that places more priority upon the coefficients of one group compared to the other. The difference that is attributable to either differences in the means of the independent variables or the coefficients of those independent variables differs based on which group is the reference group.

this percent difference fell, implying that the coefficients for labor force status were more beneficial in terms of their effect size on income than those for the ACS population, but the percent difference rose when adding race.[18]

Table 2: Blinder Oaxaca Decompositions Stages

| | Stage 1 | Stage 2 | Stage 3 |
|---|---|---|---|
| Diff. in Means | 9487.72 | 9651.64 | 9653.06 |
| Diff. in Coefficients | 318.79 | 279.23 | 284.92 |
| % Diff. from Coefficients | 3.25 | 2.81 | 2.87 |
| Raw Diff | 9806.51 | 9930.87 | 9937.98 |
| **Independent Variables Included** | **Age, Age Squared, Education, Marital Status** | **Stage 1 plus Labor Force Status** | **Stage 2 plus Race** |

Following the construction of the BO decomposition in stages, shown in Table 2, the difference in mean income by survey across genders is presented in Table 3.  In the column titled Men is the BO decomposition of the baseline model presented in Stage 3 but decomposing the differences in mean income between men and across both surveys.  Overall, the difference in means between men across both surveys is large, at $19335.35, and this can be decomposed into the difference attributable to differences in the means of independent variables at $18492.19 and the remainder, $843.16, attributable to differences in coefficients between the two surveys.  While all these values are far larger than those estimated without only considering men, the increase in the percent that is attributable to differences in coefficients indicates that, if comparing two identical men who only vary in transgender status, the transgender man would have a lower income than the other man and this difference in coefficients is more significant when examining men then when examining the whole population.

The opposite result than those found overall and with men emerges for women; transgender women have an income $7131.38 larger than other women, with 7.65% of that

[18] This result is contingent on the selection of the base case, which was full-time employment (Oaxaca and Ransom 1999).  In the decompositions listed in Table 3, the consistency of the reference values for the categorical independent variables can allow for comparison of the decompositions for the relative influence of transgender status for an individual of a particular gender.  The particular decomposed effects from differing coefficients and means attributable to particular independent variables would vary based on the reference case, but this would not influence the overall decomposed values attributable to differences in means or coefficients; it would just redistribute attribution of effect between the independent variables.

difference remaining even if these women all had identical mean values for the independent variables.

Nonbinary people earn, on average, $25689.48 less than men responding to the ACS and $10684.43 less than women responding to the ACS.  The  percent attributable to differences in the coefficients for nonbinary people compared to men and women responding to the ACS are the smallest of all the differences as a proportion of the overall difference, but the difference not attributable to differences in means between nonbinary people and men responding to the ACS, at $710.18, the second largest difference of any between the surveys.

Finally, the difference in means between people assigned the same gender at birth is presented in the final column, under the heading AGAB (assigned gender at birth).  Here, the difference in means incomes is only $9518.21, but 3.56% of that result is attributable to differences in coefficients.

Table 3: Blinder Oaxaca Decompositions of differences across surveys by gender and assigned gender at birth

|  |  |  | NB vs ACS | NB vs ACS |  |
| --- | --- | --- | --- | --- | --- |
|  | Men | Women | Men | Women | AGAB |
| Diff. in Means | 18492.19 | -6586.01 | 24979.31 | 10397.47 | 9179.59 |
| Diff. in Coefficients | 843.16 | -545.37 | 710.18 | 286.97 | 338.62 |
| % Diff. from Coef | 4.36 | 7.65 | 2.76 | 2.69 | 3.56 |
| Raw Diff | 19335.35 | -7131.38 | 25689.48 | 10684.43 | 9518.21 |

The results detailed above are mostly consistent: transgender people earn less than people of their same gender or sex in the remainder of the population, with the exception of transgender women, and these results control for the influence of age, education, marital status, labor force status, and race.  The difference in average incomes across both USTS and ACS populations ranges from $9000 to more than $25000.  Between 2% and 4.5% of that difference would remain if both populations had the same traits, arising due to differences in the coefficients used to estimate mean incomes for both groups.  The exception to this is the comparison between women, where transgender women report higher average incomes and more than 7.5% of that difference is not attributable to differences in endowments.  As reported by Shannon (2022), the longer a transgender woman has transitioned and the womanlier she is perceived, the lower her income gets.

These results suggest that transgender status hampers economic success in the traditional sense.  This finding is consistent with existing research on the subject (Carpenter, Eppink, and Gonzales 2020; Carpenter, Lee, and Nettuno 2022; Shannon 2022).  Still, none of these previous papers utilized a Blinder-Oaxaca decomposition to examine the differences in incomes across both the transgender population and the general public, as was done here. These results make clear the scale of disadvantage experienced by transgender people compared to the remainder of the population.  Without reference to the specific gender of the individuals compared across surveys, the gap in mean income between the average respondent in both surveys is nearly $10000—this value is more than 66% of the upper bound of the median income for transgender individuals overall.  Further, more than 97% of that difference in average incomes is explainable by differences in endowments.  While that 97% is sometimes referred to as "justifiable" differences in mean incomes, that value itself could be the result of discrimination preventing transgender individuals from acquiring training, education, and interpersonal connections that lead to higher incomes.

Table 4: Decomposed Income Gaps by Gender Compared to Mean Income

|  | ACS Woman | USTS Man | USTS Woman | NB vs ACS Men | NB vs ACS Women |
|---|---|---|---|---|---|
| Average Income | 28,202.90 | 23,391.29 | 35,286.72 | 16,814.07 | 16,814.07 |
| Average Income (Employed) | 44,058.78 | 42,565.97 | 55,354.09 | 39,488.71 | 39,488.71 |
| Difference in Means | 6586.01 | 18492.19 | -6586.01 | 24979.31 | 10397.47 |
| Difference from Endowments | 545.37 | 843.16 | -545.37 | 710.18 | 286.97 |
| Difference from Coefficients | 7131.38 | 19335.35 | -7131.38 | 25689.49 | 10684.44 |
| $\dfrac{Diff\ in\ Means}{Income}$ | 23.35% | 79.06% | -18.66% | 148.56% | 61.84% |
| $\dfrac{Diff\ in\ Means}{Employed\ Income}$ | 14.95% | 43.44% | -11.90% | 63.26% | 26.33% |
| $\dfrac{Diff\ in\ Coefficients}{Income}$ | 1.93% | 3.60% | -1.55% | 4.22% | 1.71% |
| $\dfrac{Diff\ in\ Coefficients}{Employed\ Income}$ | 1.24% | 1.98% | -0.99% | 1.80% | 0.73% |

**Average Incomes from Table A1, Differences in Means and from Endowments and Coefficients from Table 3.  Bottom Four Rows are the Difference in Means or Coefficients relative to Average Income for that Gender or for those Employed in that Gender.**

The economic significance of the gaps between the "justifiable" and unjustifiable elements of the BO decomposition is most stark when considering particular genders as in Table 4; transgender men earn more than $19000 less than other men, on average.  From Table

A1, this gap is more than 82% of the incomes for the average transgender man in this survey and is 45% of the average income for a transgender man who is employed. These gaps are far more stark for nonbinary people compared to men responding to the ACS, where the gap is 1.53 times larger than the mean income for nonbinary people overall and 65% of the income of employed nonbinary people.

Still, not all transgender people belong to a gender with an average income below that of ACS respondents with the same gender. Transgender women do report higher average income than women responding to the ACS. The difference in means between women across surveys is far smaller than all the other gaps found by gender and the difference in mean incomes between women constitutes 25% of the mean income for all women responding to the ACS and 16% of the income of employed women. While transgender women may prove an exception, the scale of their relative advantage (in terms of higher mean income) is far smaller than the scale of the relative advantage most ACS respondents have compared to most transgender individuals.

6. Considering Precarity
   a. Are Transgender People Clustered in Central Labor Force Status and Income Combinations?

The information provided in the BO Decomposition fails to provide the clarity necessary to understand the economic status of transgender individuals but provides a meaningful hint as to how to do so. A significant element of the differences in mean incomes between transgender people and the remainder of the population is attributable to differences in endowments, and Table 2 demonstrated that differences in endowments grew while differences in coefficients shrank when considering labor force status in addition to age, education, and marital status. This change in the composition of the differences in mean incomes implies that differences in the labor force status of transgender individuals is a significant element in the differences in income between transgender people and the remainder of the population.

Crosstabulations of labor force status alongside income can show the relative distribution of the populations of both surveys in their attachment to the overall economy. For analytical clarity, the following crosstabs will utilize a simplified income bin system. While the first bin, with an individual reporting no income, remains the same, the following bins are adjusted considering median values for both populations. The second bin ranges from incomes of $1 to $14999, which corresponds with the median income bin for the USTS respondents and

the 25th percentile of ACS incomes.  Further, a full-time worker earning the federal minimum wage of $7.25 will earn $15080 per year before tax, so this second bin also corresponds to the income an individual would receive working full time at the lowest wage legally payable to individuals working in the United States.  The third bin ranges from $15000 to $24999 and corresponds with those incomes above the median for the USTS and below the median for the ACS respondents.  The fourth bin, from $25000 to $49999 ranges from the median to the 75th percentile of ACS incomes.  The final two bins range from $50000 to $99999 and from $100000 and higher

Comparing both respondents to the ACS and the USTS in Table 5, for example, reiterates what was examined above: USTS respondents are disproportionately poorer than the remainder of the population holding more economically marginalized positions, with fewer employed full time and more employed part time or unemployed.  These crosstabulations can show, however, the contours of how certain types of employment are renumerated in the economy.  High proportions of a population engaging in particular labor market activities indicate the relative importance of that form of labor to the maintenance of the existing economy but differences in the distribution of workers within labor force statuses relative to that of the overall labor force status indicate the compensation distribution of that labor force status.

Consider the distribution of ACS respondents from Table 5.  41.19% of ACS respondents indicated they are employed and work full time.  Compared to the other labor force statuses, this value is high, indicating that, for the general public, full time employment is an integral element in the structure of the economy.  Furthermore, within that subset of the population who work full time, 27.2% of the overall population earn between $25000 and $100000.  These people compose 66.04% of all full-time employees; they compose the majority of the largest single labor force status in the economy.  This relative clustering of workers in this particular type of full-time employment is indicative of the importance of this combination of work and income to the overall economy.  Compare this to ACS respondents who are self-employed.  These self-employed workers constitute only 3.86% of the overall economy, but self-employed ACS respondents who earn no income compose only 0.02% of the overall population and only 0.5% of the self-employed.  This low relative concentration of people indicates that this labor force status and income is less important to the structure of the overall economy.

Table 5: Percentage of Each Survey at a Given Income and Employment Level

| | employed | part time | self-employed | unemployed | out of labor force | student | retired | Total |
|---|---|---|---|---|---|---|---|---|
| **ACS** | | | | | | | | |
| no income | 0.00 | 0.01 | 0.02 | 1.04 | 7.49 | 2.34 | 0.00 | 10.90 |
| $1 to $14999 | 2.86 | 4.33 | 0.44 | 1.37 | 10.31 | 4.64 | 1.16 | 25.10 |
| $15000 to $24999 | 5.73 | 2.14 | 0.52 | 0.38 | 3.25 | 1.10 | 1.83 | 14.94 |
| $25000 to $49999 | 14.51 | 1.87 | 1.08 | 0.37 | 1.56 | 1.29 | 3.29 | 23.97 |
| $50000 to $99999 | 12.69 | 0.81 | 0.98 | 0.16 | 0.61 | 0.72 | 1.58 | 17.55 |
| $100000 or more | 5.40 | 0.32 | 0.83 | 0.05 | 0.29 | 0.18 | 0.48 | 7.55 |
| Total | 41.19 | 9.48 | 3.86 | 3.36 | 23.50 | 10.28 | 8.33 | 100 |
| **USTS** | | | | | | | | |
| no income | 0.61 | 0.92 | 0.23 | 2.45 | 2.35 | 6.90 | 0.04 | 13.50 |
| $1 to $14999 | 4.56 | 6.14 | 3.08 | 3.66 | 5.29 | 17.11 | 0.56 | 40.40 |
| $15000 to $24999 | 3.88 | 1.63 | 1.38 | 0.77 | 0.99 | 2.72 | 0.47 | 11.83 |
| $25000 to $49999 | 8.43 | 1.33 | 2.26 | 0.71 | 0.78 | 2.46 | 1.06 | 17.03 |
| $50000 to $99999 | 7.10 | 0.47 | 1.49 | 0.30 | 0.36 | 0.86 | 0.94 | 11.53 |
| $100000 or more | 3.66 | 0.16 | 0.97 | 0.14 | 0.11 | 0.20 | 0.49 | 5.72 |
| Total | 28.24 | 10.65 | 9.41 | 8.02 | 9.88 | 30.25 | 3.56 | 100 |

**Each cell is the proportion of the population in a certain income bin and labor force status.**

While the distribution of labor force statuses and incomes from ACS respondents illustrate the importance of types of work and compensation to the structure of the US economy, the distribution of these same statuses and incomes for USTS respondents is capable of two things.

First, the differences in concentration between transgender people and the majority of the population points to clustering of either population in a particular level of income or type of work (or lack thereof). Transgender people are not employed in the same parts of the economy as the remainder of the population. The density of ACS respondents employed full time and earning between $25000 and $100000 is 1.2 times larger than that of USTS respondents, while the density of USTS respondents employed part time and earning less than $25000 is 1.2 times larger than that for ACS respondents.

Second, the types of work and income transgender people inhabit can illustrate, in general, the ties transgender people have, themselves and as a community within the larger
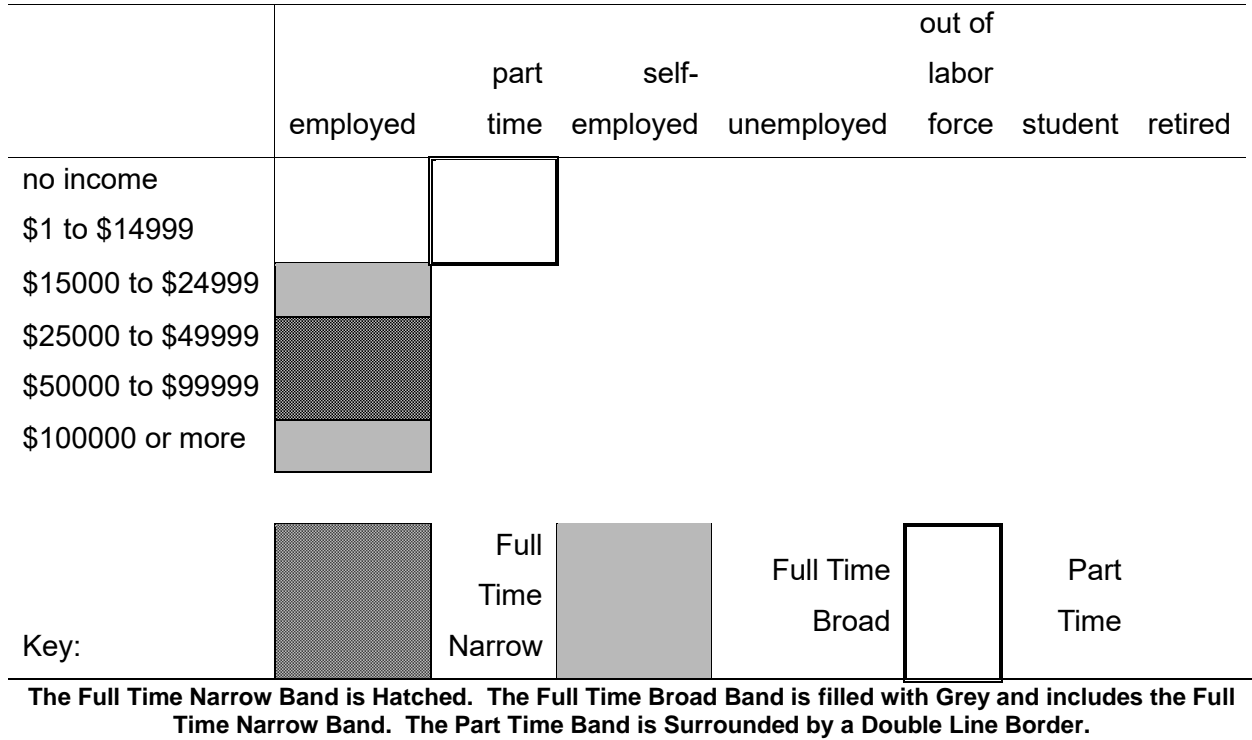
population, to the economy.  In the USTS, relatively high proportions of the overall population work part-time (10.65%) and earn below $15000 (6.14% of the overall population and 57.65% of part time workers).  While transgender workers compose a relatively small subset of the larger economy, this relatively high proportion of low-income part-time employed workers illustrates the importance of this type of work to the transgender population.

