DISSERTATION

TRANSGENDER STRATIFICATION ECONOMICS

Submitted by

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ABSTRACT

TRANSGENDER STRATIFICATION ECONOMICS

This dissertation provides extensive evidence of economic stratification articulated through cis-heteropatriarchal power and white supremacy. This evidence is presented through three discrete chapters.

Chapter 1: Research on the economic status of transgender status has found that trans* people face pervasive discrimination from both state and non-state actors. This paper builds upon the growing labor-economics of transgender people 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 trans* 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. Trans* 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.

Chapter 2: Trans* people are disproportionately poorer than their cisgender counterparts. Due to the financial cost of maintaining residence in housing and the negative effects of not having adequate housing, the relative impoverishment of transgender individuals may influence their ability to afford housing. The US Dept of Housing and Urban Development defines an individual or household as “cost burdened” when they pay more than 30% of their monthly income to cover housing costs. This study will compare the rates of cost burden across the transgender and cisgen-

der populations and across housing types in the US using the Household Pulse Survey. To estimate housing cost burden, I will construct a cost burden variable for each observation by constructing upper and lower bounds of the range within which cost burden, defined as rent cost divided by income, lies. Transgender men allocate 7.9% more of their total income to rent payments, while female "nones" allocate 9.5% more of their total income, compared to cisgender men. The rent premia paid by transgender individuals compared to cisgender men varies conditional on the racial group considered. Increased rent burdens faced by white individuals are lower than that for Black or Hispanic individuals.

Chapter 3: Using Phases 3.2-3.5 of the Household Pulse Survey, this paper establishes statistically significant differences in likelihood of Unemployment Insurance utilization between cisgender men and transgender men, transgender women, and individuals assigned male at birth but identifying as not a man, a woman, or transgender. Transgender men and women and individuals assigned male at birth but identifying as not a man, a woman, or transgender are also more likely than cisgender men to live in households where another adult receives Unemployment Insurance income, relative to cisgender men. These results may follow from the interaction between patriarchal breadwinner norms and the structure of unemployment insurance, which undercuts the ability for cisgender women to access unemployment insurance and encourages cisgender men to avoid unemployment. Psychological costs and lower average incomes may discourage trans* individuals from engaging with Unemployment Insurance.

ACKNOWLEDGEMENTS

I would like to thank those who believed in me, in spite of my best effort. I also want to thank Flora and Tennis Shoe, who have kept me honest and sane. I want to thank the members of my committee and my advisor, Ramaa Vasudevan, along with participants in the 2023 Freedom and Justice Conference and CSQIEP Brownbag for their feedback.

TABLE OF CONTENTS

Introduction

Empiricism

This work is primarily empirical. Discussing the benefits and risks of empirical social science is outside the scope of this work, too. Perhaps the biggest consequence of this focus on empiricism is the failure to provide a coherent overarching narrative or to answer a question like "What is Transgender Stratification Economics?" Answering a question like that, providing a grand narrative, may be too large a project for a single person writing a dissertation. It is my hope to work towards providing that answer in the coming years, though I hope to be joined by others.

A Note on Terminology

This dissertation relies upon two data sources which understand transgender status in slightly different ways. In an attempt to categorize individuals together based on explicit gender identification, this dissertation will utilize “trans*” as a catch-all term which applies to individuals who do not identify as cisgender. These individuals may include transgender individuals, or non-cisgender individuals who do not identify as transgender. In papers utilizing data from the Household Pulse Survey, specific terminology recognizing the difference between individuals who are not cisgender, such as “transgender/gender nonconforming” is inappropriate due to the gender identification structure of the survey, which allows for individuals to identify as “male”, “female”, “transgender”, or “none of these”; use of “trans*” is an attempt to utilize an imperfect umbrella term in a way which does not ascribe to individuals an identity they do not explicitly align with.

Chapter 1

Empirical Evaluation of Intersectional Effects in the 2015 Transgender Survey

1.1 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.

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 et al., 2022), and healthcare and housing (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 an analytic category located at the intersection of both weakness and economic marginality. 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 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

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

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 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, and multiracial people are more likely to engage in sex work or other underground economic activity.

1.2 Literature Review

1.2.1 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; Everett et al., 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 Borm 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 et al., 2020, 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

[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

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]

1.2.2 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, 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 so-

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 et al. (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.

cial 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 (2016) 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. The work of both Wright and Mohun illustrates tangible methods

[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.

to apply Marxian analysis empirically; Wright's Marxian 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 Figart (2021), those without good work. 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, 2018) 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 exploita-

tion 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 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 et al., 2022; Davis, 2019; Darity, 2005, 2022; Darity et al., 2015; Lewis et al., 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 1.1.

1.3 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 Con-

[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.

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

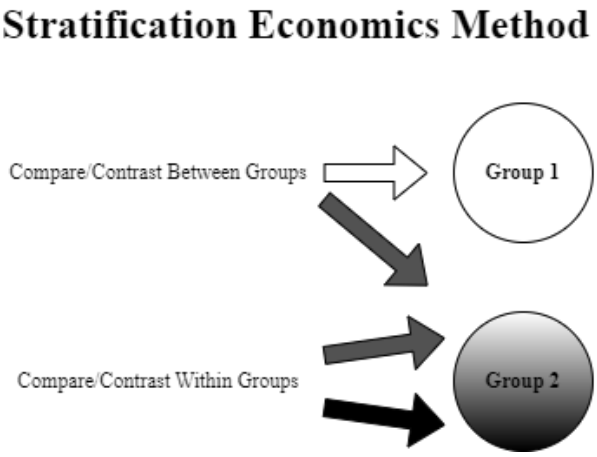

Figure 1.1. Stratification Economics Method

trol 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 (2018) utilized Dutch administrative data.

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 et al., 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 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]

[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 et al., 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

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.

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 et al., 2022) and leads to researchers overestimating the respondents are not cisgender (Carpenter et al., 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 peo-

well to modern classification as a nonbinary identity or as an identity applicable to either a transgender man or transgender woman.

[9]Carpenter et al. (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 et al. (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.

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

1.4 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 3.3 provides summary statistics for both respondents to the USTS and the ACS.

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 (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 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 C for more about the impact of the weighting schemes used.

1.5 Results

1.5.1 Income Distributions

Examining the overall population as shown in Figure 1.2, 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 dis-

Table 1.1. 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	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 be nonbinary.

tribution, 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.

[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.