ACS respondents are clustered in full time employment with pay between $25000 and $100000 (and more broadly between $15000 and more than $100,000) and in part-time employment with pay between $1 and $24999 illustrates the contours of wage labor in the United States in its typical form.  66.04% of ACS respondents who are employed full time earn between $25000 and $100000 and 93.06% earn at least $15000.  Of ACS respondents employed part-time, 68.14% earn less than $25000.   Consider, then, the incomes of USTS respondents in this light.  55.00% of USTS respondents employed full time earn between $25000 and $100000 and 81.70% earn at least $15000, while 72.96% of USTS respondents employed part time earn less than $25000.

These disparities are stark but tell an incomplete story.  First, these disparities do not differentiate across lines of race or gender.  Further, both surveys have vastly different aged individuals, with respondents to the USTS being incredibly young compared to the US population, and both surveys feature vastly differing distributions of education.  As before, define the band of income-labor force status most full time ACS employees are found in both narrowly, as full-time workers earning between $25000 and $100000, and broadly, as all full-time workers earning more than $15000.  While the narrow definition of this band of relatively common work and income constitutes the majority of full-time employees responding to the ACS, the broad band includes nearly all full-time employees in the US population.  Inclusion in the broad measure of these bands means constituting a part of a dense mass of full time workers in the US economy while being included in the narrow band means inclusion in an even denser, and thus more essential, element of the US economy.  For part-time workers, define the band of typical income and employment earn between $1 and $24999.  In this case, inclusion in the band means inclusion in the most dense range of part-time work in the US economy; this part-time work constitutes the majority of part-time work done in the United States economy.[19] Graphically, these bands are illustrated in Figure 6.

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[19] This construction of bands based on the joint distribution of incomes and incomes constitutes a form of Latent Class Analysis (Vermunt and Magidson 2004; Goodman 2003), where the bands correspond to differing latent classes of individuals in the US economy with similar incomes and employment types.  The narrow and broad bands

**Figure 6: Graphical Definition of Bands.**

|  | employed | part time | self-employed | unemployed | out of labor force | student | retired |
|---|---|---|---|---|---|---|---|
| no income |  |  |  |  |  |  |  |
| $1 to $14999 |  |  |  |  |  |  |  |
| $15000 to $24999 |  |  |  |  |  |  |  |
| $25000 to $49999 |  |  |  |  |  |  |  |
| $50000 to $99999 |  |  |  |  |  |  |  |
| $100000 or more |  |  |  |  |  |  |  |

Key: Full Time Narrow | Full Time Broad | Part Time

**The Full Time Narrow Band is Hatched. The Full Time Broad Band is filled with Grey and includes the Full Time Narrow Band. The Part Time Band is Surrounded by a Double Line Border.**

To consider the influences of gender, transgender status, and race on membership in the narrow or broad bands of full-time or of part-time employment, average marginal effects were calculated following a probit regression where the marginal effects are in comparison to a white transgender man. The probit regression takes the form:

$$P(Y = 1|X) = \Phi(X^T \beta)$$

Where $\Phi$ is the cumulative distribution function of the normal distribution, X is the vector of values for independent variables, and the $\beta$ is a vector of coefficients. The average marginal effects of a categorical variable, $x^k$, using probit estimation take the form:

$$\frac{\partial P(Y = 1|X)}{\partial x^k} = \frac{1}{n}\sum_{i=1}^{n}\left(\Phi\left(X_i^T\beta|X_i^k = 1\right) - \Phi\left(X_i^T\beta|X_i^k = 0\right)\right)$$

That is, the average marginal effect of a categorical variable $x^k$ is the change in the estimated probability due to a change in $x^k$, averaged over the entire population (Spermann 2009).

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correspond, then, to different specifications of the same latent class of people employed full time and earning high incomes.

When utilizing categorical variables that are not binary, the average marginal effect of a categorical variable indicates the change in probability of a binary dependent variable occurring compared to the base value of the categorical variable. As such, the average marginal effects given in Table 6 are the differences in the probability of the outcome (in this case, the outcome is inclusion in the narrow or broad bands of full-time or of part-time employment) compared to the base case, which is a white person who is a transgender man. Further, the average marginal effects are calculated separately across both surveys; the average marginal effect for an individual in the USTS and the ACS will likely be different because the averages are calculated from differing populations (the USTS and the ACS). The average marginal effects are the differences in probability that come from a difference in that particular identity factor. So, formally, the average marginal effect for inclusion in the Part Time band for a transgender woman would take the form:

$$\frac{\partial P(Part\ Time = 1|X)}{\partial x^{woman}} = \frac{1}{h} \sum_{i=1}^{h} \left( \Phi\left(X_i^T \beta | X_i^{man} = 1, X_i^{USTS} = 1\ \right) - \Phi\left(X_i^T \beta | X_i^{woman} = 1, X_i^{USTS} = 1\right) \right)$$

Where h is the size of the transgender population across whom the average marginal effects is calculated, but the same average marginal effect for a woman responding to the ACS, with a population of size j, would take the form:

$$\frac{\partial P(Part\ Time = 1|X)}{\partial x^{woman}} = \frac{1}{j} \sum_{i=1}^{j} \left( \Phi\left(X_i^T \beta | X_i^{man} = 1, X_i^{USTS} = 1\right) - \Phi\left(X_i^T \beta | X_i^{woman} = 1, X_i^{USTS} = 0\right) \right)$$

As such, the average marginal effect of being a Black man responding to the ACS on inclusion in the narrow full time band would be, taking the values directly from Table 6, an increase in probability of $0.115 - 0.0177 = 0.0973$, where the first term corresponds to the increase in likelihood for ACS respondents while the second corresponds with the fall in likelihood due to the individual being Black.

Across both indicators of inclusion in the narrow and broad bands of full-time employment and income, respondents to the ACS were far more likely than USTS respondents to be present. Further, no other gender or racial group were more likely to be present in those bands with an exception: Latine/Hispanic had a positive and significant average marginal effect, compared to a white person, for inclusion in the broad measure of full-time employment-income. The scale of the average marginal effects is valuable to note; an ACS respondent was, on average, 11.14%

more likely than a USTS respondent to be found in the narrowly defined band of full-time employment and incomes.

Table 6: Average Marginal Effects Comparing Clustering in Income-Labor Force Classes

| | Full Time Narrow | | | Full Time Broad | | | Part Time | | |
|---|---|---|---|---|---|---|---|---|---|
| | AME | Std. error | p-value | AME | Std. error | p-value | AME | Std. error | p-value |
| acs | 0.1115 | 0.0044 | 0.000 | 0.1388 | 0.0044 | 0.000 | -0.0107 | 0.0019 | 0.000 |
| woman | | | | | | | | | |
| ACS | -0.0713 | 0.0007 | 0.000 | -0.1200 | 0.0007 | 0.000 | 0.0323 | 0.0003 | 0.000 |
| USTS | -0.0548 | 0.0009 | 0.000 | -0.1042 | 0.0011 | 0.000 | 0.0470 | 0.0016 | 0.000 |
| nonbinary | -0.0642 | 0.0057 | 0.000 | -0.1172 | 0.0064 | 0.000 | 0.0304 | 0.0039 | 0.000 |
| Indigenous | | | | | | | | | |
| ACS | -0.0424 | 0.0041 | 0.000 | -0.0482 | 0.0045 | 0.000 | -0.0035 | 0.0019 | 0.072 |
| USTS | -0.0299 | 0.0028 | 0.000 | -0.0380 | 0.0034 | 0.000 | -0.0052 | 0.0029 | 0.073 |
| Asian | | | | | | | | | |
| ACS | -0.0430 | 0.0015 | 0.000 | -0.0316 | 0.0016 | 0.000 | -0.0009 | 0.0008 | 0.226 |
| USTS | -0.0303 | 0.0011 | 0.000 | -0.0253 | 0.0013 | 0.000 | -0.0014 | 0.0011 | 0.227 |
| Multiracial | | | | | | | | | |
| ACS | -0.0371 | 0.0026 | 0.000 | -0.0462 | 0.0028 | 0.000 | 0.0061 | 0.0014 | 0.000 |
| USTS | -0.0263 | 0.0018 | 0.000 | -0.0366 | 0.0022 | 0.000 | 0.0091 | 0.0021 | 0.000 |
| Black | | | | | | | | | |
| ACS | -0.0177 | 0.0012 | 0.000 | -0.0263 | 0.0013 | 0.000 | 0.0004 | 0.0006 | 0.500 |
| USTS | -0.0127 | 0.0009 | 0.000 | -0.0212 | 0.0010 | 0.000 | 0.0006 | 0.0009 | 0.500 |
| Latine Hispanic | | | | | | | | | |
| ACS | 0.0014 | 0.0012 | 0.215 | 0.0208 | 0.0012 | 0.000 | 0.0025 | 0.0005 | 0.000 |
| USTS | 0.0010 | 0.0008 | 0.215 | 0.0173 | 0.0010 | 0.000 | 0.0038 | 0.0008 | 0.000 |
| other | | | | | | | | | |
| ACS | -0.0150 | 0.0062 | 0.016 | -0.0147 | 0.0066 | 0.027 | -0.0020 | 0.0026 | 0.426 |
| USTS | -0.0108 | 0.0044 | 0.015 | -0.0120 | 0.0053 | 0.025 | -0.0031 | 0.0039 | 0.427 |

**The average marginal effects were estimated from a probit regression on a binary variable indicating inclusion in the band. Additional controls include education, age and age squared, state of residence, and marital status. See Appendix D for differing estimations of these results.**

In the bands of part-time work and low incomes, respondents to the ACS were less likely to be present compared to USTS respondents, and the same was true for Indigenous, Asian, Black, and Latine/Hispanic people, and individuals with some other race.

The opposite was true for women, who had a positive and statistically significant increase in the likelihood they were members of that part-time low-income band, compared to men responding to the same survey as them. Nonbinary individuals had an increased chance of membership in that band, though the effect was only significant at the 7.9% level. In the cases of all groups mentioned, the effect size of identity on the likelihood they were in this band of low-income part time work was small, explaining at largest a 0.07% change in the probability an individual was in or outside of that band.

People who are not white are usually less likely to be in either band of full time work across both surveys, with the exception of Latine/Hispanic people, who had average marginal effects not significantly different from zero when considering inclusion in the Full Time Narrow band and positive, though small, average marginal effects in the Full Time Broad band. The average marginal effects for respondents who are not white are either not statistically different than zero (as is the case for Indigenous, Asian, or Black people or people who did not identify with any of those races) or is positive but relatively small, as is the case for multiracial or Latine/Hispanic people.

Using this alternative measure of centrality within the US labor force, evidence suggests that transgender people are less likely to be in those bands of full-time well-paid employment and slightly more likely to be found in low-pay part time work. These same findings are true for women and nonbinary people, though there is less evidence to suggest racial difference is as strong a predictor of inclusion in these bands, as shown in Table 6.

b. Marginalization à la Marx: Are Transgender People Clustered in the Surplus Population?

The analysis of membership in the cores of the economy—that is, the analysis of influences on inclusion in the narrow and broad bands of full-time work and the band of part-time work—can only provide a partial portrait of the economic marginalization experienced by transgender people. Returning to the earlier discussion of precarity, the narrow band of full-time work and, to a lesser extent that of the broad band, approximates the inverse of a precarious economic life. Compared to the band of part time work, which itself is precarious, both bands of full-time work offer higher enumeration and the implication of stability in work-schedule. Still, membership in either of the bands of full-time work is not a sufficient estimation of non-precarious life in a capitalist economy nor is membership in that band of the part-time employed a sufficient measure of precarity. To establish a more meaningful analytical basis upon which

the precarity of transgender people can be estimated, it is appropriate to incorporate Marxian methods and apply a materialist framework through which to understand precarity.   First, it is necessary to illustrate the limitations to a more traditional Marxian analysis of the transgender population.

Class analysis in the Marxian tradition typically requires information concerning the relationships an individual has to the means of production, but this information is not contained in the USTS or the ACS.  Those two surveys do contain information from which to infer the class status of individuals; both contain the income level and income type received by an individual alongside the form of employment or unemployment an individual faces.  None of this information, by itself, is sufficient to sketch the contours of class society in the United States, but knowledge of each is essential to infer the shape which it takes.

Capitalist society, and that of the United States, assumes the form of a highly stratified system based on income.  The most basic causes of this stem from the system of wage labor itself alongside the relative and increasing concentration of capital in the hands of fewer and fewer capitalists, but further differentials within the working-class writ large along lines of training, experience, field of employment, geographic location, and power within capitalist firms all contribute to vast differences in the distribution of income.  Alongside this, the source of income can provide important information as to the class status of an individual.  With information of the scale of income coming from a particular source an analysis could proceed neatly and could provide direct inferences about class status (Mohun 2016).  That information is not available for both surveys, however.  It is possible, however, to compare the income distributions between surveys and this can provide insights as to the relationship an individual has to capitalist accumulation.  If an individual earns a high income and receives income from dividends, interest, and net rents and not from employment, for example, it is likely they are a capitalist of some sort.  It is very likely, too, that an individual who only earns income from employment is a member of the working class, broadly speaking.  It is more difficult to ascertain the class status of an individual earning income from both employment and capital and it is not easy to determine the class status of someone with a low income who only collects income from dividends, interest, and net rents.

Utilizing another measure available in both surveys, that of labor force status, can further flesh-out the shape and structure of class within some limits.  The usual definition of the labor force is structured around the wage relation but at a level of abstraction that obfuscates that relationship.   It does not, for example, directly differentiate between workers who must sell their

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labor-power to survive and employers who purchase that most-precious commodity with the goal of earning profit.  Both a janitor and a CEO may be, under the labor force accounting framework, similar enough to be lumped together in the bin with all other people employed, earning a wage or salary.  The structure of labor force statistics foregrounds the wage relation in ways that hide the myriad means through which individuals survive in a capitalist world when they must go without work.  There is no notion of power at play within labor force statistical categories.  Only when considering the differences between the employed and the unemployed can anything approximating power enter the conversation.

This obfuscation is on full display in the mass of individuals aggregated together under the statistical category of individuals outside the labor force, composed of any individual over the age of 18 who is not employed and not actively seeking employment.  What is the sense of considering, in the same breath, the economic status of students, retirees, the long-term unemployed, the disabled, and homemakers?  The relationship students and the retired have to the economy, writ large, is different than that of others outside the labor force.  Students may rely upon debt accrual and educational grants to subsidize their time without an income and retirees can rely upon savings, state subsidies, and pensions, both public and private, to cover living expenses.[20]

Those who remain, after separating students and retirees from the larger pool of people outside the labor force include so-called discouraged workers, people unable to work due to disability, and home-makers—people who primarily engage in social reproductive labor without earning a wage.  Analysis of this subset of those outside of the labor force is analysis of those who can materially afford to live without engaging in wage labor but who must also rely upon others—the state, for those receiving welfare benefits, kin, for those granted allowances by family—but it is also analysis of those on the extreme margins of the economy.  What options for an income are available for those without formal work, but also without kin or unable to receive state benefits?  Gig work, informal arrangements, begging, or crime are all available sources of income for those with great need.  The lack of formal recognition of this type of work allows it to exist as it does, an option for those with great need, but also pushes those engaged

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[20]  Here, the use of "students" and "retirees" follows the labor-force categories.  In popular parlance, both descriptors can be utilized to describe people who may have or be looking for work, but categorizing those individuals by their labor-force status means they cease to be "students" or "retirees" and become, simply, employed or unemployed.  To be out of the labor force, and thus to be "students" or "retirees", means to not hold or seek a job.

in informal or illegal work from legal protections and forms of collective power that leave these workers vulnerable and exploitable.

Self-employment is likely associated with capital ownership, but this connection is tenuous.  Neither survey allows for researchers to determine whether an individual is bourgeois and the degree to which that person has amassed capital.  Capital ownership is not strictly associated with any particular labor force status.  Capitalists may earn a salary, for example, and be classified as employees, but, stay capitalists when they retire, given they retain control of capital.

Marxian efforts, such as that offered by Neilson and Stubbs (2011), expound on the difficulty of inferring class status from labor force statistics.  Capitalist development is the development of a dispossessed class with nothing to sell but their capacity to labor.  The working class is composed of both workers earning a wage in the context of value production and the surplus population.  The surplus population includes all working in nonproductive labor, those in informal sectors and anyone unable or unwilling to work.  Structurally, the existence of this population is as essential to the function of capital as that engaged directly in production.  It is from the surplus population that capitalists manage wages and working conditions by their capacity to purchase or forego labor-power.  Further, this population engages in socially necessary labor, like domestic or service work, and this work may be either waged or unwaged (Neilson and Stubbs 2011).

Marx divided the surplus population into four categories: floating, latent, stagnant, and lumpenproletarian (Tyner 2013).   The floating surplus population are workers between jobs, analogous to the conventional economic category of the frictionally unemployed.  The latent surplus population have precarious work, while the stagnant are rarely employed.  The lumpenproletariat includes those with illegal work, those unwilling to work, and the disabled (Tyner 2013).  Members of this population include, from the aforementioned expanded labor force categories, the unemployed, students, retirees, and those out of the labor force.  While impossible to ascertain from labor-force statistics the actual capacity to work of any of these people—that is, to distinguish between these non-employed people who could not work versus those who could be hired in some context or another—these categories include those people who are not currently producing value but could, if needed.  Other members of the surplus population may also include those with full or part-time work and some members of the self-employed.  There is no means to distinguish between those employed in productive labor and those not from available data, and that is the key distinction denoting membership in the surplus

population (Neilson and Stubbs 2011). Still, the historic development of capitalism alongside the development of modern racial categories has created a tendency for the surplus population to be racialized (McIntyre 2011).

Who would constitute the surplus population? While there is insufficient information available in either survey to make that determination directly, it is possible to generalize the concept and apply that abstract form to the concrete categories of this context. As the purpose of the surplus population is characterized by economic marginalization and thus serves as a force to maintain proletarian class discipline, it is analytically consistent to include those members of the working class with precarious or low-paying work alongside those others who could be enticed to employment if needed by capital. These demands of capital may, themselves, vary in proportion to the strength of the working class and macroeconomic conditions, and therefore it is reasonable to assume that demand takes the form of a spectrum; while some workers may, even in the most stable of times in the view of the capitalist class, function to maintain class discipline, it may be necessary to expand the ranks from which the capitalist class is willing to recruit from in times of greater demand.

This concept of the surplus population serves well to analytically combine the information provided by both income and labor force status to infer the relative importance of sections of the population to the maintenance of capitalism as a social system. Further, this concept of the surplus population will serve as an illustrative form of precarity from which this analysis will proceed. Explicitly, this paper will consider the clustering of both the overall US population and the transgender population in the US inside the surplus population. The relative clustering of the transgender population in the surplus population will illustrate stratification seen within the working class, a stratification within capitalism that is not reducible to individual ownership of the means of production but which follows from the interplay between economic dispossession and the relative power of disempowerment of transgender people.

For simplicity, this paper will examine the surplus population, defined as those workers who serve to maintain proletarian class discipline by virtue of their imminent capacity to be hired and to replace fired workers, at two scales. The narrow surplus population, defined as the surplus population who serve to maintain working class discipline, will include those workers currently in the labor force but with low individual and household incomes. These workers will be easy for the capitalist class to mobilize against low-level working-class activity. The wide surplus population includes the narrow surplus population but also includes workers who may be more difficult to mobilize but who may be necessary to maintain capitalist power. In this,

alongside those low-income workers in the labor force, would be low-income workers outside the labor force, including students, low-income retirees, the disabled, homemakers, and discouraged workers.

**Figure 7: Graphical Defn of Bands.**

| | employed | part time | self-employed | unemployed | out of labor force | student | retired |
|---|---|---|---|---|---|---|---|
| no income | | | | | | | |
| $1 to $14999 | | | | | | | |
| $15000 to $24999 | | | | | | | |
| $25000 to $49999 | | | | | | | |
| $50000 to $99999 | | | | | | | |
| $100000 or more | | | | | | | |

| | Surplus Population Narrow | | Surplus Population Broad |
|---|---|---|---|
| Key: | | | |

The Narrow Surplus Population Band is Hatched with a Single Line Border. The Broad Surplus Population Band is filled with Grey and has a Double Lined Border. The Broad Surplus Population Band includes the Narrow Band.

The average marginal effects following estimation of the likelihood an individual falls within either the narrow or broad construction of the surplus population are given in Table 7. For both measures, respondents to the ACS are less likely than USTS respondents to be members of these precarious categories of labor force and income while women and nonbinary people are more likely than men—transgender or otherwise—to be in these categories, as well. Such gender effects varied across both surveys, where the average marginal effects for USTS respondents were 1.82 times larger in the narrow definition and 1.1 times larger in the broad definition than that of the ACS. This difference in average marginal effects was more pronounced in the narrow measure of the surplus population compared to the broad one. For example, the average marginal effect for inclusion in the narrow definition of the surplus population for Indigenous people who were transgender was 1.84 times larger than that for Indigenous people responding to the ACS, but was only 1.05 times larger in the broad definition.

Compared to white people, which is the reference population, respondents of color see increased probabilities of being in either measure of the surplus population with a few exceptions: Latines/Hispanics are less likely to be in the broad measure of the surplus population and both Asians and people in the other racial category are not more likely to be members of the narrow band of the surplus population than white people.

Table 7: Average Marginal Effects for Surplus Population Estimation by Survey

| | Surplus Population (Narrow) | | | Surplus Population (Broad) | | |
|---|---|---|---|---|---|---|
| | AME | Std. error | p-value | AME | Std. error | p-value |
| acs | -0.0463 | 0.0021 | 0.000 | -0.0574 | 0.0043 | 0.000 |
| woman | | | | | | |
| ACS | 0.0316 | 0.0004 | 0.000 | 0.1767 | 0.0007 | 0.000 |
| USTS | 0.0575 | 0.0012 | 0.000 | 0.1925 | 0.0008 | 0.000 |
| nonbinary | 0.0427 | 0.0062 | 0.000 | 0.2046 | 0.0077 | 0.000 |
| Indigenous | | | | | | |
| ACS | 0.0156 | 0.0027 | 0.000 | 0.0813 | 0.0047 | 0.000 |
| USTS | 0.0287 | 0.0048 | 0.000 | 0.0855 | 0.0047 | 0.000 |
| Asian | | | | | | |
| ACS | 0.0018 | 0.0010 | 0.073 | 0.1048 | 0.0018 | 0.000 |
| USTS | 0.0033 | 0.0018 | 0.072 | 0.1089 | 0.0018 | 0.000 |
| Multiracial | | | | | | |
| ACS | 0.0140 | 0.0018 | 0.000 | 0.0540 | 0.0030 | 0.000 |
| USTS | 0.0257 | 0.0033 | 0.000 | 0.0577 | 0.0031 | 0.000 |
| Black | | | | | | |
| ACS | 0.0142 | 0.0008 | 0.000 | 0.0380 | 0.0013 | 0.000 |
| USTS | 0.0260 | 0.0014 | 0.000 | 0.0410 | 0.0013 | 0.000 |
| Latine Hispanic | | | | | | |
| ACS | 0.0028 | 0.0007 | 0.000 | -0.0052 | 0.0012 | 0.000 |
| USTS | 0.0052 | 0.0012 | 0.000 | -0.0058 | 0.0013 | 0.000 |
| other | | | | | | |
| ACS | 0.0034 | 0.0035 | 0.331 | 0.0403 | 0.0068 | 0.000 |
| USTS | 0.0063 | 0.0065 | 0.329 | 0.0434 | 0.0072 | 0.000 |

**The average marginal effects were estimated from a probit regression on a binary variable indicating inclusion in the band. Additional controls include education, age and age squared, state of residence, and marital status.**

Overall, the scale of the effect sizes for both populations are valuable to note, as they indicate that the influence of gender is far more influential in changing the probability an individual is a member of the surplus population than race, but the average marginal effect for USTS respondents tends to be larger than that of the ACS for all categories. The average

marginal effects for women in the ACS and USTS and nonbinary people in the USTS for the narrow definition of 0.0316, 0.0575, and 0.0427 are far larger than the next largest average marginal effect attributable to race, that of 0.0287 for Indigenous people responding to the USTS. Even in the broad definition, with larger average marginal effects for most variables, the average marginal effects for women in the ACS and USTS and nonbinary people in the USTS are 0.1767, 0.1925, and 0.2046 are larger than the next largest AME, which is 0.1048 and 0.1089 for Asian people in the ACS and USTS, respectively.

While the surplus population as defined above does serve in Marxian analysis as an important element in maintaining capitalism, differences in population sizes between both the transgender population and the remainder of society are important to consider. Estimates of the approximate size of the transgender population in the United States vary (between 0.4% (Meerwijk and Sevelius 2017) and 3.35% (Carpenter, Lee, and Nettuno 2022)) but these populations do not constitute forces, sufficient in themselves, to maintain the discipline of the whole of the working class. They may, however, serve this role in a more constrained context, forming a disproportionate part of the larger surplus population but serving more directly to discipline proletarians engaging in "Queer Work"—those jobs which are disproportionately staffed by queer and trans people (or are imagined to be) (O'Brien 2021).

c.   How do Transgender People Survive Precarity?

1.   Low-Income Self-Employment

Economic precarity can drive those it effects to great lengths for the sake of survival. What must precarious people do to survive? This section and the one that follows seek to answer that question. Specifically, this section will attempt to explain the great coincidence of self-employed workers amongst the transgender population who earn low incomes—this clustering of precarious transgender people into low-income self-employment is in sharp contrast with the distributional tendencies for the larger population, where self-employment is most associated with high incomes. Further, this and the following estimations of precarity will consider the influence of disability. Transgender people are far more likely than the general population to be disabled (Smith-Johnson 2022). Disabled people are more likely to work in precarious jobs (Jetha et al. 2020) and the convergence of disability and precarity can worsen mental health (Brown and Ciciurkaite 2023).

While self-employment is associated with high incomes for respondents to the ACS, the income distribution for the self-employed transgender population features a third (34.64%) of all

respondents reporting incomes below $15,000 while more than one quarter (26.14%) of self-employed transgender people earn more than $50000. Self-employed ACS respondents, meanwhile, tended to be clustered in higher incomes overall, with 13.40% earning less than $15000 and 46.89% earning more than $50000. Examining the kernel density estimation of both distributions, shown in Figure 4, the distribution of USTS respondents appears bifurcated, with the population split between those earning incomes far higher than the USTS population and those earning less than the median income for transgender respondents. Couple this with the high proportions of the overall transgender population who report self-employment and these results indicate a deeper problem facing the transgender population. Why can so many transgender individuals report self-employment but also such low incomes?



Figure 8: Kernal Density of Income for the Self-Employed

Sources: 2015 USTS, 2015 ACS
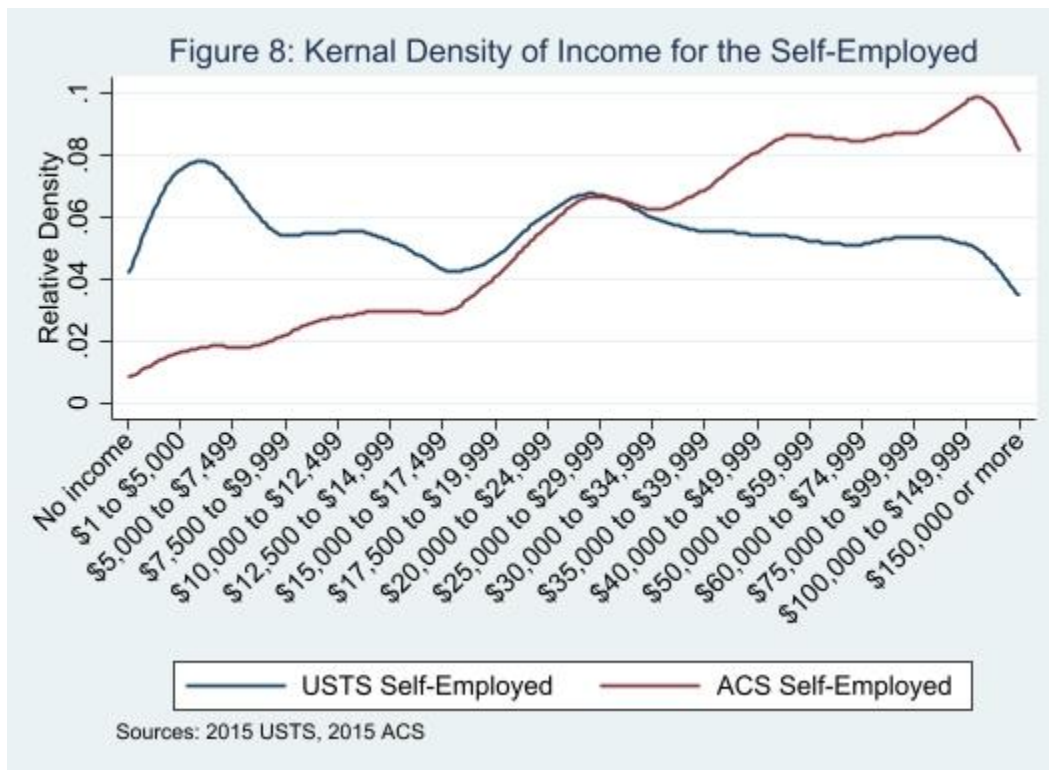
The economic literature surrounding self-employment is vast but a strand has emerged that seeks to understand the coincidence of self-employment with precarity. Self-employment may be an "involuntary" response to economic hardship (Kautonen et al. 2010) or patriarchal necessity (Patrick, Stephens, and Weinstein 2016) but it may also "pull" workers from worse labor force statuses (Fisher and Lewin 2018). Evidence suggests self-employment can be used by ethnic minorities when employment is risky or difficult to gain but this self-employment is typically less preferable than traditional employment (Brynin, Karim, and Zwysen 2019; Clark 2015). In the developing world, such self-employment is common in contexts where other work

is unavailable (Margolis 2014). This self-employment can also be quite precarious, with low pay and weak access to benefits (Conen and Schippers 2019).

Table 8: Average Marginal Effects from Probit Estimation of An Individual Engaging in Low Income Self-Employment Across Both Surveys

| | PSEMP1 | | | PSEMP2 | | | PSEMP3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | AME | Std. error | p-value | AME | Std. error | p-value | AME | Std. error | p-value |
| acs | -0.0121 | 0.0004 | 0.000 | -0.1347 | 0.0055 | 0.000 | -0.0369 | 0.0013 | 0.000 |
| disabled | | | | | | | | | |
| ACS | -0.0024 | 0.0001 | 0.000 | -0.0298 | 0.0019 | 0.000 | -0.0131 | 0.0003 | 0.000 |
| USTS | -0.0161 | 0.0012 | 0.000 | -0.0807 | 0.0063 | 0.000 | -0.0684 | 0.0033 | 0.000 |
| woman | | | | | | | | | |
| ACS | -0.0013 | 0.0001 | 0.000 | -0.0610 | 0.0018 | 0.000 | -0.0185 | 0.0005 | 0.000 |
| USTS | -0.0064 | 0.0007 | 0.000 | -0.1260 | 0.0059 | 0.000 | -0.0570 | 0.0032 | 0.000 |
| nonbinary | 0.0135 | 0.0037 | 0.000 | -0.0307 | 0.0195 | 0.115 | -0.0168 | 0.0078 | 0.031 |
| Indigenous | | | | | | | | | |
| ACS | -0.0002 | 0.0006 | 0.729 | -0.0172 | 0.0069 | 0.013 | -0.0051 | 0.0014 | 0.000 |
| USTS | -0.0012 | 0.0036 | 0.731 | -0.0408 | 0.0172 | 0.018 | -0.0202 | 0.0058 | 0.001 |
| Asian | | | | | | | | | |
| ACS | 0.0011 | 0.0003 | 0.000 | 0.0010 | 0.0035 | 0.763 | -0.0017 | 0.0007 | 0.013 |
| USTS | 0.0063 | 0.0016 | 0.000 | 0.0023 | 0.0077 | 0.763 | -0.0063 | 0.0026 | 0.015 |
| Multiracial | | | | | | | | | |
| ACS | 0.0002 | 0.0005 | 0.784 | -0.0114 | 0.0062 | 0.067 | -0.0020 | 0.0015 | 0.168 |
| USTS | 0.0008 | 0.0031 | 0.783 | -0.0265 | 0.0150 | 0.076 | -0.0076 | 0.0056 | 0.178 |
| Black | | | | | | | | | |
| ACS | -0.0020 | 0.0002 | 0.000 | -0.0350 | 0.0019 | 0.000 | -0.0079 | 0.0004 | 0.000 |
| USTS | -0.0121 | 0.0011 | 0.000 | -0.0881 | 0.0057 | 0.000 | -0.0322 | 0.0022 | 0.000 |
| Latine Hispanic | | | | | | | | | |
| ACS | 0.0006 | 0.0002 | 0.002 | 0.0055 | 0.0024 | 0.024 | 0.0020 | 0.0006 | 0.000 |
| USTS | 0.0032 | 0.0011 | 0.002 | 0.0122 | 0.0054 | 0.023 | 0.0073 | 0.0020 | 0.000 |
| other | | | | | | | | | |
| ACS | 0.0003 | 0.0010 | 0.762 | 0.0022 | 0.0131 | 0.864 | -0.0009 | 0.0028 | 0.739 |
| USTS | 0.0017 | 0.0057 | 0.761 | 0.0050 | 0.0293 | 0.864 | -0.0035 | 0.0105 | 0.741 |

**PSEMP1 considers all survey respondents, while PSEMP2 and PSEMP3 limit their sample to members falling within the narrow and broad measures of the surplus population, respectively. Additional controls include education, age and age squared, state of residence, and marital status.**

While these studies are insufficient to explain why individuals choose low-income self-employment, they can show who is more or less likely to do so. Following from Table 8, USTS respondents are more likely than those responding to the ACS to be found in this category. Such is the case for Asian and Latine/Hispanic individuals, compared to white people. The opposite is true for Black people, who are less likely than whites to be self-employed and earn low incomes. Nonbinary people are more likely than men to have this form of work while women are less likely. In all cases, the average marginal effect is small, with transgender status increasing the probability of being within this category by 1.2%. Across variables of interest, the average marginal effects differ wildly in effect size by survey, with the average marginal effect for a Black person and USTS respondent five times the size of the effect size as a similar ACS respondent.