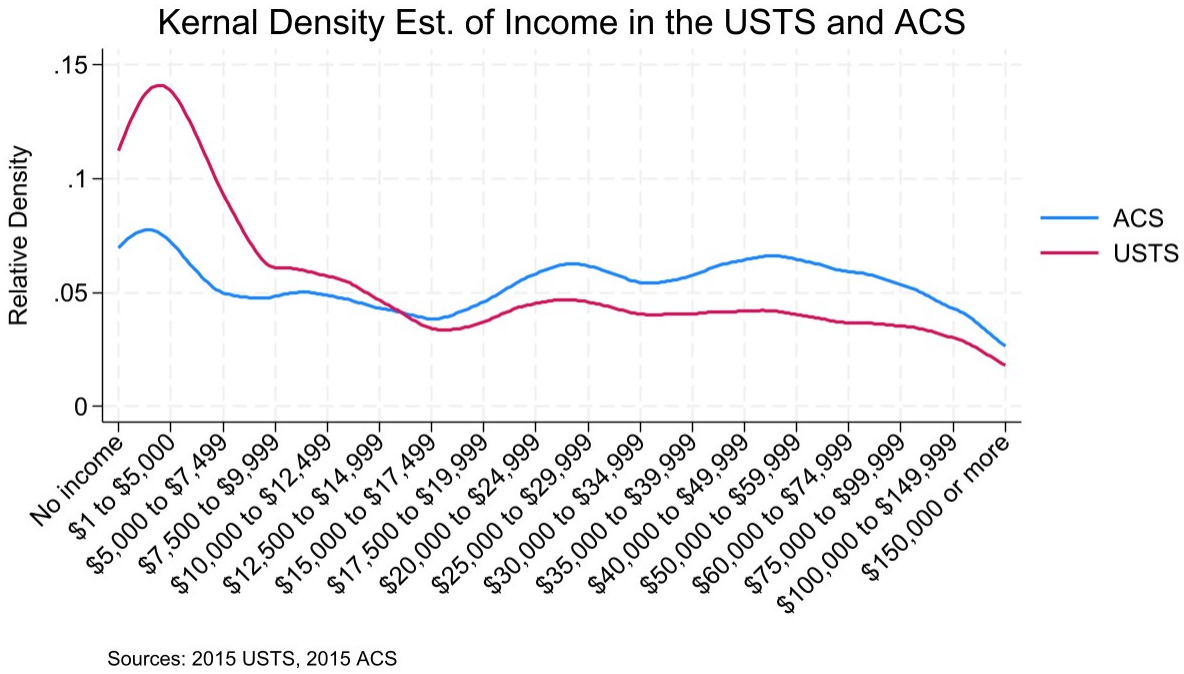

Figure 1.2. Kernal Density Estimation of Income Distributions in the USTS and ACS

By gender, such disparities continue.[11] As shown in Table 2, transgender men and nonbinary people are clustered in the lowest income bins, while men who responded to the ACS 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 presen-

[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 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.

tation more closely aligns with social expectations do see their income converge with that of the remainder of the population with the same gender (Shannon, 2022).[12]

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 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 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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[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 3 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 3 for more information.

1.5.2 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.

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.

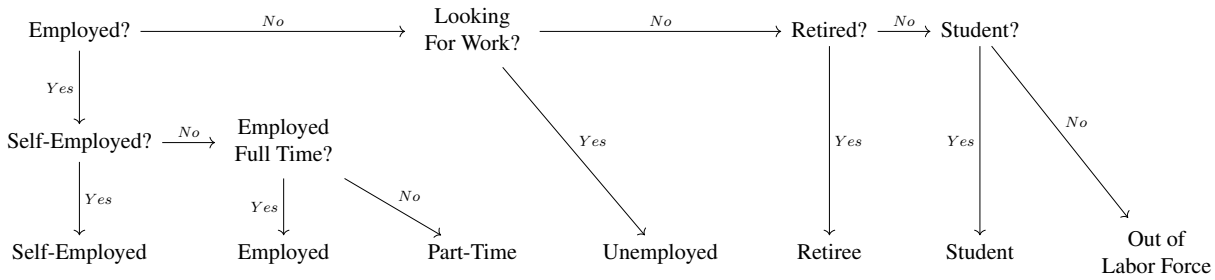


Figure 1.3. This figure illustrates the categorization of individuals from both the USTS and ACS into discrete labor force statuses. It is presented as a decision tree, where the categorization decisions follow from if a question, given in a box, is applicable to an individual. Final labor force statuses are given along the bottom row of the figure.

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]

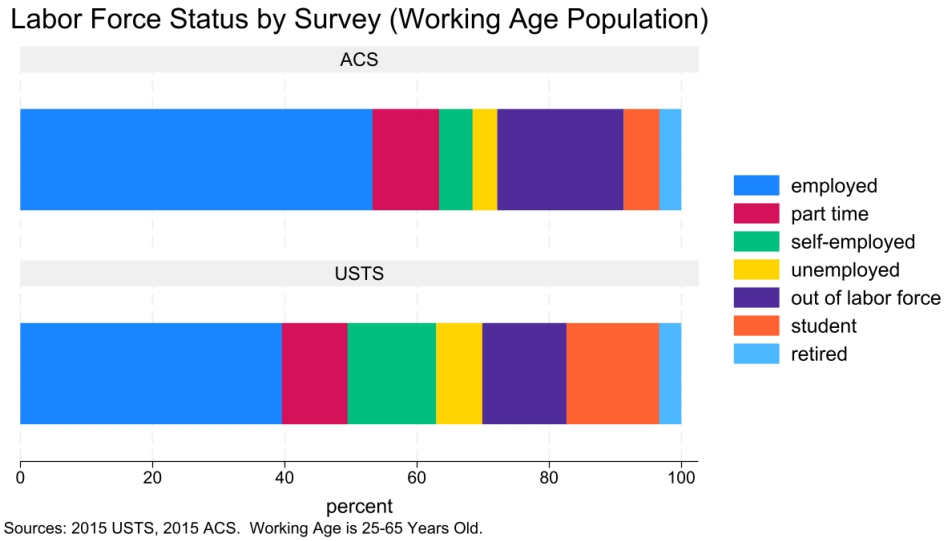


Figure 1.4. Labor Force Status by Survey, Working Age Population
Sources: 2015 USTS, 2015 ACS. Working Age is 25-65 years old.

As shown in Figure 1.4, 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

[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.

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(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 1.4. 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 4). 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.

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%. In-

digenous 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.

1.6 Considering Precarity

1.6.1 Are Transgender People Clustered in Central Labor Force Status and Income Combinations?

Using data available in both the USTS and the ACS, respondents are characterized by their labor force status and income, simultaneously. The joint distribution of both income and labor force status provide an abstracted profile of the capitalist economy. It is difficult to ascribe importance to elements of this joint distribution. A labor force status-income combination may comprise large elements of a population, but this mass of people may be as essential to the functioning of the economy as some minuscule fraction inhabiting some other labor force status-income combination. This distribution can serve as a basis from which to compare the distribution of a sub-population to another sub-population, or to the whole. Analytically, too, similar elements of the joint labor force status-income distribution can be grouped together. Specifically, this analysis will compare the labor force status-income distribution of the trans* respondents of the USTS to that of the whole population, comprised of ACS respondents. Based on analytically constructed categories observed within the ACS joint distribution, this analysis will focus on the influence of gender identity on inclusion within full-time mid-income employment and part-time low-income employment.

Because labor force status and income are defined within the parent datasets as discrete and exclusive bins, the joint distribution of labor force status and income will be presented as a crosstabulation, where each cell corresponds to the intersection between a discrete labor force status and income bin. 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

Table 1.2. ACS Joint Labor Force Status-Income Distribution

	employed	part time	self-employed	unemp.	out of labor force	student	retired
no income	0.00	0.01	0.02	1.04	7.49	2.34	0.00
$1 to $14999	2.86	4.33	0.44	1.37	10.31	4.64	1.16
$15000 to $24999	5.73	2.14	0.52	0.38	3.25	1.10	1.83
$25000 to $49999	14.51	1.87	1.08	0.37	1.56	1.29	3.29
$50000 to $99999	12.69	0.81	0.98	0.16	0.61	0.72	1.58
$100000 or more	5.40	0.32	0.83	0.05	0.29	0.18	0.48

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

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.

Consider the distribution of ACS respondents from Table 1.2. 41.19% of ACS respondents indicated they are employed and work full time. Compared to the other labor force statuses, this value is high. 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. Alongside this, note that, of the part-time employed, the plurality (45.68% of all workers employed part time) report incomes between $1 and $15,000. Of ACS respondents in the labor force but not employed full time, this intersection is most dense.