When limiting the sample considered to include just those members in the surplus population (defined in both the narrow and broad ways, as above), the differences in average marginal effects between populations becomes far more stark. Overall, the average marginal effect on the likelihood that a respondent to the ACS would engage in low-income self-employment, even given the individual has a precarious labor force status, increases by nearly ten times using the narrow definition of the surplus population and nearly three times when using the broad definition. The average decrease in likelihood for transgender individuals who are disabled increases more than four times compared to the overall population and the average marginal effect for transgender women decreases from -0.64% to -12.60%.

Further, this redefinition makes definitive intersectional claims far more difficult to make. When considering the subset of the population in the surplus population, the standard error for all terms grows and this often leads to a fall in statistical significance for those findings for the whole populations. Still, the evidence does suggest a deeper relationship between gender and this form of precarious work; transgender people engage in this work more often than the public and transgender men and nonbinary people engage in it far more often than transgender women.

2. Sex Work and the Underground Economy

Another strategy commonly undertaken by precarious workers is engaging in sex work or illegal economic activities. Such work can provide much needed income for the economically marginal but can be incredibly precarious, even with state regulation (Sanders and Hardy 2013; Orchiston 2016). Further, such work increases engagement with the legal system which, itself,

is associated with negative mental health outcomes for transgender sex workers (Stenersen, Thomas, and McKee 2022).

Estimates of sex worker population size around the world vary widely (Vandepitte et al. 2006). In 2015 in South Africa, up to 1% of women may be sex workers (Konstant et al. 2015), and this 1% figure is reportedly common throughout the developed world (Vanwesenbeeck 2013). Estimates of sex worker populations in the developed world where many types of sex work are illegal are, themselves, highly sensitive to method (Cusick et al. 2009).

Still, research ranging from public health work, Marxian literature as well as that produced by the National Center for Transgender Equality highlight the disproportionate clustering of transgender people, especially transgender women, in sex work (Gleeson and O'Rourke 2021; S. James et al. 2016; Becasen et al. 2019). D'Ippoliti and Botti (2017) provide one of the few quantitative analyses of why transgender individuals engage in sex work, though their work was confined to Southern Italy. Still, they find factors, like potential income or past discrimination, pull or push, respectively, transgender people into sex work. Similar push and pull factors were observed in research conducted on transgender sex workers in Jamaica (Logie et al. 2017). There has not been, to the knowledge of the author, any quantitative analysis of the factors that contribute to the choice of transgender individuals to engage in sex work in the United States, and thus this work will be the first to do so.

Table 9: Income Distributions by Engagement in Sex Work and Any Underground Economics, Including in the Past Year

| | Ever engaged in sex work | | | Any underground economics | | |
|---|---|---|---|---|---|---|
| | Never | Not in the Past Year | Within the Past Year | Never | Not in the Past Year | Within the Past Year |
| no income | 10.9 | 10.81 | 10.04 | 10.9 | 8.99 | 11.45 |
| $1 to $14999 | 25.11 | 43.25 | 48.88 | 25.11 | 39.46 | 57.82 |
| $15000 to $24999 | 14.93 | 12.4 | 13.55 | 14.93 | 14.15 | 13.13 |
| $25000 to $49999 | 23.97 | 17.92 | 17.78 | 23.97 | 22.17 | 11.67 |
| $50000 to $99999 | 17.55 | 10.12 | 6.91 | 17.55 | 11.51 | 4.09 |
| $100000 or more | 7.55 | 5.5 | 2.84 | 15.26 | 11.78 | 12.06 |

**Each cell is the proportion of the subpopulation, given by the column, in a certain income bin.**

The following analysis will focus solely on USTS respondents, as the ACS does not collect data on engagement by respondents with sex work. As such, while prior analyses were able to compare both differentiation between transgender individuals and the remainder of the population alongside the stratification found within the transgender population, this section will only provide information as to the latter.

From Table 9, 20.18% of all USTS respondents report having engaged in some sort of underground economic activity—defined as sex work and other illegal work like drug processing and sales or theft. Transgender respondents who report ever engaging in some form of underground economic activity are clustered in low incomes. While half of transgender people report incomes below $15000 per year, 58.92% and 69.27% of transgender people who have done sex work or some other underground economic activity in the past year, respectively, earn incomes in that range. These same individuals are less likely than those who do not engage in sex work or underground activity, with far lower proportions earning high incomes of more than $100,000 per year compared to those who do not engage in either activity.

Table 10: Engagement in Sex Work and Any Underground Economics, Including in the Past Year, by Labor Force Status

|  | Sex Work | | | Underground Econ | | |
|---|---|---|---|---|---|---|
|  | Never Engaged | Engaged, Not in the Past Year | Engaged within the Past Year | Never Engaged | Engaged, Not in the Past Year | Engaged within the Past Year |
| employed | 84.21 | 2.81 | 12.97 | 81.84 | 12.49 | 5.67 |
| part time | 80.20 | 3.33 | 16.47 | 78.73 | 10.25 | 11.02 |
| self-employed | 74.37 | 3.37 | 22.26 | 72.72 | 17.23 | 10.04 |
| unemployed | 79.46 | 2.11 | 18.43 | 78.33 | 10.96 | 10.71 |
| out of labor force | 71.38 | 2.99 | 25.62 | 71.40 | 16.95 | 11.65 |
| student | 85.56 | 2.64 | 11.80 | 84.15 | 7.83 | 8.02 |
| retired | 87.23 | 3.57 | 9.21 | 87.35 | 11.71 | 0.95 |

**Each cell is the proportion of the labor force status, given by the row, with a given engagement in underground economic activity.**

Similar results are found when examining the labor force status of individuals who engage in underground economic activity. Both sex work and other underground economic activity are far more commonly done by people out of the labor force, the self-employed, the part-time employed, and the unemployed. For all labor force statuses, individuals who have engaged in sex work are more likely than not to continue doing so, while this is not the case for underground activities overall, where the proportions of individuals who engaged in underground activity in the past year and more than a year prior are similar, with those who had engaged in underground activity more than a year prior greater than those who had done so in the past year in some cases but not others.

As before, a probit regression was utilized to obtain the average marginal effects of differing identities, workplace discrimination, and labor force statuses.

Considering sex work first, positive average marginal effects for the disabled people compared to the able corroborates qualitative analyses on the congruity between sex work and disability (Jones 2022). Similar results are found for disabled people with regards to engaging in underground economic activity, though the smaller average marginal effect, when considering inclusion in a larger analytical category that includes sex work, implies much of this effect flows from the propensity for the disabled to engage in sex work. This finding is found for both categories across multiple specifications of these models except when considering just members of the narrow band of the surplus population, where the positive average marginal effect is not statistically significant.

While not considered within the narrow definition of the surplus population, these probit models included consideration of the influence of experiences of workplace discrimination on engaging in sex work or underground economic activity. Avoiding workplace discrimination—ranging from firings and assault to misgendering and failures to accommodate transgender workers—has been hypothesized as a means through which individuals avoid conventional workplace settings or these settings prevent them from entering at all (Cobbina and Oselin 2011). At the same time, workplace discrimination will likely assume a differing form for sex workers (Fuentes 2023; Logie et al. 2011). The positive average marginal effects found in the estimated models lends support to the hypothesis that experiences of discrimination push transgender people to sex work and the underground economy.

Table 11: Average Marginal Effects from Probit Estimation of An Individual Engaging in Sex Work or Illegal Labor

| | Sex Work | | | Underground Economic Activity | | |
|---|---|---|---|---|---|---|
| | AME | Std. error | p-value | AME | Std. error | p-value |
| disabled | 0.0625 | 0.0092 | 0.000 | 0.0429 | 0.0093 | 0.000 |
| Workplace Discrimination | 0.0625 | 0.0083 | 0.000 | 0.0559 | 0.0085 | 0.000 |
| part time | 0.0336 | 0.0134 | 0.012 | 0.0211 | 0.0141 | 0.134 |
| self-employed | 0.0818 | 0.0154 | 0.000 | 0.0716 | 0.0156 | 0.000 |
| unemployed | 0.0304 | 0.0155 | 0.049 | 0.0169 | 0.0159 | 0.288 |
| out of labor force | 0.0948 | 0.0203 | 0.000 | 0.0871 | 0.0209 | 0.000 |
| student | 0.0189 | 0.0120 | 0.115 | 0.0026 | 0.0123 | 0.831 |
| retired | 0.0616 | 0.0398 | 0.122 | 0.0147 | 0.0388 | 0.705 |
| woman | 0.0636 | 0.0105 | 0.000 | 0.0541 | 0.0110 | 0.000 |
| nonbinary | 0.0344 | 0.0096 | 0.000 | 0.0093 | 0.0099 | 0.348 |
| Indigenous | 0.1286 | 0.0330 | 0.000 | 0.1521 | 0.0342 | 0.000 |
| Asian | -0.0036 | 0.0221 | 0.870 | -0.0537 | 0.0173 | 0.002 |
| Multiracial | 0.0780 | 0.0153 | 0.000 | 0.0702 | 0.0154 | 0.000 |
| Black | 0.0681 | 0.0195 | 0.000 | 0.0470 | 0.0194 | 0.015 |
| Latine Hispanic | 0.0323 | 0.0152 | 0.033 | 0.0334 | 0.0159 | 0.036 |
| other | 0.0563 | 0.0591 | 0.341 | 0.1439 | 0.0697 | 0.039 |

**The average marginal effects were estimated from a probit regression on a binary variable indicating engagement in sex work or underground economic activity at some point in the past. Additional controls include education, age and age squared, state of residence, and marital status.**

These results, shown in Table 11, find that, compared to those employed full time, there is an increased probability a transgender person working part time or who is self-employed engages in sex work. People out of the labor force are more likely to engage in sex work compared to full time employees, but this result is not replicated when considering workers in either definition of the surplus population. In all cases, students and retirees are not more likely to engage in sex work than the full-time employed. Such results are not perfectly replicated when considering the impact of labor force status on engaging, broadly, in the underground economy. Most notably, the self employed are more likely to engage in the underground economy across model specifications, though one of these results is only statistically significant

at the 7.2% level.  Those outside the labor force are more likely to engage in the underground economy, though this result is not corroborated when considering just those workers in the surplus population.  The average marginal effect of unemployment does not increase the probability of an individual engaging in underground economic activity.

Compared to transgender men, transgender women are more likely to engage in sex work or underground activity, regardless of model specification.  The same cannot be said for nonbinary individuals, who are more likely to engage in sex work than transgender men (except in the narrow definition of the surplus population, where there is no increase in probability) but are not any more likely to engage in underground economic activity.

Compared to white people, Indigenous people are far more likely to engage in either sex work or underground economic activity—the increase in probability an Indigenous person engages in sex work is between 10 and 18%.  Less pronounced but still consistent are the positive average marginal effects across specifications for multiracial people.  The average marginal effects for Black people engaging in sex work are high, too, but there is less evidence that Black people are more likely to engage in underground activities, overall, than whites.  The results for Latine people engaging in either sex work or underground economic activity are mixed, with some evidence suggesting a relative increase in likelihood compared to white people this does not hold when considering just members of the surplus populations.  In contrast with these results, the evidence suggests that Asians are consistently less than or equally likely as whites to engage in sex work or underground economic activity.

In total, these models suggest that sex work and underground economic activity serve as an income of last resort for incredibly precarious people, like the disabled, those who have experienced discrimination, and those in the surplus population.  In particular, the self-employed are highly concentrated in sex work and underground economic activity and the connection between the labor force status and these forms of work has only deepened following the publication of the 2015 USTS.  New technologies have further enabled people to become sex workers through the transformation of pornography into an element in the larger "gig economy" have also removed discriminatory barriers traditional pornography production has erected against transgender and nonbinary actors (Easterbrook-Smith 2023).

7. Discussion

Transgender people earn lower incomes and have less-stable labor force statuses than the remainder of the population.  More than half of transgender people earn incomes below

$15000, while the median income for the whole population is more than $10000 higher. Transgender people are more likely to be employed part-time instead of full-time compared with the remainder of the population and are nearly three times more likely than the public to be self-employed.  This self-employment is not well compensated, especially compared to the compensation patterns for the self-employed in the remainder of the population.

With a Blinder Oaxaca decomposition, this paper found that economically significant differences in average income by gender were explainable by differences in endowments (for independent variables like labor force status, age, education, and race) across surveys.  This endowment-based gap constituted 79.06% of the income of the average transgender man and 43.44% of the average transgender man who is employed.  The largest of these was that between nonbinary people and men responding to the ACS, where the gap was 148.56% of the average income for nonbinary people and 63.26% of the income for nonbinary people who are employed.  The gaps not attributable to endowment differences for transgender men and nonbinary people were relatively small, as shown in Table 4, but such small values can matter far more when impoverished.

Transgender women have a higher average income than women responding to the ACS, though the gap between their incomes forms a far smaller proportion of the income for women responding to the ACS than these gaps do for transgender men and nonbinary people.

The results of the BO Decomposition implied a significant element of the differences in incomes between ACS and USTS respondents resulted from differing labor force statuses.  To investigate, this paper developed measures of precarity with two distinct approaches.  First, this paper employed a form of latent class analysis from the joint distribution of income and labor force statuses.  The relative clustering of ACS respondents in bands of full-time employment and middle-incomes and in low-income part-time employment illustrated the relative importance of those bands to the functioning of the overall economy.  Using a probit model and extracting the average marginal effects from the categorical variables for race, gender, and survey, this paper found that ACS respondents, men, and white and Latine/Hispanic people were more most to be found in those bands of full-time work, while transgender people (including nonbinary people), women, and white, multiracial, and Latine/Hispanic people were more likely to be found in part-time work.  Due to the importance of those bands in the functioning of the economy, inclusion in those full-time bands implied relative economic non-precarity while inclusion in that part-time band implied economic precarity,  relative to the remainder of the population.

The second of these approaches was inspired by the Marxian concept of the surplus population, which forms an essential element in the maintenance of capitalism. The surplus population helps to maintain capitalism due to its precarity. Membership in the surplus population was defined as inclusion in low-income under-employment. Transgender people were more likely to be members of the surplus population, as were women, nonbinary people, and people who were not white.

The final section of this paper examined two distinct means through which precarious individuals survived in a capitalist economy. The first, low-income self-employment, is a relatively common feature in populations unable to find work and was most common in the able-bodied transgender population, and was undertaken by men who are white or Latine/Hispanic. The second and third types of survival labor were closely tied: sex work and the underground economy (sex work was defined as a subset of underground economic activity). Sex work has been associated with transgender individuals and it is relatively common among USTS respondents, with 16.8% reporting having ever engaged in it (S. James et al. 2016). Other forms of underground economic activity are also common, with 20.18% of USTS respondents ever engaging in it. Who engages in sex work or underground economic activity? Compared to transgender men who are white and employed full time, disabled people, people who have experienced workplace discrimination due to their transgender status, the self-employed, people out of the labor force, women, nonbinary people, and people who are Indigenous, multiracial, Black, or Latine/Hispanic are more likely to engage in sex work or underground economic activity. Part time workers and the unemployed will more often than full time workers engage in sex work, though this does not apply to underground economic activity overall.

8. Conclusion

From data collected in the USTS, it is shown that transgender people inhabit a specific, precarious, and essential existence constructed in contradiction with that of their peers, neighbors, lovers, and enemies. This paper finds that transgender people are clustered in a variety of measures of precarity, which are constructed as intersections of labor force status and income. This precarity is gendered and racialized. Transgender women and nonbinary people, compared to transgender men, are clustered in precarious sections of the labor force, and the same is true for Black, Indigenous, Latine/Hispanic, and multiracial individuals.

The survival activities transgender people undertake are similarly gendered and racialized, but also differentiated on the basis of dis/ability and experiences of discrimination.

Low-income self-employment is undertaken by white, Asian, and Latine/Hispanic transgender men who are able bodied.  In contrast, sex work and underground economic activity are undertaken most frequently by transgender women and nonbinary people who are disabled, have experienced workplace discrimination due to their transgender status, and tend to be self-employed, employed part-time, or out of the labor force.  Further, they tend to be Black, Indigenous, Latine/Hispanic, or multiracial.

This paper contributes to the literature by:

- Unlike prior economics research on transgender people, this paper considers precarity holistically by considering the interaction between labor force status and income and along lines of race and gender.
    - This precarity is gendered, with transgender women and nonbinary people driven further into precarious labor force statuses and sex work, and racialized, with the same being true for Indigenous, Multiracial, Black, and Latine/Hispanic people.
    - This precarity drives transgender people to low-income self-employment, which serves to obfuscate the real breadth of unemployment amongst transgender people, to sex work and to underground economic activities.
- This paper is also novel in that it considers the economic status of transgender people in a heterodox manner, through a stratification economics framework, while incorporating insights from by Analytical Marxism, Marxian Feminism, and Intersectional Political Economy.
- This paper offers the first quantitative analysis of the factors pushing and pulling (to borrow the framing offered by D'Ippoliti and Botti (2017)) transgender individuals to engage in sex work.

Still, there is much this paper was unable to investigate.  Greater examination of transgender people as workers—or capitalists—is vital for a greater understanding of the relationship between transgender people and capitalism.  To accomplish this, however, requires detailed examination of workplace roles inhabited by transgender people.  The ongoing discourse surrounding transgender people, and the following implementation of discriminatory laws nationwide, is a vital field to study.  While subsequent editions of the USTS will provide some degree of comparability across years, it is important for a frequent and detailed survey of transgender individuals that pays special attention to the issues transgender people face.  Finally, it is essential for any analysis of the lives of transgender people to incorporate an analysis of the migration patterns of transgender people as they flee states enacting

discriminatory policies.  While this may be a matter of comparing the geographic distribution of transgender respondents to frequent nationwide surveys like the Household Pulse, a bespoke survey on the subject would be invaluable to measure the depth of the impact of state sanctioned discrimination.

Appendix A: Income, Labor Force Status, Income Source Distributions

Table A1: Mean Incomes by Demographic Group

| | Whole Pop Income | Working Age Income | Employed Income |
|---|---|---|---|
| ACS | | | |
| overall | $35795.84 | 50748.86 | $52892.74 |
| man | $43953.91 | 58191.70 | $60715.10 |
| woman | $28202.90 | 42257.33 | $44058.78 |
| White MENA | $40156.40 | 55937.18 | $58049.72 |
| Indigenous | $24355.03 | 38692.85 | $40529.35 |
| Asian | $39671.88 | 61189.96 | $62567.11 |
| Multiracial | $31317.18 | 47103.91 | $51490.41 |
| Black | $26387.38 | 39300.37 | $41462.37 |
| Latine Hispanic | $24943.05 | 35680.45 | $37675.94 |
| other | $29864.97 | 43852.15 | $46090.15 |
| USTS | | | |
| Overall | $25041.94 | $38908.65 | $47439.84 |
| man | $23391.29 | $34051.87 | $42565.97 |
| woman | $35286.72 | $50608.61 | $55354.09 |
| nonbinary | $16814.07 | $29153.95 | $39488.71 |
| White MENA | $27070.29 | $41318.34 | $50245.02 |
| Indigenous | $23069.77 | $32755.93 | $40275.63 |
| Asian | $24648.07 | $43936.31 | $55717.97 |
| Multiracial | $17453.75 | $28466.32 | $36317.35 |
| Black | $22892.98 | $33817.86 | $38715.63 |
| Latine Hispanic | $20366.08 | $33691.10 | $42735.60 |
| other | $26956.76 | $35708.20 | $45473.43 |

**Each cell is the mean income for a demographic group, estimated using an interval regression. The first column considers all respondents, the second considers only those between the ages of 25 and 65 and the third only considers those with current employment.**

Table A2: Income Distributions by Survey: Overall and by Gender

| | Overall ACS | Overall USTS | man ACS | man USTS | woman ACS | woman USTS | nonbinary USTS |
|---|---|---|---|---|---|---|---|
| No income | 10.90 | 13.83 | 8.01 | 13.17 | 13.63 | 10.96 | 17.19 |
| $1 to $5,000 | 7.02 | 17.93 | 5.88 | 15.61 | 8.09 | 12.38 | 25.34 |
| $5,000 to $7,499 | 3.94 | 6.70 | 2.99 | 6.68 | 4.83 | 4.77 | 8.61 |
| $7,500 to $9,999 | 4.93 | 5.55 | 3.61 | 5.43 | 6.17 | 5.30 | 5.91 |
| $10,000 to $12,499 | 5.61 | 6.55 | 4.49 | 7.10 | 6.66 | 6.43 | 6.20 |
| $12,500 to $14,999 | 3.61 | 4.50 | 2.91 | 4.85 | 4.26 | 4.59 | 4.13 |
| $15,000 to $17,499 | 4.37 | 3.14 | 3.83 | 3.32 | 4.88 | 3.17 | 2.95 |
| $17,500 to $19,999 | 3.19 | 2.90 | 2.90 | 3.71 | 3.48 | 2.60 | 2.50 |
| $20,000 to $24,999 | 7.37 | 5.76 | 7.20 | 6.51 | 7.54 | 6.11 | 4.77 |
| $25,000 to $29,999 | 5.78 | 4.01 | 5.80 | 4.48 | 5.77 | 4.31 | 3.30 |
| $30,000 to $34,999 | 5.73 | 4.50 | 5.96 | 5.17 | 5.51 | 4.46 | 3.96 |
| $35,000 to $39,999 | 4.65 | 3.37 | 4.95 | 4.13 | 4.37 | 3.59 | 2.51 |
| $40,000 to $49,999 | 7.81 | 4.93 | 8.76 | 5.49 | 6.91 | 6.04 | 3.36 |
| $50,000 to $59,999 | 5.87 | 3.73 | 6.87 | 4.42 | 4.93 | 4.36 | 2.54 |
| $60,000 to $74,999 | 6.26 | 3.72 | 7.66 | 3.72 | 4.95 | 5.04 | 2.43 |
| $75,000 to $99,999 | 5.42 | 3.57 | 7.03 | 3.00 | 3.89 | 5.90 | 1.80 |
| $100,000 to $149,999 | 4.36 | 3.30 | 6.21 | 2.21 | 2.62 | 6.05 | 1.55 |
| $150,000 or more | 3.19 | 2.00 | 4.93 | 1.03 | 1.54 | 3.93 | 0.96 |

**Each cell is the proportion of the population, given by the column, in a certain income bin.**

Table A3: Income Distributions by Survey: by Race

| | White MENA | Indigenous | Asian | Multiracial | Black | Latine Hispanic | other |
|---|---|---|---|---|---|---|---|
| **ACS** | | | | | | | |
| No income | 8.39 | 15.82 | 18.09 | 11.87 | 13.43 | 16.40 | 16.43 |
| $1 to $5,000 | 6.43 | 10.29 | 6.92 | 10.89 | 8.78 | 7.59 | 8.30 |
| $5,000 to $7,499 | 3.59 | 4.85 | 4.09 | 5.00 | 4.55 | 4.69 | 4.21 |
| $7,500 to $9,999 | 4.39 | 7.31 | 4.26 | 5.64 | 7.17 | 5.51 | 3.96 |
| $10,000 to $12,499 | 5.22 | 6.64 | 5.08 | 5.95 | 6.62 | 6.54 | 5.98 |
| $12,500 to $14,999 | 3.50 | 4.15 | 2.30 | 3.50 | 4.25 | 4.01 | 3.02 |
| $15,000 to $17,499 | 4.12 | 4.87 | 3.24 | 4.24 | 4.85 | 5.45 | 4.18 |
| $17,500 to $19,999 | 3.08 | 3.36 | 2.25 | 2.94 | 3.39 | 3.86 | 3.13 |
| $20,000 to $24,999 | 7.09 | 7.33 | 5.76 | 7.02 | 7.61 | 8.96 | 7.50 |
| $25,000 to $29,999 | 5.70 | 5.46 | 4.10 | 5.07 | 6.08 | 6.58 | 5.59 |
| $30,000 to $34,999 | 5.79 | 5.57 | 4.39 | 5.26 | 5.87 | 5.86 | 6.15 |
| $35,000 to $39,999 | 4.87 | 4.33 | 3.51 | 4.10 | 4.47 | 4.35 | 4.49 |
| $40,000 to $49,999 | 8.50 | 5.92 | 5.93 | 6.83 | 6.94 | 6.47 | 6.88 |
| $50,000 to $59,999 | 6.63 | 4.23 | 4.90 | 5.02 | 4.76 | 4.09 | 5.26 |
| $60,000 to $74,999 | 7.18 | 3.98 | 6.43 | 5.73 | 4.63 | 3.84 | 5.40 |
| $75,000 to $99,999 | 6.32 | 2.62 | 6.70 | 4.84 | 3.49 | 2.89 | 4.61 |
| $100,000 to $149,999 | 5.16 | 2.25 | 7.20 | 3.91 | 2.19 | 1.89 | 3.14 |
| $150,000 or more | 4.04 | 1.03 | 4.85 | 2.17 | 0.93 | 1.02 | 1.78 |
| **USTS** | | | | | | | |
| No income | 12.12 | 13.13 | 19.07 | 18.26 | 13.91 | 18.24 | 8.94 |
| $1 to $5,000 | 17.32 | 16.19 | 20.69 | 20.03 | 19.37 | 18.29 | 11.68 |
| $5,000 to $7,499 | 6.51 | 5.99 | 6.90 | 7.17 | 6.51 | 7.46 | 8.09 |
| $7,500 to $9,999 | 5.54 | 7.72 | 3.96 | 5.40 | 5.20 | 6.22 | 7.52 |
| $10,000 to $12,499 | 6.75 | 6.67 | 6.91 | 8.14 | 5.93 | 5.97 | 6.38 |
| $12,500 to $14,999 | 4.58 | 4.34 | 3.58 | 5.57 | 4.16 | 4.46 | 9.43 |
| $15,000 to $17,499 | 3.32 | 4.38 | 2.09 | 3.26 | 3.25 | 2.67 | 0.90 |
| $17,500 to $19,999 | 2.97 | 4.72 | 1.94 | 2.68 | 3.12 | 2.68 | 3.39 |
| $20,000 to $24,999 | 5.89 | 5.75 | 4.19 | 6.51 | 5.59 | 5.81 | 2.62 |
| $25,000 to $29,999 | 4.06 | 3.34 | 2.48 | 3.97 | 4.16 | 4.18 | 3.39 |
| $30,000 to $34,999 | 4.36 | 6.01 | 3.73 | 3.72 | 5.39 | 4.61 | 3.02 |
| $35,000 to $39,999 | 3.25 | 2.71 | 2.73 | 2.43 | 5.03 | 2.81 | 6.38 |
| $40,000 to $49,999 | 5.04 | 2.67 | 5.38 | 3.65 | 4.55 | 4.75 | 10.57 |
| $50,000 to $59,999 | 3.92 | 4.68 | 3.01 | 3.12 | 3.90 | 3.19 | 2.99 |
| $60,000 to $74,999 | 4.14 | 5.02 | 3.31 | 1.44 | 3.25 | 2.75 | 8.66 |
| $75,000 to $99,999 | 4.18 | 3.67 | 2.39 | 2.52 | 3.12 | 2.14 | 3.02 |
| $100,000 to $149,999 | 3.62 | 2.34 | 5.58 | 1.44 | 2.10 | 2.66 | 3.02 |
| $150,000 or more | 2.43 | 0.67 | 2.10 | 0.69 | 1.43 | 1.11 | 0 |

**Each cell is the proportion of the population, given by the column, in a certain income bin.**

Table A4: Labor Force Status by Survey: Overall, by Gender, and by Race

| | employed | part time | self-employed | unemployed | out of labor force | student | retired |
|---|---|---|---|---|---|---|---|
| ACS | | | | | | | |
| Overall | 41.19 | 9.48 | 3.86 | 3.36 | 23.5 | 10.28 | 8.33 |
| man | 47.61 | 6.98 | 5.71 | 3.78 | 17.74 | 9.70 | 8.49 |
| woman | 35.11 | 11.85 | 2.12 | 2.97 | 28.95 | 10.82 | 8.18 |
| White | | | | | | | |
| MENA | 40.74 | 9.61 | 4.35 | 2.70 | 23.39 | 8.81 | 10.40 |
| Indigenous | 35.50 | 8.01 | 2.29 | 6.26 | 32.08 | 9.84 | 6.01 |
| Asian | 43.31 | 8.12 | 4.35 | 2.79 | 23.29 | 14.58 | 3.56 |
| Multiracial | 38.44 | 10.60 | 3.00 | 4.70 | 20.01 | 18.51 | 4.75 |
| Black | 38.98 | 8.94 | 1.73 | 5.86 | 24.53 | 12.79 | 7.17 |
| Latine | | | | | | | |
| Hispanic | 44.50 | 9.81 | 3.49 | 4.10 | 23.30 | 11.94 | 2.87 |
| other | 42.42 | 9.51 | 2.84 | 4.23 | 22.11 | 14.49 | 4.40 |
| USTS | | | | | | | |
| Overall | 27.56 | 10.73 | 9.23 | 8.19 | 10.03 | 31.12 | 3.15 |
| man | 29.64 | 11.77 | 8.93 | 7.25 | 8.43 | 32.70 | 1.28 |
| woman | 33.51 | 9.42 | 11.12 | 9.19 | 12.54 | 17.03 | 7.20 |
| nonbinary | 20.11 | 11.09 | 7.67 | 8.04 | 9.00 | 43.22 | 0.88 |
| White | | | | | | | |
| MENA | 28.71 | 10.54 | 9.39 | 7.53 | 10.17 | 29.60 | 4.06 |
| Indigenous | 23.85 | 12.65 | 9.65 | 8.37 | 18.73 | 21.75 | 4.99 |
| Asian | 25.74 | 8.55 | 7.88 | 7.31 | 6.15 | 43.78 | 0.59 |
| Multiracial | 18.95 | 11.78 | 8.79 | 10.38 | 13.07 | 35.38 | 1.65 |
| Black | 26.12 | 10.92 | 9.74 | 9.87 | 11.41 | 29.17 | 2.76 |
| Latine | | | | | | | |
| Hispanic | 25.96 | 11.45 | 8.70 | 9.50 | 8.79 | 34.72 | 0.88 |
| other | 35.09 | 19.32 | 6.77 | 2.58 | 10.53 | 23.00 | 2.71 |

**Each cell is the proportion of the survey and population, given by the column, in a certain labor force status.**

Table A5 Labor Force Participation and Unemployment Rates across Surveys Overall, by Gender, and by Race

| | Labor Force Participation Rate | Unemployment Rate |
|---|---|---|
| ACS | | |
| Overall | 57.89 | 5.80 |
| man | 64.08 | 5.90 |
| woman | 52.05 | 5.71 |
| White MENA | 57.40 | 4.70 |
| Indigenous | 52.06 | 12.02 |
| Asian | 58.57 | 4.76 |
| Multiracial | 56.74 | 8.28 |
| Black | 55.51 | 10.56 |
| Latine Hispanic | 61.90 | 6.62 |
| other | 59.00 | 7.17 |
| USTS | | |
| Overall | 55.71 | 14.70 |
| man | 57.59 | 12.59 |
| woman | 63.24 | 14.53 |
| nonbinary | 46.91 | 17.14 |
| White MENA | 56.17 | 13.41 |
| Indigenous | 54.52 | 15.35 |
| Asian | 49.48 | 14.77 |
| Multiracial | 49.90 | 20.80 |
| Black | 56.65 | 17.42 |
| Latine Hispanic | 55.61 | 17.08 |
| other | 63.76 | 4.05 |