Table 1.3. USTS Joint Labor Force Status-Income Distribution

	employed	part time	self-employed	unemp.	out of labor force	student	retired
no income	0.61	0.92	0.23	2.45	2.35	6.90	0.04
$1 to $14999	4.56	6.14	3.08	3.66	5.29	17.11	0.56
$15000 to $24999	3.88	1.63	1.38	0.77	0.99	2.72	0.47
$25000 to $49999	8.43	1.33	2.26	0.71	0.78	2.46	1.06
$50000 to $99999	7.10	0.47	1.49	0.30	0.36	0.86	0.94
$100000 or more	3.66	0.16	0.97	0.14	0.11	0.20	0.49

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

There is good reason to focus on the elements of the joint labor force status-income distribution identified above. While there is insufficient information in either survey to estimate a relationship between the individual, their hours worked, and their resulting wage income, it is reasonable to assert that a movement from part-time employment to full-time employment constitutes an increase in hours worked alongside an increase in wage income. Together, the full-time employment earning between $25000 and $100000 and part-time employment earning between $1 and $15,000 represent poles of a continuum of predominant employment-enumeration forms, with intensity of attachment to capitalist employment serving as explanatory of location along the continuum. This contiuum of engagement with capitalist employment is also an acceptable proxy for personal consumptive behavior. Employment, through wage income, is a key determinant of the distribution of commodities in the capitalist economy. Abstracting away from potential disutility associated with full-time employment, inclusion in higher-paid full-time employment is associated with an increase in individual happiness. Under this assumption and for those employed by another, this full-time employment is preferred to part-time employment.

Analytically, the relative density of ACS respondents in these elements of the joint labor force status-income distribution is indicative of the structure of employment in the United States. Contrast the relative densities of ACS respondents with those of USTS respondents, shown in Table

1.3. USTS respondents are less likely to be employed full time, compared to ACS respondents. While 41.19% of ACS respondents are employed full time, only 28.24% are. Further, a far smaller proportion of USTS respondents who are employed full time report incomes between $25000 and $100000; 66.03% of ACS respondents who are employed full time earn incomes in that range, while only 43.59% of USTS respondents do. Of those employed full time, ACS respondents are more likely to report incomes above $100,000 (43.42% versus 38.10%), and less likely to report incomes below $15,000 (6.94% versus 18.31%). These findings indicate that, without consideration of important differences between the two surveyed bodies (such as age, education, gender, martial status, or location), USTS respondents are not engaging with full-time employment in the way the remainder of the population seems to be.

Similar differences persist across part-time employment and self-employment. The joint labor force status-income distribution for USTS respondents is more densely populated in part-time employment overall (with 10.65% of all USTS respondents characterized as employed part-time, compared to just 9.48% of ACS respondents), and the relative density within those employed part time but earning less than $15,000 is higher for USTS respondents relative to ACS respondents (66.29% versus 45.78%, respectively).

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.

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. Still, position within the joint labor force status-income distribution, and especially intensity of engagement with typical capitalist employment, is likely indicative of individual wellbeing. As such, determining the influence of gender on an individual's location within the joint labor force status-income distribution is determining if there are systemic pressures on the quality of life experienced by trans* people due to their gender identity.

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

Figure 1.5. Graphical Definition of Part and Full Time Bands
The Full time band is defined by full time employment and income between $25,000 and $99,999 per year. The part time band is defined by part time employment and income less than $15,000 per year. The full time band is shaded black, while the part time band is shaded gray.

constitutes the majority of part-time work done in the United States economy.[17] Graphically, these bands are illustrated in Figure 7.

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:

$$P\left(Y=1|\ X\right)=\Phi\left(X^{T}\beta\right) \tag{1.1}$$

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

$$\frac{\partial P\left(Y=1|\ X\right)}{\partial x^{k}}=\frac{1}{n}\sum_{i=1}^{n}\Phi\left(X_{i}^{T}\beta|X_{i}^{k}=1\right)-\Phi\left(X_{i}^{T}\beta\right|\ X_{i}^{k}=0\big) \tag{1.2}$$

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, n (Spermann, 2009).

[17]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 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:

$$\frac{\partial P\left(Part\ Time = 1|\ X\right)}{\partial x^{woman}} = \frac{1}{h}\sum_{i=1}^{h} \Phi\left(X_i^T\beta | X_i^{man} = X_i^{USTS} = 1\ \right) - \Phi\left(X_i^T\beta \middle|\ X_i^{woman} = 1, X_i^{USTS} = 1\right) \quad (1.3)$$

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

$$\frac{\partial P\left(Part\ Time = 1|\ X\right)}{\partial x^{woman}} = \frac{1}{j}\sum_{i=1}^{j} \Phi\left(X_i^T\beta | X_i^{man} = X_i^{USTS} = 1\right) - \Phi\left(X_i^T\beta \middle|\ X_i^{woman} = 1, X_i^{USTS} = 0\right) \quad (1.4)$$

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 1.4, an increase in probability of , 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.

Table 1.4. Average Marginal Effects of Identity on Inclusion in Full Time or Part Time Band, by Survey

	Full Time		Part Time	
	ACS	USTS	ACS	USTS
ACS Participant	0.1115***		-0.0107***	
	(0.004)		(0.002)	
Woman	-0.0713***	-0.0548***	0.0323***	0.047***
	(0.001)	(0.001)	(0.000)	(0.002)
Nonbinary		-0.0642***		0.0304***
		(0.006)		(0.004)
Indigenous	-0.0424***	-0.0299***	-0.0035*	-0.0052*
	(0.004)	(0.003)	(0.002)	(0.003)
Asian	-0.043***	-0.0303***	-0.0009	-0.0014
	(0.002)	(0.001)	(0.001)	(0.001)
Multiracial	-0.0371***	-0.0263***	0.0061***	0.0091***
	(0.003)	(0.002)	(0.001)	(0.002)
Black	-0.0177***	-0.0127***	0.0004	0.0006
	(0.001)	(0.001)	(0.001)	(0.001)
Latine	0.0014	0.001	0.0025***	0.0038***
	(0.001)	(0.001)	(0.001)	(0.001)
Other	-0.0150**	-0.0108**	-0.0020	-0.0031
	(0.006)	(0.004)	(0.003)	(0.004)

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients are marginal effects for a identity factor, averaged across a survey. Standard errors are in parentheses. The average marginal effects were estimated from a probit regression on a binary variable indicating inclusion in a band. Additional controls include education, age and age squared, state of residence, and marital status.

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. This result is captured in the ACS Respondent coefficient, which is the average change in probability associated with responding to the ACS instead of the USTS. An ACS Respondent is 11.15% more likely and 1.07% less likely to be found in the full time and part time bands, respectively. Further, no other gender or racial group were more likely to be present in those bands with an exception: Latine 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.

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 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 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 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 1.4.

1.6.2 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 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.

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 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 lumpen-proletarian (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.

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 1.5. 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

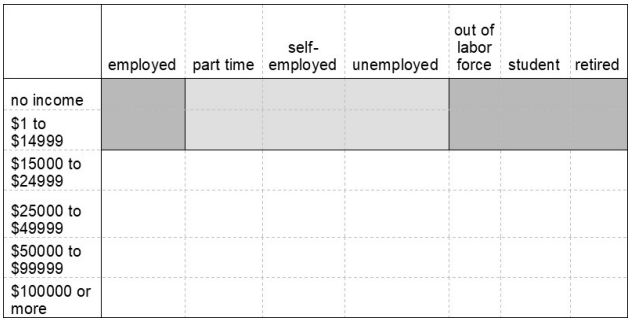


Figure 1.6. Graphical Definition of Surplus Population Bands
The narrow surplus population band are individuals earning less than $15,000 who are employed part time, self-employed, or unemployed. The broad surplus population band are individuals earning less than $15,000 with any labor force status. The narrow surplus population band is shaded in a light gray while the broad surplus population band includes the narrow surplus population band along with elements of the joint labor force status-income distribution shaded with a darker gray.

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 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.