**Each cell value is the rate, given by the column, for a given survey population or subpopulation.**

## Table A6: Income By Labor Force Status and Survey

| | employed | part time | self-employed | unemployed | out of labor force | student | retired |
|---|---|---|---|---|---|---|---|
| **ACS** | | | | | | | |
| No income | 0.00 | 0.14 | 0.48 | 31.28 | 31.87 | 22.77 | 0.01 |
| $1 to $5,000 | 0.99 | 12.35 | 2.27 | 19.08 | 9.43 | 22.23 | 2.61 |
| $5,000 to $7,499 | 1.03 | 8.22 | 1.81 | 6.87 | 6.25 | 8.33 | 1.35 |
| $7,500 to $9,999 | 0.95 | 7.27 | 1.50 | 5.61 | 12.06 | 5.45 | 2.46 |
| $10,000 to $12,499 | 2.30 | 11.41 | 4.00 | 6.22 | 9.66 | 6.39 | 3.45 |
| $12,500 to $14,999 | 1.66 | 6.38 | 1.98 | 3.14 | 6.46 | 2.78 | 4.00 |
| $15,000 to $17,499 | 3.25 | 7.99 | 3.81 | 3.77 | 5.14 | 3.61 | 5.06 |
| $17,500 to $19,999 | 2.64 | 4.76 | 2.27 | 2.52 | 3.58 | 2.05 | 5.19 |
| $20,000 to $24,999 | 8.02 | 9.77 | 7.51 | 4.85 | 5.12 | 5.01 | 11.67 |
| $25,000 to $29,999 | 7.37 | 6.36 | 6.11 | 3.29 | 2.43 | 3.47 | 10.41 |
| $30,000 to $34,999 | 8.24 | 5.08 | 6.85 | 2.66 | 1.61 | 3.15 | 9.51 |
| $35,000 to $39,999 | 7.02 | 3.41 | 5.30 | 1.91 | 1.12 | 2.29 | 7.98 |
| $40,000 to $49,999 | 12.59 | 4.92 | 9.76 | 2.79 | 1.47 | 3.62 | 11.56 |
| $50,000 to $59,999 | 9.92 | 3.23 | 7.94 | 1.68 | 0.95 | 2.59 | 7.47 |
| $60,000 to $74,999 | 10.99 | 3.06 | 8.74 | 1.64 | 0.91 | 2.54 | 6.93 |
| $75,000 to $99,999 | 9.90 | 2.28 | 8.46 | 1.20 | 0.72 | 1.92 | 4.63 |
| $100,000 to $149,999 | 8.04 | 1.73 | 9.04 | 0.84 | 0.36 | 1.22 | 3.51 |
| $150,000 or more | 5.08 | 1.64 | 12.16 | 0.63 | 0.86 | 0.57 | 2.21 |
| **USTS** | | | | | | | |
| No income | 2.05 | 8.60 | 2.83 | 30.23 | 22.79 | 22.77 | 0.69 |
| $1 to $5,000 | 3.37 | 19.07 | 12.40 | 23.87 | 21.58 | 31.26 | 0.65 |
| $5,000 to $7,499 | 2.33 | 11.84 | 5.83 | 7.94 | 6.80 | 9.21 | 0.69 |
| $7,500 to $9,999 | 2.21 | 10.88 | 4.38 | 4.32 | 9.92 | 6.01 | 3.26 |
| $10,000 to $12,499 | 4.59 | 12.06 | 4.80 | 5.20 | 9.10 | 6.26 | 5.47 |
| $12,500 to $14,999 | 3.77 | 7.76 | 4.40 | 3.96 | 5.39 | 3.67 | 4.28 |
| $15,000 to $17,499 | 3.08 | 5.50 | 3.05 | 1.74 | 3.19 | 2.67 | 3.97 |
| $17,500 to $19,999 | 3.39 | 3.92 | 2.52 | 2.29 | 2.32 | 2.34 | 2.71 |
| $20,000 to $24,999 | 7.58 | 5.71 | 7.19 | 5.61 | 4.73 | 4.00 | 7.28 |
| $25,000 to $29,999 | 5.85 | 3.64 | 5.49 | 2.63 | 2.43 | 2.81 | 5.85 |
| $30,000 to $34,999 | 8.07 | 2.18 | 5.52 | 2.40 | 2.50 | 2.44 | 6.63 |
| $35,000 to $39,999 | 6.59 | 1.64 | 3.88 | 1.61 | 1.66 | 1.31 | 9.41 |
| $40,000 to $49,999 | 10.22 | 2.09 | 6.57 | 2.43 | 2.14 | 1.65 | 8.65 |
| $50,000 to $59,999 | 8.27 | 1.32 | 5.00 | 1.01 | 1.30 | 1.05 | 9.09 |
| $60,000 to $74,999 | 7.68 | 1.24 | 6.17 | 1.85 | 1.87 | 1.19 | 7.95 |
| $75,000 to $99,999 | 8.47 | 1.24 | 6.40 | 1.08 | 1.08 | 0.68 | 8.93 |
| $100,000 to $149,999 | 8.11 | 0.91 | 7.04 | 0.93 | 0.92 | 0.33 | 8.93 |
| $150,000 or more | 4.38 | 0.41 | 6.55 | 0.92 | 0.28 | 0.33 | 5.57 |

**Each cell is the proportion of each labor force status that receives the income given by the row.**
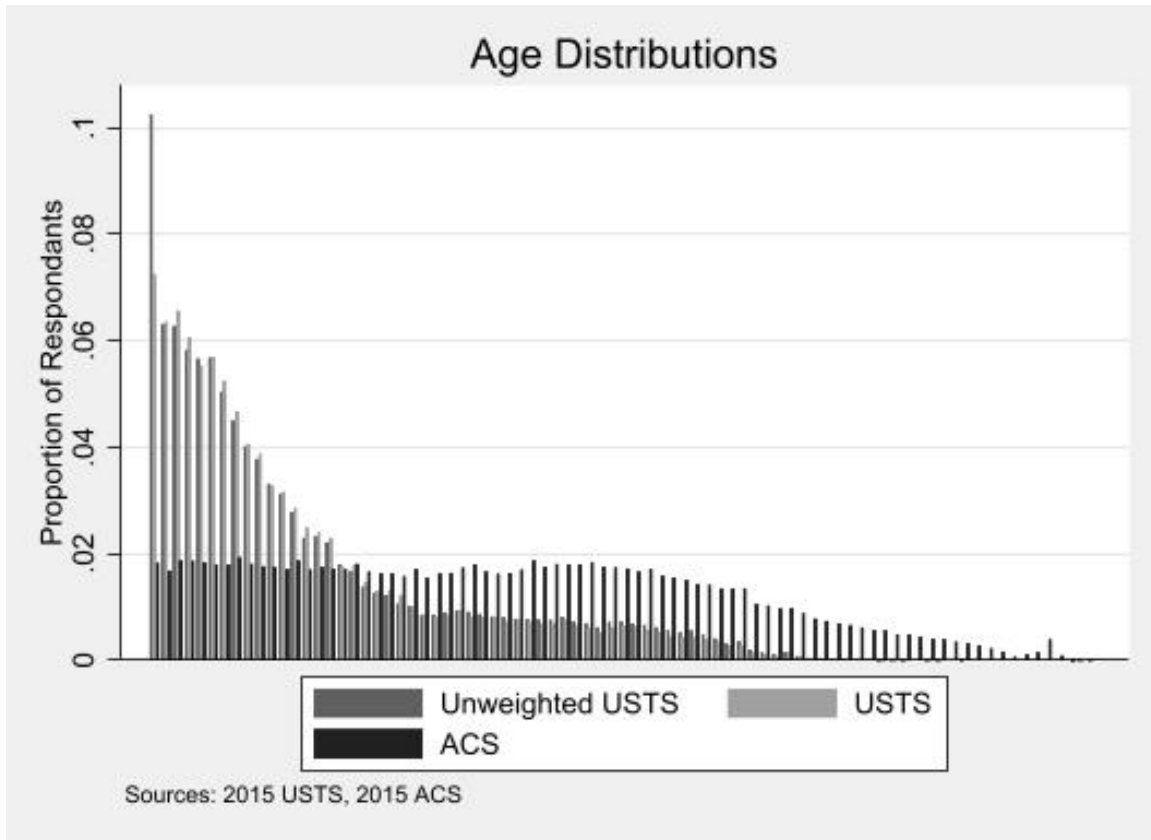
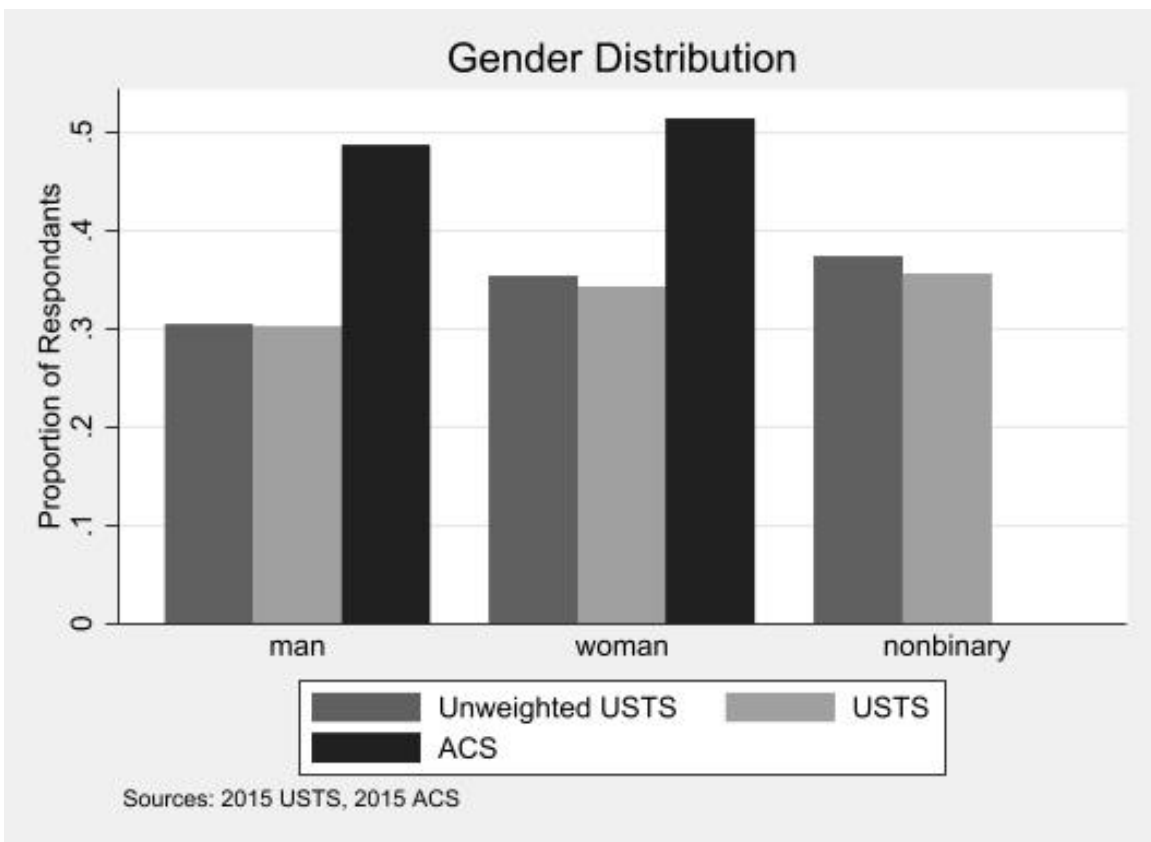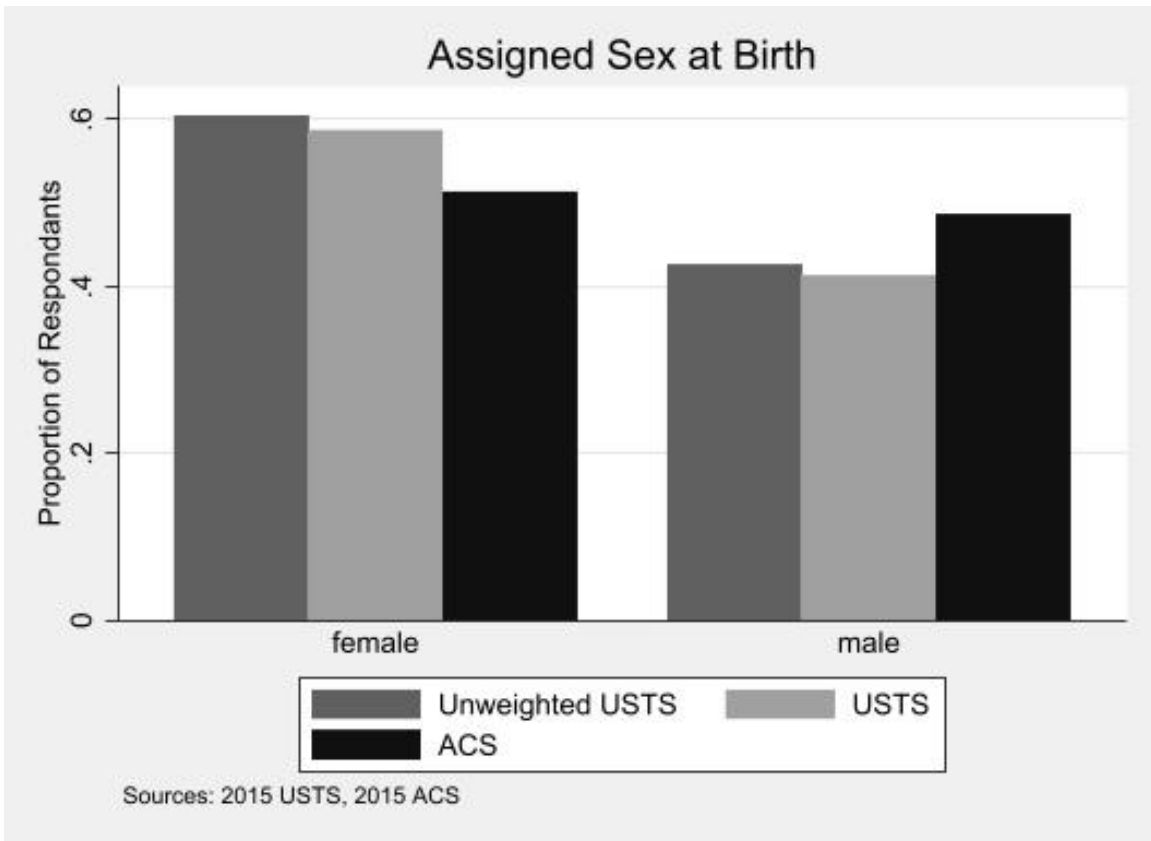Table A7: Engagement in Sex Work or the Underground Economy in the Past or In the Past Year, by Income

| | Ever engaged in sex work | | | Any underground economics | | |
|---|---|---|---|---|---|---|
| | Never | Not in the Past Year | Within the Past Year | Never | Not in the Past Year | Within the Past Year |
| No income | 10.90 | 10.81 | 10.04 | 10.90 | 8.99 | 11.45 |
| $1 to $5,000 | 7.02 | 16.07 | 18.01 | 7.02 | 12.96 | 25.35 |
| $5,000 to $7,499 | 3.94 | 7.67 | 8.22 | 3.94 | 6.67 | 8.68 |
| $7,500 to $9,999 | 4.93 | 7.86 | 7.97 | 4.93 | 6.61 | 9.13 |
| $10,000 to $12,499 | 5.61 | 7.93 | 8.81 | 5.61 | 7.94 | 9.34 |
| $12,500 to $14,999 | 3.61 | 3.72 | 5.87 | 3.61 | 5.28 | 5.32 |
| $15,000 to $17,499 | 4.37 | 3.73 | 3.81 | 4.37 | 2.74 | 4.07 |
| $17,500 to $19,999 | 3.19 | 2.81 | 3.20 | 3.19 | 3.56 | 2.97 |
| $20,000 to $24,999 | 7.37 | 5.86 | 6.54 | 7.37 | 7.85 | 6.09 |
| $25,000 to $29,999 | 5.78 | 4.54 | 4.56 | 5.78 | 5.53 | 3.49 |
| $30,000 to $34,999 | 5.73 | 4.42 | 5.50 | 5.73 | 6.75 | 3.10 |
| $35,000 to $39,999 | 4.65 | 4.02 | 3.44 | 4.65 | 4.09 | 2.42 |
| $40,000 to $49,999 | 7.81 | 4.94 | 4.28 | 7.81 | 5.80 | 2.66 |
| $50,000 to $59,999 | 5.87 | 3.65 | 2.37 | 5.87 | 4.26 | 1.12 |
| $60,000 to $74,999 | 6.26 | 2.62 | 2.40 | 6.26 | 3.76 | 1.42 |
| $75,000 to $99,999 | 5.42 | 3.85 | 2.14 | 5.42 | 3.49 | 1.55 |
| $100,000 to $149,999 | 4.36 | 3.07 | 1.81 | 4.36 | 2.79 | 0.61 |
| $150,000 or more | 3.19 | 2.43 | 1.03 | 10.90 | 8.99 | 11.45 |

**Each cell value is the proportion of the respondents who engaged in similar underground activity with a given income out of the whole who engaged similarly in that underground activity.**

Appendix B: Weighting Schemes

The USTS was published alongside a number of weighting schemes that sought to correct for overrepresentation of transgender people who are younger, whiter, poorer, and better educated than the public. This paper utilizes the weighting scheme constructed by the creators of the USTS that transforms the population to be older, less white, and slightly less poor (S. E. James et al. 2017). Below are demonstrations of the impact of the weighting schemes on the age, gender, income, and racial distributions and how these the result more closely resembles the population characteristics of the ACS.