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

Table 1.5. Average Marginal Effects for Surplus Population Estimation by Survey

	Narrow Defn		Broad Defn	
	ACS	USTS	ACS	USTS
ACS Respondent	-0.0463***		-0.0574***	
	(0.0021)		0.0043	
Woman	0.0316***	0.0575***	0.1767***	0.1925***
	0.0004	0.0012	0.0007	0.0008
Nonbinary		0.0427***		0.2046***
		0.0062		0.0077
Indigenous	0.0156***	0.0287***	0.0813***	0.0855***
	0.0027	0.0048	0.0047	0.0047
Asian	0.0018*	0.0033*	0.1048	0.1089
	0.001	0.0018	0.0018	0.0018
Multiracial	0.0140***	0.0257***	0.0540***	0.0577***
	0.0018	0.0033	0.003	0.0031
Black	0.0142***	0.026***	0.038***	0.041***
	0.0008	0.0014	0.0013	0.0013
Latine	0.0028***	0.0052***	-0.0052***	-0.0058***
	0.0007	0.0012	0.0012	0.0013
Other	0.0034	0.0063	0.0403***	0.0434***
	0.0035	0.0065	0.0068	0.0072

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients are marginal effects for a identity factor, averaged across a survey. Standard errors are in parentheses. The average marginal effects were estimated from a probit regression on a binary variable indicating inclusion in a band. Additional controls include education, age and age squared, state of residence, and marital status.

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 et al., 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).

1.7 How do Transgender People Survive Precarity?

1.7.1 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 1.7, 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

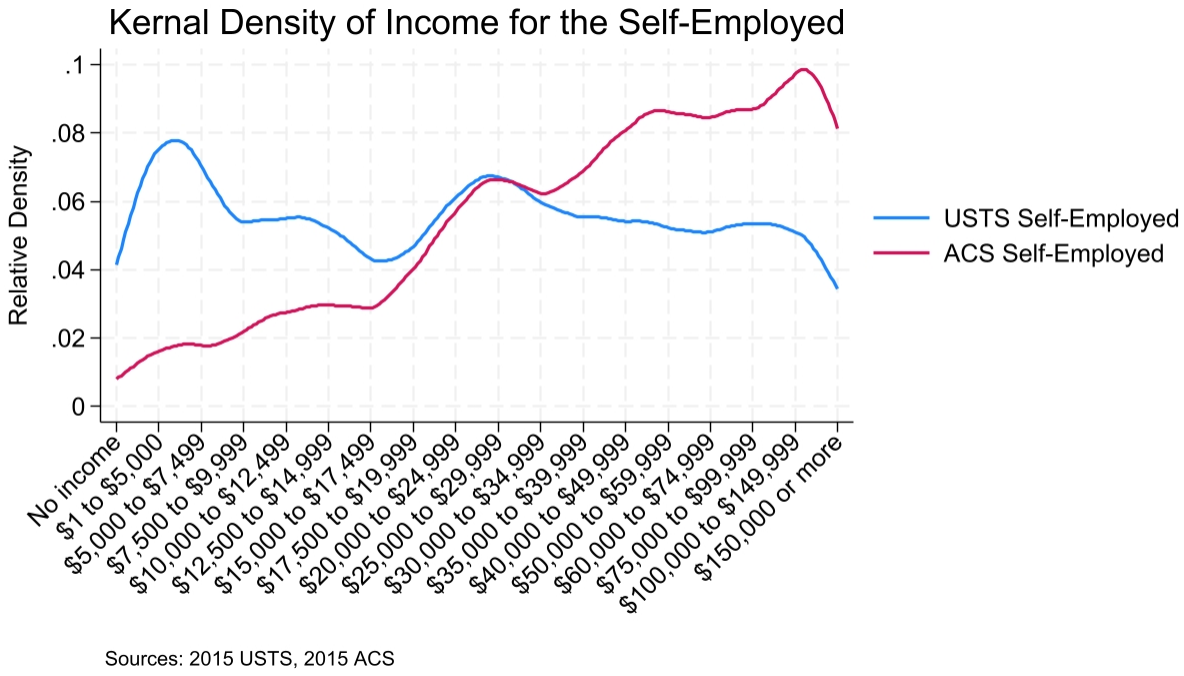


Figure 1.7. Estimated Distributions of Income for the Self-Employed, by Survey

the transgender population. Why can so many transgender individuals report self-employment but also such low incomes?

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 et al., 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 et al., 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).

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 1.6, USTS respondents are more likely than those responding to the ACS to be found in this category; the average ACS

Table 1.6. Average Marginal Effects from Probit Estimation of An Individual Engaging in Low Income Self-Employment Across Both Surveys

	ACS	USTS
ACS Respondent	-0.0121***	
	(0.000)	
Disabled	-0.0024***	-0.0161***
	0.0001	0.0012
Woman	-0.0013***	-0.0064***
	0.0001	0.0007
Nonbinary		0.0135***
		0.0037
Indigenous	-0.0002	-0.0012
	0.0006	0.0036
Asian	0.0011***	0.0063***
	0.0003	0.0016
Multiracial	0.0002	0.0008
	0.0005	0.0031
Black	-0.002***	-0.0121***
	0.000	0.001
Latine	0.0006***	0.0032***
	0.000	0.001
Other	0.0003***	0.0017***
	0.001	0.006

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients are marginal effects for a identity factor, averaged across a survey. Standard errors are in parentheses. The average marginal effects were estimated from a probit regression on a binary variable indicating inclusion in a band. Additional controls include education, age and age squared, state of residence, and marital status.

respondent was 1.21% less likely to engage in low-income self-employment, compared to a USTS respondent. Such is the case for Asian and Latine 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 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.

1.7.2 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 et al., 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 (O'Brien, 2021; 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.

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.

Table 1.7. Income Distributions by Engagement in Sex Work and Any Underground Economics, Including in the Past Year

	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	80.2	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	71.4	16.95	11.65
student	85.56	2.64	11.8	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.

From Table 1.7, 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 1.8. 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
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.

Similar results are found when examining the labor force status of individuals who engage in underground economic activity, shown in Table 1.8. 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.

These results, shown in Table 1.9, 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

Table 1.9. Average Marginal Effects from Probit Estimation of An Individual Engaging in Sex Work or Illegal Labor

	Sex Work	Underground Economic Activity		Sex Work	Underground Economic Activity
Disabled	0.0625***	0.0429***	Woman	0.0636***	0.0541***
	(0.0092)	(0.0093)		(0.0105)	(0.011)
Workplace Discrimination	0.0625***	0.0559***	Nonbinary	0.0344***	0.0093
	(0.0083)	(0.0085)		(0.0096)	(0.0099)
Part-Time	0.0336**	0.0211	Indigenous	0.1286***	0.1521***
	(0.0134)	(0.0141)		(0.033)	(0.0342)
Self-Employed	0.0818***	0.0716***	Asian	-0.0036	-0.0537***
	(0.0154)	(0.0156)		(0.0221)	(0.0173)
Unemployed	0.0304**	0.0169	Multiracial	0.078***	0.0702***
	(0.0155)	(0.0159)		(0.0153)	(0.0154)
out of labor force	0.0948***	0.0871***	Black	0.0681***	0.047**
	(0.0203)	(0.0209)		(0.0195)	(0.0194)
student	0.0189	0.0026	Latine	0.0323**	0.0334**
	(0.012)	(0.0123)		(0.0152)	(0.0159)
retired	0.0616	0.0147	Other	0.0563	0.1439**
	(0.0398)	(0.0388)		(0.0591)	(0.0697)

*** $p < .01$, ** $p < .05$, * $p < .1$

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.

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).

1.8 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.

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 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 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. 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 (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 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.

1.9 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, 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 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, or multiracial.

This paper contributes to the literature by:

1. 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.

    (a) 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 people.

(b) 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.

2. 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.

3. 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.

Bibliography

Badgett, M. V. L. (1995, July). The Wage Effects of Sexual Orientation Discrimination. *ILR Review 48*(4), 726–739. Publisher: SAGE Publications Inc.