## Assigned Sex at Birth



Sources: 2015 USTS, 2015 ACS
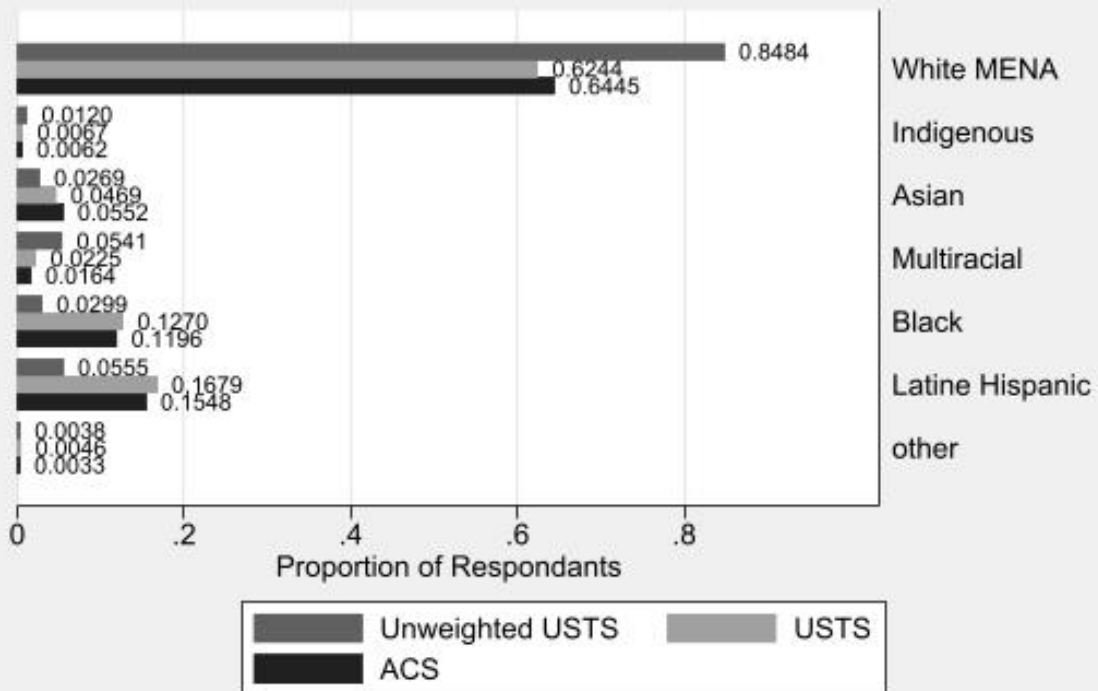
## Gender Distribution



Sources: 2015 USTS, 2015 ACS

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## Income Distributions
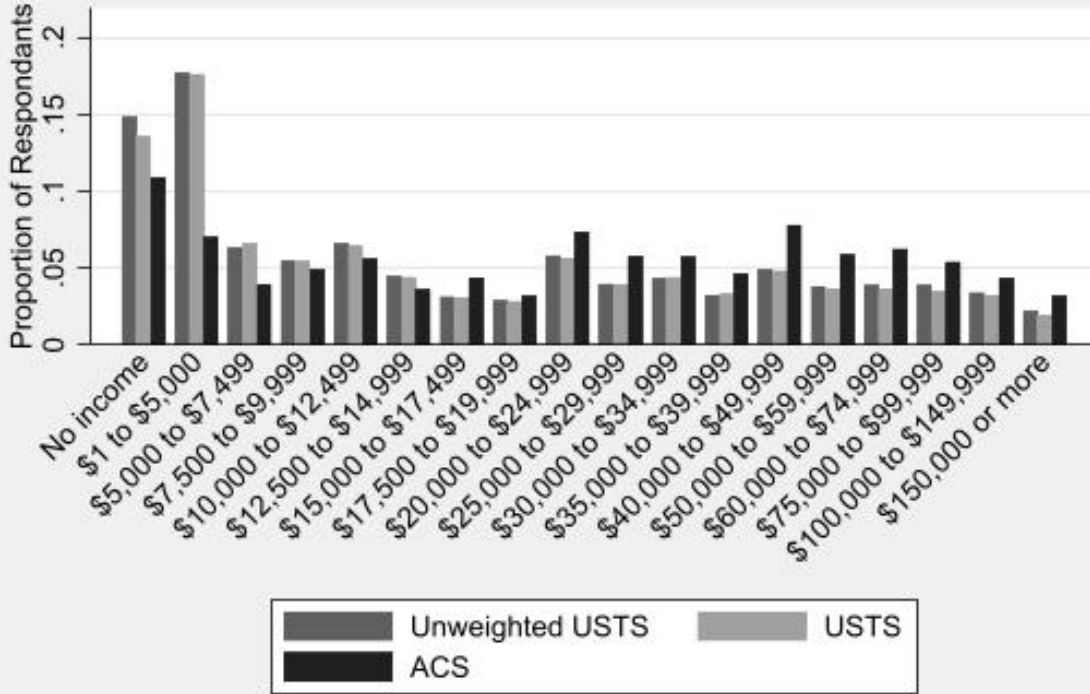


Sources: 2015 USTS, 2015 ACS

## Racial Distributions



Sources: 2015 USTS, 2015 ACS

Appendix C: Constructing Labor Force Status Categories

Labor force categories were constructed using ACS and USTS questions in the following hierarchical decision trees. Boxes correspond to the criteria an individual's labor force status must comply with to be categorized in the final categories, which are outlined in black. The decision trees are hierarchical in the sense that individual categorization is influenced by the order in which they are assigned to categories, with the decisions occurring later while descending each decision tree. For example, an individual responding to the ACS who is employed but also attending school is categorized as a student as the decision to code an individual as a student occurred following the decision to code that person as someone who is employed.
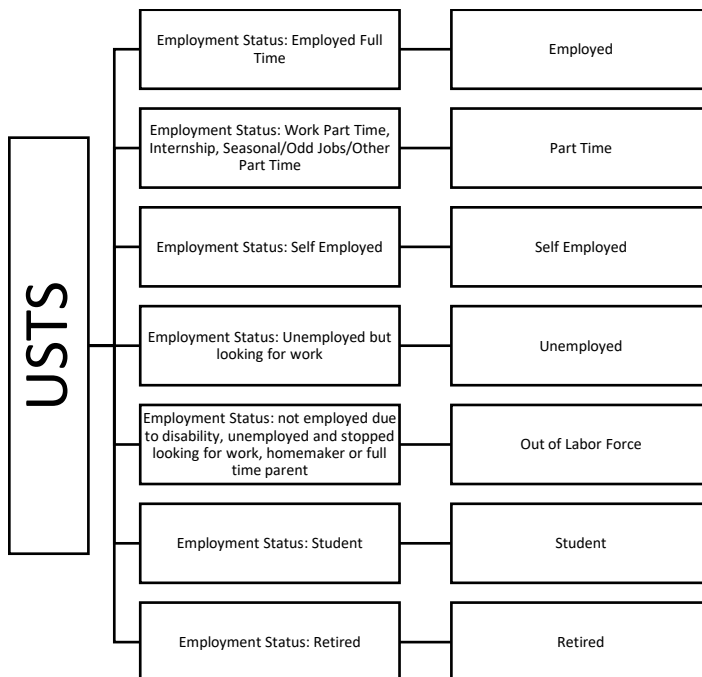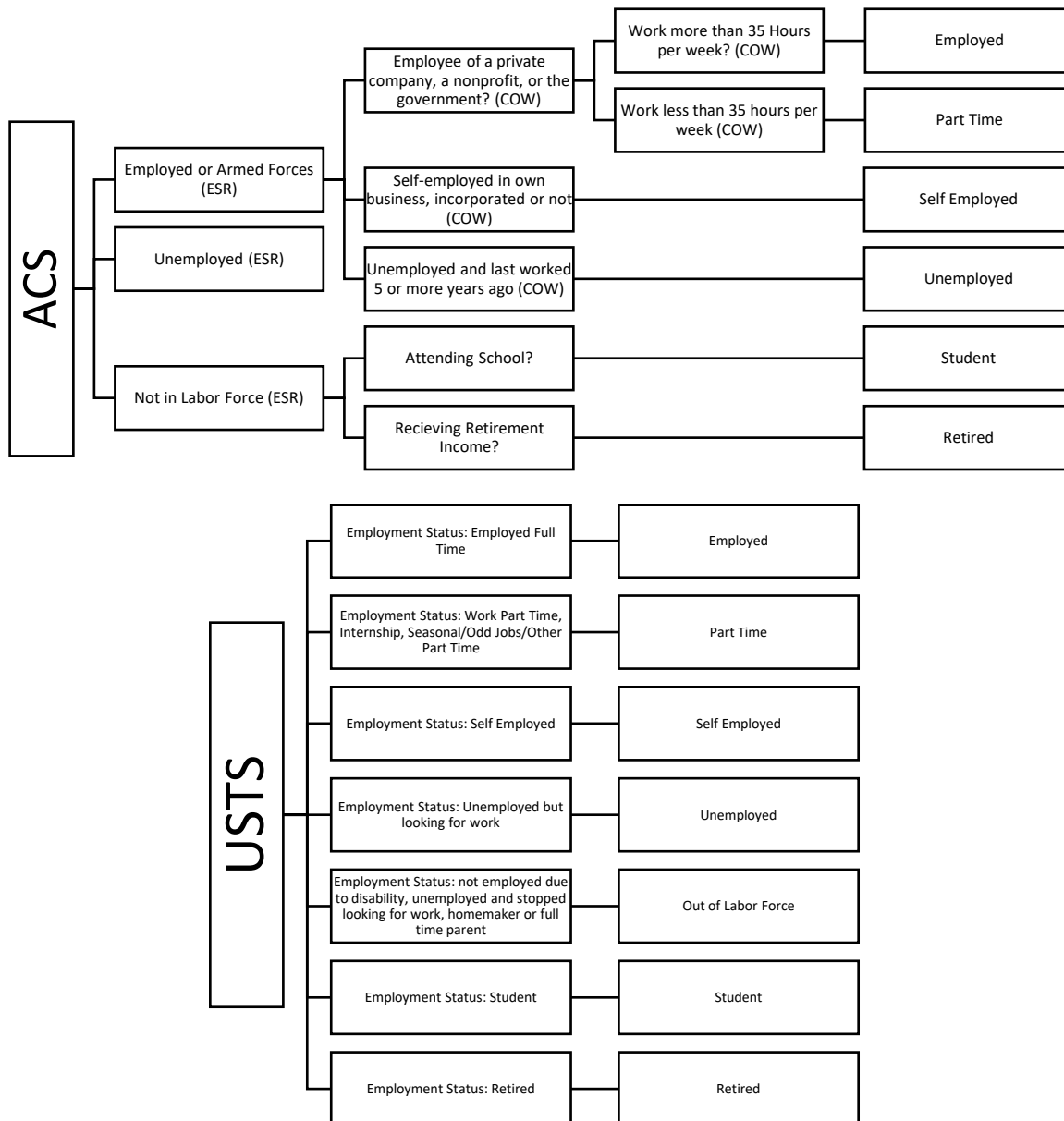
Appendix D.  Robustness Checks

Table D1: Average Marginal Effects on Membership in the Narrow Full Time Band

| | FTN1 | | | FTN2 | | | FTN3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | AME | Std. error | p-value | AME | Std. error | p-value | AME | Std. error | p-value |
| acs | 0.1115 | 0.0044 | 0.000 | 0.0827 | 0.0080 | 0.000 | 0.1728 | 0.0066 | 0.000 |
| woman | | | | | | | | | |
| ACS | -0.0713 | 0.0007 | 0.000 | 0.0122 | 0.0012 | 0.000 | -0.0436 | 0.0011 | 0.000 |
| USTS | -0.0548 | 0.0009 | 0.000 | 0.0133 | 0.0014 | 0.000 | -0.0374 | 0.0010 | 0.000 |
| nonbinary | -0.0642 | 0.0057 | 0.000 | 0.0013 | 0.0170 | 0.937 | -0.0637 | 0.0100 | 0.000 |
| Indigenous | | | | | | | | | |
| ACS | -0.0424 | 0.0041 | 0.000 | -0.0430 | 0.0085 | 0.000 | -0.0313 | 0.0070 | 0.000 |
| USTS | -0.0299 | 0.0028 | 0.000 | -0.0463 | 0.0090 | 0.000 | -0.0256 | 0.0056 | 0.000 |
| Asian | | | | | | | | | |
| ACS | -0.0430 | 0.0015 | 0.000 | -0.0658 | 0.0028 | 0.000 | -0.0409 | 0.0024 | 0.000 |
| USTS | -0.0303 | 0.0011 | 0.000 | -0.0703 | 0.0029 | 0.000 | -0.0332 | 0.0020 | 0.000 |
| Multiracial | | | | | | | | | |
| ACS | -0.0371 | 0.0026 | 0.000 | -0.0198 | 0.0052 | 0.000 | -0.0347 | 0.0044 | 0.000 |
| USTS | -0.0263 | 0.0018 | 0.000 | -0.0216 | 0.0056 | 0.000 | -0.0284 | 0.0035 | 0.000 |
| Black | | | | | | | | | |
| ACS | -0.0177 | 0.0012 | 0.000 | -0.0191 | 0.0022 | 0.000 | -0.0080 | 0.0019 | 0.000 |
| USTS | -0.0127 | 0.0009 | 0.000 | -0.0208 | 0.0024 | 0.000 | -0.0067 | 0.0016 | 0.000 |
| Latine | | | | | | | | | |
| Hispanic | | | | | | | | | |
| ACS | 0.0014 | 0.0012 | 0.215 | -0.0456 | 0.0020 | 0.000 | -0.0097 | 0.0018 | 0.000 |
| USTS | 0.0010 | 0.0008 | 0.215 | -0.0491 | 0.0022 | 0.000 | -0.0081 | 0.0015 | 0.000 |
| other | | | | | | | | | |
| ACS | -0.0150 | 0.0062 | 0.016 | -0.0243 | 0.0116 | 0.035 | -0.0012 | 0.0099 | 0.900 |
| USTS | -0.0108 | 0.0044 | 0.015 | -0.0264 | 0.0124 | 0.033 | -0.0010 | 0.0083 | 0.900 |

**The average marginal effects were estimated from a probit regression on a binary variable indicating inclusion in the band.  Additional controls include education, age and age squared, state of residence, and marital status.**

Table D1 shows the three specifications for the estimation of average marginal effect of inclusion in the narrow definition of the Full Time band.  The baseline case is a white man responding to the USTS.  FTN1 is the baseline estimation, FTN2 restricts the sample to include only full-time workers, and FTN3 restricts the sample to all workers in the labor force.  When restricting the estimation to only consider elements of the population already employed full time, many of the AME values flip signs, as in the cases of women and Latine/Hispanic for both surveys.  These results imply that, though full time workers are typically more likely to be in the narrow band than outside it—this result supports the conclusion that these levels of income are structurally related to full-time work--the results from FTN1 and FTN3 reiterate that there is a significant barrier to full-time employment for transgender people, women, and people of color.

Table D21: Average Marginal Effects on Membership in the Broad Full Time Band

| | FTB1 | | | FTB2 | | | FTB3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | AME | Std. error | p-value | AME | Std. error | p-value | AME | Std. error | p-value |
| acs woman | 0.1388 | 0.0044 | 0.000 | 0.0596 | 0.0033 | 0.000 | 0.2008 | 0.0056 | 0.000 |
| ACS | -0.1200 | 0.0007 | 0.000 | -0.0336 | 0.0007 | 0.000 | -0.0946 | 0.0010 | 0.000 |
| USTS | -0.1042 | 0.0011 | 0.000 | -0.0635 | 0.0020 | 0.000 | -0.1016 | 0.0011 | 0.000 |
| nonbinary Indigenous | -0.1172 | 0.0064 | 0.000 | -0.0915 | 0.0124 | 0.000 | -0.1417 | 0.0107 | 0.000 |
| ACS | -0.0482 | 0.0045 | 0.000 | -0.0283 | 0.0044 | 0.000 | -0.0243 | 0.0066 | 0.000 |
| USTS | -0.0380 | 0.0034 | 0.000 | -0.0581 | 0.0085 | 0.000 | -0.0250 | 0.0067 | 0.000 |
| Asian | | | | | | | | | |
| ACS | -0.0316 | 0.0016 | 0.000 | -0.0366 | 0.0019 | 0.000 | -0.0038 | 0.0023 | 0.106 |
| USTS | -0.0253 | 0.0013 | 0.000 | -0.0738 | 0.0038 | 0.000 | -0.0040 | 0.0024 | 0.105 |
| Multiracial | | | | | | | | | |
| ACS | -0.0462 | 0.0028 | 0.000 | -0.0180 | 0.0028 | 0.000 | -0.0393 | 0.0043 | 0.000 |
| USTS | -0.0366 | 0.0022 | 0.000 | -0.0378 | 0.0058 | 0.000 | -0.0399 | 0.0042 | 0.000 |
| Black | | | | | | | | | |
| ACS | -0.0263 | 0.0013 | 0.000 | -0.0279 | 0.0012 | 0.000 | -0.0144 | 0.0018 | 0.000 |
| USTS | -0.0212 | 0.0010 | 0.000 | -0.0573 | 0.0026 | 0.000 | -0.0149 | 0.0019 | 0.000 |
| Latine Hispanic | | | | | | | | | |
| ACS | 0.0208 | 0.0012 | 0.000 | -0.0255 | 0.0011 | 0.000 | 0.0150 | 0.0016 | 0.000 |
| USTS | 0.0173 | 0.0010 | 0.000 | -0.0526 | 0.0024 | 0.000 | 0.0160 | 0.0018 | 0.000 |
| other | | | | | | | | | |
| ACS | -0.0147 | 0.0066 | 0.027 | -0.0263 | 0.0070 | 0.000 | 0.0072 | 0.0091 | 0.431 |
| USTS | -0.0120 | 0.0053 | 0.025 | -0.0541 | 0.0136 | 0.000 | 0.0076 | 0.0097 | 0.434 |

**The average marginal effects were estimated from a probit regression on a binary variable indicating inclusion in the band.  Additional controls include education, age and age squared, state of residence, and marital status.**

Table D2 shows the three specifications for the estimation of average marginal effect of inclusion in the broad definition of the Full Time band.  The baseline case is a white man responding to the USTS.  FTB1 is the baseline estimation, FTB2 restricts the sample to include only full-time workers, and FTB3 restricts the sample to all workers in the labor force.  Unlike the estimation for inclusion in the narrow definition of the Full Time band, the results here remain far more consistent across specification.  The exception to this is the Latine/Hispanic population, who are more likely than white people to be in the broad definition of the Full Time band except when only examining the results from those employed full time.  This implies racial stratification within the ranks of the full-time employed.

Table D3: Average Marginal Effects on Membership in Part Time Band

| | PT1 | | | PT2 | | | PT3 | | |
| | AME | Std. error | p-value | AME | Std. error | p-value | AME | Std. error | p-value |
|---|---|---|---|---|---|---|---|---|---|
| acs | -0.0107 | 0.0019 | 0.000 | -0.0509 | 0.0141 | 0.000 | -0.0135 | 0.0032 | 0.000 |
| woman | | | | | | | | | |
|   ACS | 0.0323 | 0.0003 | 0.000 | 0.0800 | 0.0026 | 0.000 | 0.0722 | 0.0006 | 0.000 |
|   USTS | 0.0470 | 0.0016 | 0.000 | 0.0812 | 0.0029 | 0.000 | 0.0947 | 0.0027 | 0.000 |
| nonbinary | 0.0304 | 0.0039 | 0.000 | 0.0921 | 0.0234 | 0.000 | 0.0824 | 0.0070 | 0.000 |
| Indigenous | | | | | | | | | |
|   ACS | -0.0035 | 0.0019 | 0.072 | 0.0673 | 0.0159 | 0.000 | 0.0002 | 0.0036 | 0.965 |
|   USTS | -0.0052 | 0.0029 | 0.073 | 0.0646 | 0.0146 | 0.000 | 0.0002 | 0.0052 | 0.965 |
| Asian | | | | | | | | | |
|   ACS | -0.0009 | 0.0008 | 0.226 | 0.0849 | 0.0059 | 0.000 | 0.0090 | 0.0014 | 0.000 |
|   USTS | -0.0014 | 0.0011 | 0.227 | 0.0805 | 0.0054 | 0.000 | 0.0131 | 0.0020 | 0.000 |
| Multiracial | | | | | | | | | |
|   ACS | 0.0061 | 0.0014 | 0.000 | 0.0294 | 0.0099 | 0.003 | 0.0160 | 0.0025 | 0.000 |
|   USTS | 0.0091 | 0.0021 | 0.000 | 0.0290 | 0.0096 | 0.002 | 0.0231 | 0.0036 | 0.000 |
| Black | | | | | | | | | |
|   ACS | 0.0004 | 0.0006 | 0.500 | 0.0316 | 0.0045 | 0.000 | 0.0013 | 0.0010 | 0.207 |
|   USTS | 0.0006 | 0.0009 | 0.500 | 0.0311 | 0.0044 | 0.000 | 0.0018 | 0.0015 | 0.207 |
| Latine | | | | | | | | | |
| Hispanic | | | | | | | | | |
|   ACS | 0.0025 | 0.0005 | 0.000 | 0.0454 | 0.0041 | 0.000 | -0.0005 | 0.0009 | 0.586 |
|   USTS | 0.0038 | 0.0008 | 0.000 | 0.0442 | 0.0040 | 0.000 | -0.0007 | 0.0013 | 0.586 |
| other | | | | | | | | | |
|   ACS | -0.0020 | 0.0026 | 0.426 | 0.0185 | 0.0224 | 0.410 | -0.0014 | 0.0045 | 0.760 |
|   USTS | -0.0031 | 0.0039 | 0.427 | 0.0183 | 0.0220 | 0.404 | -0.0020 | 0.0066 | 0.760 |

**The average marginal effects were estimated from a probit regression on a binary variable indicating inclusion in the band. Additional controls include education, age and age squared, state of residence, and marital status.**

Table D3 shows the three specifications for the estimation of average marginal effect of inclusion in the Part Time band. The baseline case is a white man responding to the USTS. PT1 is the baseline estimation, PT2 restricts the sample to include only part-time workers, and PT3 restricts the sample to all workers in the labor force. For part-time workers, the probability of being in the band is more likely than for other specification though this is mitigated for ACS respondents, confirming the trend for USTS respondents being more likely to be in the band.

Table D4: Average Marginal Effects on Likelihood of Sex Work

| | SW1 | | | SW2 | | |
|---|---|---|---|---|---|---|
| | AME | Std. error | p value | AME | Std. error | P value |
| disabled=1 | 0.0656 | 0.0075 | 0.000 | 0.0625 | 0.0092 | 0.000 |
| Yes | | | | 0.0625 | 0.0083 | 0.000 |
| part time | 0.0447 | 0.0120 | 0.000 | 0.0336 | 0.0134 | 0.012 |
| self-employed | 0.0835 | 0.0125 | 0.000 | 0.0818 | 0.0154 | 0.000 |
| unemployed | 0.0356 | 0.0137 | 0.009 | 0.0304 | 0.0155 | 0.049 |
| out of labor force | 0.0681 | 0.0125 | 0.000 | 0.0948 | 0.0203 | 0.000 |
| student | 0.0091 | 0.0100 | 0.360 | 0.0189 | 0.0120 | 0.115 |
| retired | 0.0277 | 0.0234 | 0.236 | 0.0616 | 0.0398 | 0.122 |
| woman | 0.0640 | 0.0083 | 0.000 | 0.0636 | 0.0105 | 0.000 |
| nonbinary | 0.0363 | 0.0079 | 0.000 | 0.0344 | 0.0096 | 0.000 |
| Indigenous | 0.1036 | 0.0253 | 0.000 | 0.1286 | 0.0330 | 0.000 |
| Asian | 0.0002 | 0.0175 | 0.989 | -0.0036 | 0.0221 | 0.870 |
| Multiracial | 0.0841 | 0.0125 | 0.000 | 0.0780 | 0.0153 | 0.000 |
| Black | 0.0694 | 0.0157 | 0.000 | 0.0681 | 0.0195 | 0.000 |
| Latine Hispanic | 0.0292 | 0.0120 | 0.015 | 0.0323 | 0.0152 | 0.033 |
| other | 0.1031 | 0.0486 | 0.034 | 0.0563 | 0.0591 | 0.341 |

**The average marginal effects were estimated from a probit regression on a binary variable indicating engagement with sex work. Sw1 is the baseline estimation, and sw2 expands the estimation to consider the influence of workplace discrimination. Additional controls include education, age and age squared, state of residence, and marital status.**

Table D5: Average Marginal Effects on Likelihood of Sex Work

| | SW3 | | | SW4 | | |
|---|---|---|---|---|---|---|
| | AME | Std. error | p value | AME | Std. error | p value |
| disabled=1 | 0.0792 | 0.0175 | 0.000 | 0.0695 | 0.0099 | 0.000 |
| self-employed | 0.0733 | 0.0234 | 0.002 | 0.0582 | 0.0227 | 0.010 |
| unemployed | -0.0105 | 0.0184 | 0.569 | -0.0088 | 0.0184 | 0.631 |
| out of labor force | | | | -0.0082 | 0.0173 | 0.634 |
| student | | | | -0.0364 | 0.0143 | 0.011 |
| retired | | | | 0.0224 | 0.0545 | 0.681 |
| woman | 0.1153 | 0.0233 | 0.000 | 0.0726 | 0.0128 | 0.000 |
| nonbinary | 0.0191 | 0.0189 | 0.313 | 0.0277 | 0.0108 | 0.010 |
| Indigenous | 0.1746 | 0.0632 | 0.006 | 0.1243 | 0.0384 | 0.001 |
| Asian | -0.0003 | 0.0415 | 0.994 | 0.0073 | 0.0274 | 0.789 |
| Multiracial | 0.0972 | 0.0320 | 0.002 | 0.0749 | 0.0166 | 0.000 |
| Black | 0.0991 | 0.0392 | 0.011 | 0.0688 | 0.0228 | 0.003 |
| Latine Hispanic | 0.0026 | 0.0270 | 0.923 | 0.0078 | 0.0157 | 0.621 |
| other | -0.0123 | 0.1132 | 0.913 | 0.0595 | 0.0677 | 0.380 |

**The average marginal effects were estimated from a probit regression on a binary variable indicating engagement with sex work. SW3 limits the sample to only consider members of the narrow definition of the surplus population, and SW4 expands the estimation to consider the broader measure of the surplus population Additional controls include education, age and age squared, state of residence, and marital status.**

Tables D4 and D5 show the average marginal effects for all four specifications of the probit model estimating engagement in sex work. The baseline case for models SW1 and SW2 is a white transgender man who is able-bodied and employed full time. In SW2, the baseline case is also an individual who did not report any experiences of workplace discrimination due to

transgender status.  For SW3 and SW4, which limit their estimation to include only members of the narrow and broad surplus populations, respectively, the baseline labor force status is an individual who is employed part time.  The alternative specifications of SW3 and SW4 provide further evidence of the positive link between self-employment and sex work, and this link is stronger than that for part-time employment.  While nonbinary people in the narrow definition of the surplus population are not more likely than transgender men to engage in sex work, women are consistently shown to be more likely to engage in sex work.  Further, white people are less likely to engage in sex work than Black, Indigenous, and Multiracial people.  While Latine/Hispanic individuals are slightly more likely than white people to engage in sex work, this is not more true when just considering individuals in the surplus population.

Table D6: Average Marginal Effects on Likelihood of Underground Economic Activity

|  | UE1 | | | UE2 | | |
|---|---|---|---|---|---|---|
|  | AME | Std. error | p value | AME | Std. error | p value |
| disabled=1 | 0.0440 | 0.0076 | 0.000 | 0.0429 | 0.0093 | 0.000 |
| Yes |  |  |  | 0.0559 | 0.0085 | 0.000 |
| part time | 0.0343 | 0.0126 | 0.006 | 0.0211 | 0.0141 | 0.134 |
| self-employed | 0.0824 | 0.0129 | 0.000 | 0.0716 | 0.0156 | 0.000 |
| unemployed | 0.0250 | 0.0140 | 0.075 | 0.0169 | 0.0159 | 0.288 |
| out of labor force | 0.0575 | 0.0129 | 0.000 | 0.0871 | 0.0209 | 0.000 |
| student | -0.0031 | 0.0102 | 0.758 | 0.0026 | 0.0123 | 0.831 |
| retired | 0.0245 | 0.0251 | 0.329 | 0.0147 | 0.0388 | 0.705 |
| woman | 0.0529 | 0.0088 | 0.000 | 0.0541 | 0.0110 | 0.000 |
| nonbinary | 0.0090 | 0.0083 | 0.276 | 0.0093 | 0.0099 | 0.348 |
| Indigenous | 0.1290 | 0.0265 | 0.000 | 0.1521 | 0.0342 | 0.000 |
| Asian | -0.0384 | 0.0143 | 0.007 | -0.0537 | 0.0173 | 0.002 |
| Multiracial | 0.0796 | 0.0126 | 0.000 | 0.0702 | 0.0154 | 0.000 |
| Black | 0.0625 | 0.0159 | 0.000 | 0.0470 | 0.0194 | 0.015 |
| Latine Hispanic | 0.0299 | 0.0124 | 0.016 | 0.0334 | 0.0159 | 0.036 |
| other | 0.1748 | 0.0548 | 0.001 | 0.1439 | 0.0697 | 0.039 |

**The average marginal effects were estimated from a probit regression on a binary variable indicating engagement with underground economic activity. UE1 is the baseline estimation, and UE2 expands the estimation to consider the influence of workplace discrimination. Additional controls include education, age and age squared, state of residence, and marital status.**

Table D7: Average Marginal Effects on Likelihood of Underground Economic Activity

|  | UE3 | | | UE4 | | |
|---|---|---|---|---|---|---|
|  | AME | Std. error | p value | AME | Std. error | p value |
| disabled=1 | 0.0175 | 0.0186 | 0.346 | 0.0324 | 0.0101 | 0.001 |
| self-employed | 0.0645 | 0.0239 | 0.007 | 0.0419 | 0.0233 | 0.072 |
| unemployed | -0.0021 | 0.0198 | 0.914 | -0.0055 | 0.0201 | 0.782 |
| out of labor force |  |  |  | 0.0001 | 0.0186 | 0.996 |
| student |  |  |  | -0.0445 | 0.0164 | 0.007 |
| retired |  |  |  | 0.0364 | 0.0569 | 0.523 |
| woman | 0.1069 | 0.0238 | 0.000 | 0.0730 | 0.0139 | 0.000 |
| nonbinary | 0.0196 | 0.0214 | 0.358 | 0.0060 | 0.0116 | 0.606 |
| Indigenous | 0.1762 | 0.0671 | 0.009 | 0.1332 | 0.0385 | 0.001 |
| Asian | -0.0591 | 0.0402 | 0.142 | -0.0289 | 0.0211 | 0.171 |
| Multiracial | 0.0705 | 0.0309 | 0.023 | 0.0629 | 0.0168 | 0.000 |
| Black | 0.0150 | 0.0354 | 0.671 | 0.0440 | 0.0225 | 0.051 |
| Latine Hispanic | 0.0506 | 0.0322 | 0.117 | 0.0162 | 0.0172 | 0.346 |
| other | 0.2443 | 0.1280 | 0.056 | 0.1411 | 0.0773 | 0.068 |

**The average marginal effects were estimated from a probit regression on a binary variable indicating engagement with underground economic activity. UE3 limits the sample to only consider members of the narrow definition of the surplus population, and UE4 expands the estimation to consider the broader measure of the surplus population. Additional controls include education, age and age squared, state of residence, and marital status.**

Tables D6 and D7 show the average marginal effects for all four specifications of the probit model estimating engagement in underground economic activity. The baseline case for models

UE1 and UE2 is a white transgender man who is able-bodied and employed full time. In UE 2, the baseline case is also an individual who did not report any experiences of workplace discrimination due to transgender status.  For UE 3 and UE 4, which limit their estimation to include only members of the narrow and broad surplus populations, respectively, the baseline labor force status is an individual who is employed part time.  As with sex work, the alternative specifications offer further evidence of the gendered nature of underground economic activity. Transgender women are more likely to engage in underground activity than transgender men and nonbinary people are not more or less likely than transgender men to engage in underground economic activity.  Compared to white people, Indigenous, multiracial, and Black people are more likely to engage in underground economic activity, though this marginal effect is weakened when considering the surplus population for Black people.  People who are disabled are more likely to engage in underground economic activity than the able-bodied with the exception of individuals in the narrow definition of the surplus population.  Compared to full-time employees, the self-employed more often report underground economic activity.  This effect is not as strong when compared to the part-time employed, as shown in UE3 and UE4.  In UE4, this manifests as a non-statistically significant AME for self-employment.

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