Becasen, J. S., C. L. Denard, M. M. Mullins, D. H. Higa, and T. A. Sipe (2019, January). Estimating the Prevalence of HIV and Sexual Behaviors Among the US Transgender Population: A Systematic Review and Meta-Analysis, 2006–2017. *American Journal of Public Health 109*(1), e1–e8.

Bhattacharya, T. (2017). Social reproduction theory: Remapping class, recentering oppression. Publisher: Pluto Press.

Bohrer, A. (2018, July). Intersectionality and Marxism: A Critical Historiography. *Historical Materialism 26*(2), 46–74.

Bradshaw, J. (2021, June). Exploring Stratification Economics' Neglect of Intersectionality.

Brown, R. L. and G. Ciciurkaite (2023, May). Precarious Employment during the COVID-19 Pandemic, Disability-Related Discrimination, and Mental Health. *Work and Occupations 50*(2), 167–187. Publisher: SAGE Publications Inc.

Brynin, M., M. S. Karim, and W. Zwysen (2019, October). The Value of Self-Employment to Ethnic Minorities. *Work, Employment and Society 33*(5), 846–864. Publisher: SAGE Publications Ltd.

Burnazoglu, M., S. Kesting, F. Obeng-Odoom, and A. Schneebaum (2022, October). Introduction: Advancing Stratification Economics — methodological perspectives and policy applications. *Review of Evolutionary Political Economy 3*(3), 457–461.

Butz, A. M. and T. S. Gaynor (2022). Intersectionality and Social Welfare: Avoidance and Unequal Treatment among Transgender Women of Color. *Public Administration Review 82*(3), 433–445. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/puar.13468.

Campbell, T., S. Mann, D. H. Nguyen, and Y. V. D. M. Rodgers (2023, May). Hormone Therapy, Suicidal Risk, and Transgender Youth in the United States. *AEA Papers and Proceedings 113*, 551–555.

Campbell, T. and Y. V. D. M. Rodgers (2023, May). Conversion therapy, suicidality, and running away: An analysis of transgender youth in the U.S. *Journal of Health Economics 89*, 102750.

Carpenter, C. S., S. T. Eppink, and G. Gonzales (2020, May). Transgender Status, Gender Identity, and Socioeconomic Outcomes in the United States. *ILR Review 73*(3), 573–599.

Carpenter, C. S., M. J. Lee, and L. Nettuno (2022). Economic outcomes for transgender people and other gender minorities in the United States: First estimates from a nationally representative sample. *Southern Economic Journal 89*(2), 280–304. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1002/soej.12594.

Centers for Disease Control and Prevention (2023, August). CDC - BRFSS - 2022 BRFSS Modules Used by Category.

Chelwa, G., D. Hamilton, and J. Stewart (2022). Stratification Economics: Core Constructs and Policy Implications. *Journal of Economic Literature 60*(2), 377–99. Type: 10.1257/jel.20211687.

Clark, K. (2015, January). Ethnic minority self-employment. *IZA World of Labor*.

Cobbina, J. and S. Oselin (2011). It's not only for the money: an analysis of adolescent versus adult entry into street prostitution. *Sociological Inquiery 81*(3), 310–332.

Combahee River Collective (1977). The Combahee River Collective Statement.

Conen, W. and J. Schippers (2019). Self-employment: between freedom and insecurity. *Self-Employment as Precarious Work a European Perspective; Edward Elgar Publishing: Cheltenham, UK*.

Conron, K. J., K. K. O'Neill, and L. A. Vasquez (2022). Educational Experiences of Transgender People.

Cusick, L., H. Kinnell, B. Brooks-Gordon, and R. Campbell (2009, November). Wild guesses and conflated meanings? Estimating the size of the sex worker population in Britain. *Critical Social Policy 29*(4), 703–719. Publisher: SAGE Publications Ltd.

Darity, W. (2005, June). Stratification economics: The role of intergroup inequality. *Journal of Economics and Finance 29*, 144–153.

Darity, W. (2022, June). Position and Possessions: Stratification Economics and Intergroup Inequality †. *60*, 400–426.

Darity, W. A., D. Hamilton, and J. B. Stewart (2015, January). A Tour de Force in Understanding Intergroup Inequality: An Introduction to Stratification Economics. *The Review of Black Political Economy 42*(1-2), 1–6.

Davis, J. B. (2019, September). Stratification Economics as an Economics of Exclusion. *Journal of Economics, Race, and Policy 2*(3), 163–172.

D'Ippoliti, C. and F. Botti (2017, July). Sex Work among Trans People: Evidence from Southern Italy. *Feminist Economics 23*(3), 77–109. Publisher: Routledge.

Du Bois, W. (1998). *Black Reconstruction in America 1860-1880* (First Free Press Edition ed.). New York: The Free Press.

Easterbrook-Smith, G. (2023, July). OnlyFans as gig-economy work: a nexus of precarity and stigma. *Porn Studies 10*(3), 252–267.

Everett, B. G., A. Limburg, P. Homan, and M. M. Philbin (2022). Structural Heteropatriarchy and Birth Outcomes in the United States. *Demography 59*(1), 89–110. Publisher: [Population Association of America, Duke University Press].

Ferguson, S. (2016). Intersectionality and social-reproduction feminisms: Toward an integrative ontology. *Historical Materialism 24*(2), 38–60. ISBN: 1465-4466 Publisher: Brill.

Figart, D. M. (2021). Good Work. *Journal of Economic Issues 55*(2), 271–292. ISSN: 0021-3624.

Fisher, M. and P. A. Lewin (2018, December). Push and Pull Factors and Hispanic Self-Employment in the USA. *Small Business Economics 51*(4), 1055–1070.

Folbre, N. (2020, October). Manifold exploitations: toward an intersectional political economy. *Review of Social Economy 78*(4), 451–472.

Folbre, N. (2021, February). *The Rise and Decline of Patriarchal Systems: An Intersectional Political Economy*. Verso Books. Google-Books-ID: 1dUXEAAAQBAJ.

Fredriksen Goldsen, K. I., M. Romanelli, C. P. Hoy-Ellis, and H. Jung (2022, March). Health, economic and social disparities among transgender women, transgender men and transgender nonbinary adults: Results from a population-based study. *Preventive Medicine 156*, 106988.

Fuentes, K. (2023, May). Sex Worker Collectives Within the Whorearchy: Intersectional Inquiry with Sex Workers in Los Angeles, CA. *Affilia 38*(2), 224–243. Publisher: SAGE Publications Inc.

Geijtenbeek, L. and E. Plug (2018, October). Is there a penalty for registered women? Is there a premium for registered men? Evidence from a sample of transsexual workers. *European Economic Review 109*, 334–347.

Goodman, L. (2003, January). Latent Class Analysis: The Empirical Study of Latent Types, Latent Variables, and Latent Structures. In J. Hagenaars and A. Mccutcheon (Eds.), *Applied Latent Class Analysis*, Volume 28, pp. 3–18. Cambridge, UK: Cambridge University Press.

Hassan, A. (2023, June). States Passed a Record Number of Transgender Laws. Here's What They Say. *The New York Times*.

Hipple, S. F. (2015). People who are not in the labor force: why aren't they working? : Beyond the Numbers: U.S. Bureau of Labor Statistics.

James, S., J. Herman, S. Rankin, M. Keisling, L. Mottet, and M. Anafi (2016). The Report of the 2015 U.S. Transgender Survey.

James, S. E., J. Herman, M. Keisling, L. Mottet, and M. Anafi (2017, August). Methodology Report: Questionnaire Design, Data Collection Methods, Data Cleaning Procedures, Weights, and Other Technical Information.

James, S. E., J. Herman, M. Keisling, L. Mottet, and M. Anafi (2019). 2015 U.S. Transgender Survey (USTS).

Jetha, A., K. A. Martin Ginis, S. Ibrahim, and M. A. M. Gignac (2020, December). The working disadvantaged: the role of age, job tenure and disability in precarious work. *BMC Public Health 20*(1), 1900.

Jones, A. (2022, October). "I Can't Really Work Any 'Normal' Job:" Disability, Sexual Ableism, and Sex Work. *Disability Studies Quarterly 42*(2). Number: 2.

Kalleberg, A. L. (2018). Job Insecurity and Well-Being in Rich Democracies. *The Economic and social review 49*(3), 241–258.

Kautonen, T., S. Down, F. Welter, P. Vainio, J. Palmroos, K. Althoff, and S. Kolb (2010, January). "Involuntary self-employment" as a public policy issue: a cross-country European review. *International Journal of Entrepreneurial Behavior & Research 16*(2), 112–129. Publisher: Emerald Group Publishing Limited.

Konstant, T. L., J. Rangasami, M. J. Stacey, M. L. Stewart, and C. Nogoduka (2015, February). Estimating the Number of Sex Workers in South Africa: Rapid Population Size Estimation. *AIDS and Behavior 19*(1), 3–15.

Lewis, T., N. Asare, and B. Fields (2021). Stratification Economics.

Logie, C. H., L. James, W. Tharao, and M. R. Loutfy (2011, November). HIV, Gender, Race, Sexual Orientation, and Sex Work: A Qualitative Study of Intersectional Stigma Experienced by HIV-Positive Women in Ontario, Canada. *PLOS Medicine 8*(11), e1001124. Publisher: Public Library of Science.

Logie, C. H., Y. Wang, A. Lacombe-Duncan, N. Jones, U. Ahmed, K. Levermore, A. Neil, T. Ellis, N. Bryan, A. Marshall, and P. A. Newman (2017). Factors associated with sex work involvement among transgender women in Jamaica: a cross-sectional study. *Journal of the International AIDS Society 20*(1), 21422. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.7448/IAS.20.01/21422.

Mann, S. (2021, December). Transgender employment and gender marker laws. *Labour Economics 73*, 102072.

Margolis, D. N. (2014, September). By Choice and by Necessity: Entrepreneurship and Self-Employment in the Developing World. *The European Journal of Development Research 26*(4), 419–436.

Marx, K. (2013). *Capital Volume 1*, Volume 1. Hertfordshire: Wordsworth Editions Limited.

McIntyre, M. (2011). Race, Surplus Population and the Marxist Theory of Imperialism. *Antipode 43*(5), 1489–1515. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1467-8330.2011.00898.x.

Meerwijk, E. L. and J. M. Sevelius (2017, February). Transgender Population Size in the United States: a Meta-Regression of Population-Based Probability Samples. *American Journal of Public Health 107*(2), e1–e8.

Mohun, S. (2016). *Class Structure and the US Personal Income Distribution, 1918–2012*, Volume 67. Issue: 2 Pages: 334-363 Publication Title: Metroeconomica Type: https://doi.org/10.1111/meca.12107.

Neilson, D. and T. Stubbs (2011, October). Relative surplus population and uneven development in the neoliberal era: Theory and empirical application. *Capital & Class 35*(3), 435–453. Publisher: SAGE Publications Ltd.

Nikolaou, D. (2022, January). Same-Sex Marriage Laws, LGBT Hate Crimes, and Employment Discrimination Charges. *Southern Economic Journal 88*(3), 869–905.

O'Brien, M. (2021). Trans Work: Employment Trajectories, Labour Discipline and Gender Freedom. In J. J. Gleeson and E. O'Rourke (Eds.), *Transgender Marxism*. Pluto Press.

Orchiston, A. (2016, November). Precarious or Protected? Evaluating Work Quality in the Legal Sex Industry. *Sociological Research Online 21*(4), 173–187. Publisher: SAGE Publications Ltd.

Parker, C., S. Scott, and A. Geddes (2019). Snowball sampling. *SAGE research methods foundations*. Publisher: Sage.

Patrick, C., H. Stephens, and A. Weinstein (2016, March). Where are all the self-employed women? Push and pull factors influencing female labor market decisions. *Small Business Economics 46*(3), 365–390. Company: Springer Distributor: Springer Institution: Springer Label: Springer Number: 3 Publisher: Springer US.

Resnick, S. and R. Wolff (2003). The diversity of class analyses: A critique of Erik Olin Wright and beyond. *Critical Sociology 29*(1), 7–27. ISBN: 0896-9205 Publisher: Sage Publications Sage UK: London, England.

Sanders, T. and K. Hardy (2013, September). Sex work: the ultimate precarious labour?: Teela Sanders and Kate Hardy assess sex work within wider processes of 'flexibilisation'. *Criminal Justice Matters 93*(1), 16–17.

Schilt, K. and M. Wiswall (2008). Before and after: Gender transitions, human capital, and workplace experiences. *The BE Journal of Economic Analysis & Policy 8*(1). ISBN: 1935-1682 Publisher: De Gruyter.

Sears, B., C. Mallory, A. R. Flores, and K. J. Conron (2021). LGBT PEOPLE'S EXPERIENCES OF WORKPLACE DISCRIMINATION AND HARASSMENT.

Shannon, M. (2022, August). The labour market outcomes of transgender individuals. *Labour Economics 77*, 102006.

Smith-Johnson, M. (2022, October). Transgender Adults Have Higher Rates Of Disability Than Their Cisgender Counterparts: Study examines rates of disability among transgender adults and cisgender adults. *Health Affairs 41*(10), 1470–1476.

Spermann, A. (2009). The probit model. *University of Freiburg 10*.

Standing, G. (2014, November). The Precariat. *Contexts 13*(4), 10–12. Publisher: SAGE Publications.

Stenersen, M. R., K. Thomas, and S. McKee (2022, October). Police Harassment and Violence against Transgender & Gender Diverse Sex Workers in the United States. *Journal of Homosexuality*, 1–13.

Tyner, J. A. (2013, October). Population geography I: Surplus populations. *Progress in Human Geography 37*(5), 701–711. Publisher: SAGE Publications Ltd.

United States Census Bureau (2016). 2015 American Community Survey 1-Year Public Use Microdata Sample.

Van, B. H., M. Dhoop, A. A. Van, and S. Baert (2020, January). What does someone's gender identity signal to employers? *International Journal of Manpower 41*(6), 753–777. Publisher: Emerald Publishing Limited.

Van Borm, H. and S. Baert (2018, January). What drives hiring discrimination against transgenders? *International Journal of Manpower 39*(4), 581–599. Publisher: Emerald Publishing Limited.

Vandepitte, J., R. Lyerla, G. Dallabetta, F. Crabbé, M. Alary, and A. Buvé (2006, June). Estimates of the number of female sex workers in different regions of the world. *Sexually Transmitted Infections 82*(Suppl 3), iii18–iii25.

Vanwesenbeeck, I. (2013). Prostitution Push and Pull: Male and Female Perspectives. *The Journal of Sex Research 50*(1), 11–16. Publisher: Taylor & Francis, Ltd.

Vermunt, J. and J. Magidson (2004, January). *"Latent Class Analysis" in The Sage encyclopedia of social science research methods*. Pages: 553.

Winter, S., M. Diamond, J. Green, D. Karasic, T. Reed, S. Whittle, and K. Wylie (2016, July). Transgender people: health at the margins of society. *The Lancet 388*(10042), 390–400.

Wright, E. O. (1984, December). A General Framework for the Analysis of Class Structure. *Politics & Society 13*(4), 383–423. Publisher: SAGE Publications Inc.

Wright, E. O. (2016). Is the Precariat a Class? *Global Labour Journal 7*(2), 123–135.

Wright, E. O., C. Costello, D. Hachen, and J. Sprague (1982). The American Class Structure. *American Sociological Review 47*(6), 709–726. Publisher: [American Sociological Association, Sage Publications, Inc.].

Chapter 2

Housing Insecurity Amongst Trans* Individuals: Racially Heterogeneous Gender Effects in the Household Pulse Survey

2.1 Introduction

While there has been a growing body of literature within the economics discipline concerning itself with the economic wellbeing of trans* individuals, the relationships that trans* people have with the housing market remains understudied. What research which has been done indicates trans* people face significant social and economic barriers which limit their ability to acquire and retain housing. Qualitative analyses reliant upon interviews of trans* individuals highlight the uncertainty trans* people face in the housing market, where stigma—from landlords, neighbors, and roommates—pushed trans* people from their existing housing or limited their employment opportunities, which limited their ability to pay for housing (Glick et al., 2019, 2020). Further, quantitative analyses of surveys like the 2015 US Transgender Survey point to pervasive housing insecurity amongst trans people, with 23% reporting experiences of housing discrimination within the past year and 12% reporting homelessness in the past year due to trans* status (James et al., 2016).

Within the economics literature, establishing evidence of discrimination remains contentious. This paper is not equipped to provide evidence of discrimination as typically done by other works within the economics of discrimination literature, as this paper is able to study the results of rental housing allocation but unable to examine the process by which that allocation is determined. With regards to the capacity of trans* people to pay for housing, however, this paper finds results which are consistent with a situation wherein trans* people face discrimination.

This paper aims to provide the first, to the author's knowledge, quantitative analysis of the relationship trans* people in the United States have with the housing market. It will do so by utilizing the data collected by the nationally representative Household Pulse Survey (HPS) to show

that, compared to cisgender individuals, trans* people pay a higher proportion of their incomes to cover the cost of rental housing and are more likely to be delinquent in rent or mortgage payments.

2.2 Literature Review: The Economic Status of Trans* People

While long understudied, in recent years a vibrant literature regarding the health and economic status of trans* people has flourished within the economics discipline. This literature has been previously stymied by a dearth of data, though the proliferation of both public and private sector development and distribution of surveys has resulted in numerous highly-utilized data sources which have provided further quantitative evidence in support of anecdotal and qualitative reports by trans* individuals and their peers as to the relative economic and social marginality of the trans* population. These data have suffered from an inability to generalize the results to the whole trans* population of the United States, however, which limited their use to advocate for policy change.

Starting in 2014, the Centers for Disease Control and Prevention offered an optional sexual orientation and gender identity (SOGI) module that states could utilize when administering the Behavioral Risk Factor Surveillance System (BRFSS). As a public health survey, BRFSS collected valuable information regarding the health practices and outcomes of the population of the United States, and the inclusion of a SOGI module allowed for researchers to differentiate between heterosexual and non-heterosexual respondents and, crucially, between cisgender and transgender respondents. Since 2014, BRFSS has collected SOGI data for respondents in states and territories which chose to include the SOGI module in their survey. Because inclusion of the SOGI module in BRFSS was determined by states or territories, however, SOGI information has only been collected for those states and territories which have opted to include the module. While the number of states and territories including the module has grown from 19 in 2014 to 31 in 2022, results found using BRFSS data should not be construed as nationally representative (Centers for Disease Control and Prevention, 2023).

The National Center for Transgender Equality collects and publishes the United States Transgender Survey, with the survey collected in 2009, 2015, and 2022. These surveys are not nation-

ally representative but offer greater depth of insight into issues relevant for trans* individuals in the United States; the 2015 US Transgender Survey collected more than 27,000 responses from trans* individuals as to their experiences which are most common within the trans* population, like the value of gender-affirming healthcare and instances of anti-trans* discrimination (James et al., 2016). As of this writing, only the preliminary results of the 2022 US Transgender Survey have been published, though this newer iteration built upon the questions asked in previous surveys while also surveying respondents about more topical subjects, like recent anti-trans* legal backlash and COVID-19, and gathered a total of 92,329 responses (US Trans Survey, 2024; James et al., 2022). The US Transgender Surveys provide massive collections of responses to surveys tailored to capture the experiences common within the trans* community but uncommon without, and this is their greatest strength. The collection of the data using snowball sampling likely skews results (Parker et al., 2019) so as to emphasize the greatest harms the trans* population is subjected. This method also complicates the comparability of the data with the remainder of the US population, though the creators of the US Transgender Surveys designed survey questions for compatibility and ease-of-comparison with surveys like the American Community Survey (James et al., 2016).

The TransPop survey was a national probability survey which attempted to construct a more representative study of trans* adults living in the United States (Feldman et al., 2021). The survey collected samples of both cisgender and transgender people living in the United States between summer of 2016 and winter 2018. Unlike the US Transgender Survey, TransPop collected information from both cisgender and trans* respondents to construct results which lent themselves best to comparing the relative status of trans* individuals to the cisgender population (Krueger et al., 2020).

With the COVID-19 pandemic, the United States began collecting the Household Pulse Survey (HPS), which began collecting SOGI information in Summer 2021 and has continued since. The HPS is a nationally representative survey and the SOGI information is collected without regard to state boundaries, leading to its use by economists interested in the economic status of trans* people (Carpenter et al., 2022). Compared with the US Transgender Survey, which does not use a proba-

bilistic sampling technique, and the TransPop survey, which relies upon nongovernment collection, the HPS delivers results which are considered by economists to be of a higher quality. Further, the HPS, in contrast with the data collected in BRFSS, features a more robust system for determining the trans* status of individuals as well as collecting nonbinary and gender nonconforming gender identity information separately, allowing for more granular and robust findings (Carpenter et al., 2022).

While each survey differs in the information collected and the methods of that collection, the emerging literature on the economic status of trans* people has developed consensus findings: trans* people earn lower incomes than cisgender people (Carone et al., 2021; Carpenter et al., 2020, 2022; Shannon, 2022).

2.3 Literature Review: Discrimination in Housing

Economists conceive of a relatively narrow framework wherein discrimination within markets may be contextualized, and much of the disagreement focuses on the economic rationality of discrimination. Becker theorized discriminatory behavior within markets as arising from utility maximizing behavior from actors with "taste for discrimination" and argued that such behavior will be punished in competitive markets by non-discriminatory actors (Becker, 2010). Even within this framework, such an argument fails to hold water outside of competitive markets. In a market with heterogeneous bargaining power, as is in the case of housing, prejudice by individuals with greater bargaining power would not be eliminated and would harm the subjects of prejudice (Ihlanfeldt and Mayock, 2009).

Alongside discriminatory tastes, information asymmetry is also a mode through which discrimination may arise. Statistical discrimination may occur when economic agents lack sufficient information for rational decision-making and subsequently rely upon heuristics or other logical shortcuts, like race.

Experimental evidence suggests that racial and ethnic discrimination in housing provision is widespread and harms members of marginalized populations. Ondrich et al. (1999), using an early

audit experiment, found evidence of discrimination against Black or Latine applicants in rental housing markets. Later, Hanson and Hawley (2011), using a correspondence experiment, confirm this earlier finding though show evidence that discrimination is lowered against Black applicants who indicate high social class. Discrimination worsens against applicants in large apartment buildings and in neighborhoods near "tipping points" where racially dominant people compose between 80 and 95% of the population. In a meta-analysis of rental housing correspondence tests performed between 2006 and 2017 in OECD countries, Flage (2018) finds consistent evidence of discrimination against ethnic minorities, with private landlords engaging in statistical discrimination more often than real-estate agents.

In a similar vein, gender discrimination in housing markets remains understudied but find discriminatory behavior which is heterogeneous across racial or ethnic categories. Flage (2018) finds evidence that ethnic discrimination within the rental housing market is gendered. Women experience less discrimination than men. Ethnic minority women see a reduction in discrimination compared to ethnic minority men which is larger than the difference between ethnic majority men and women. When applying for mortgages, lenders reinforce dominant racial-gender norms by discriminating against white couples with working women and Black or Latine couples where women did not work (Robinson, 2002).

Research on housing discrimination against LGBTQ+ individuals, though a small field, has found consistent results. In a correspondence study of the Swedish rental housing market, a same-sex couple received fewer responses than a heterosexual one, indicating discrimination against same-sex couples (Ahmed and Hammarstedt, 2009). Similar results are found with correspondence studies in the United States (Friedman et al., 2013; Schwegman, 2019). All three studies provide only limited information as to the scale of discrimination against LGBTQ+ individuals by studying discrimination effecting same-sex couples; such findings are not directly applicable to transgender or nonbinary/gender nonconforming individuals. Statistical analysis using an audit study found evidence that trans* individuals, otherwise identical to cisgender individuals, were less likely to be offered the opportunity to rent housing (Levy et al., 2017). Trans* individuals report discrimination

in the housing market, as reported in ethnographic research (Glick et al., 2019, 2020), and their reported rates of discrimination are higher than their cisgender LGB peers (Kattari et al., 2016).

An emerging subject of study within economics is that of intersectionality, which highlights the heterogeneity in the influence of identity which arises in the interaction of differing types of identities Banks (2021). Intersectional methods are closely tied with the emerging "economics of trans* individuals" literature. Carpenter, Lee, and Nettuno (2022) find evidence of intersectional influences of race and gender on labor market outcomes and impoverishment. Further, Campbell and Rodgers (2023) test for but find no evidence of racial heterogeneity with regards to the harms caused by conversion therapy. The importance of intersectional effects is also recognized, if implicitly, within the housing discrimination literature. Flage (2018) notes ethnic heterogeneity in gender discrimination, as mentioned above; though all women report lessened discrimination relative to men, ethnic minority women see an even larger decrease in discrimination relative to ethnic minority men than ethnic majority women do compared to ethnic majority men.

The intersection of identity may also lead to unexpected or emergent results. Robinson (2002) notes that mortgage lenders may lend less often to white families with a woman who works compared to a woman staying home to raise children, but also punish Black or Latine women who care for children compared to Black and Latine women who work. This result emerges from the racialization of motherhood, Robinson argues, where the motherhood of white people is encouraged while, for Black and Latine women, that motherhood is discouraged; the race of mothers determines whether a patriarchal role, like child-rearing, is socially beneficial or socially harmful. In this form, too, the intersection of trans* identities with race may influence the importance or salience of particular gender identities across racial groups.

The methods through which discrimination may be operationalized in housing markets varies. Landlords and real-estate agents prefer renting or selling to applicants who will pay rent on time and minimize damage to housing, Rosen, Garboden, and Cossyleon (2021) argue, and landlords with large portfolios may rely upon algorithms while smaller-scale landlords rely upon stereotyping to screen out minority applicants. Minoritized individuals may be primarily shown housing

in neighborhoods with individuals with similar marginalized identities by real-estate agents and landlords Christensen and Timmins (2022). Importantly, however, Ihlanfeldt and Mayock (2009) find evidence that discrimination may appear as markups (markdowns) offered to minorities (majorities) in home sales. This finding is found again in the home ownership market (Bayer et al., 2017) and in the rental market (Early et al., 2019). Though this literature finds price discrimination in the context of racial discrimination, the mechanism implicitly identified, wherein imbalances of power between seller and purchaser lead to accumulation of economic rent in the hands of the more powerful of the two can easily operate in other bargaining frameworks with power asymmetry and heterogeneous goods.

2.4 Discrimination?

Figure 2.1 illustrates the pathways through which discrimination may lead to increased rent burdens among trans* people. These pathways can occur within either labor or rental housing markets and are subject to "self-fulfilling prophecy" effects. A self-fulfilling prophecy effect is a positive-feedback pathway through which information asymmetries may induce greater and greater statistical discrimination effects due to past discrimination. The two pathways and the influence of self-fulfilling prophecy effects on rent burden will be explained in further detail below Figure 2.1.

The first of these pathways occurs through the labor market. Discrimination against trans* people may limit their housing affordability through the labor market by lowering their earnings which then increases the relative cost of housing as a proportion of their income.

The second of these pathway occurs through the housing market. Within the housing market, discrimination by sellers of housing or by landlords may, increase the relative cost of housing. Landlords or house sellers with Beckerian "tastes for discrimination" may demand compensation in the form of higher rent payments or higher home price (and thus a larger mortgage payment) when engaging with trans* individuals. This would increase the relative cost of housing for those trans* individuals.

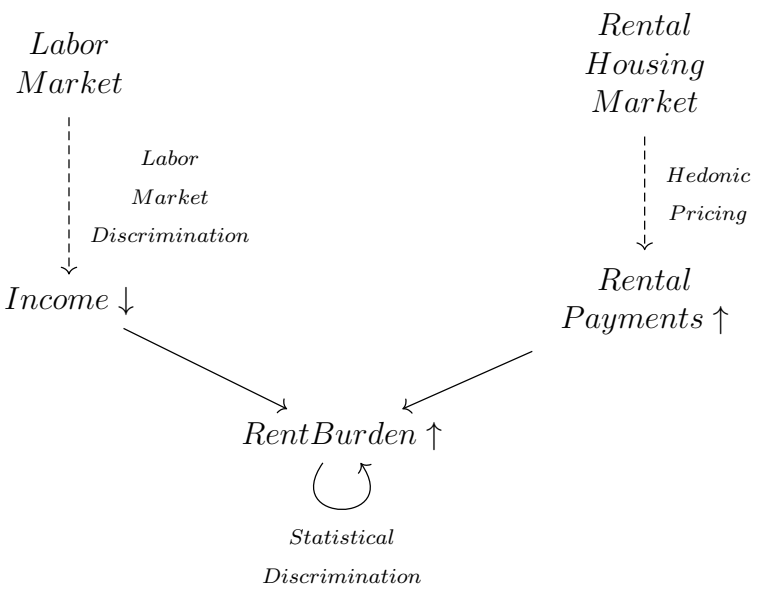


Figure 2.1. Diagram 1 illustrates the two routes through which discrimination against trans* people could manifest as increased rent burden. Solid black lines indicate causal direction. Dashed black lines show which mechanisms are tied to particular pathways through which discrimination can influence rent burden. An up arrow, ↑, indicates a value is rising while a down arrow, ↓, indicates the opposite.

The self-fulfilling prophecy effects occur, like these two pathways, in both the labor and rental housing markets, but an examination of the self-fulfilling prophecy dynamics of the labor market is outside the scope of this paper. Within the rental housing market, landlords may also face imperfect information and thus engage in statistical discrimination, refusing to rent to trans* individuals. This statistical discrimination may follow from incorrect assessments of a trans* individual's ability to pay for the housing. If so, such discrimination would leave trans* individuals with decreased bargaining power and thus they would be more willing to purchase or rent housing at a higher price than desired. Such a situation, with systematically weakened bargaining positions for trans* individuals, would amount to the extraction of economic rents from trans* individuals to landlords while increasing the relative cost of housing for trans* individuals, as the landlords are able to systematically bargain from a superior position.

Through either pathway, trans* individuals may face higher rent burden due to their gender identity. If this increased rental burden leads to increased eviction rates for trans* people, such

information may serve to drive further statistical discrimination. As noted earlier, because such statistical discrimination may lead to systematically lowered bargaining power for trans* individuals in housing markets, a vicious cycle may occur, driving increased rent burdens for trans* individuals and likely increasing the rate of homelessness amongst the trans* population. Trans* people already report ever experiencing homelessness at twice the rate of the cisgender population (Wilson et al., 2020).

2.5 Data

The following results will utilize data collected in the HPS during Waves 3.6 through 3.9. Following Carpenter et al. (2022), estimations will utilize person-level weights.

The HPS utilizes a two-step gender verification process which is argued to produce more accurate estimations of gender distribution in a population. After supplying their sex assigned at birth—which may be either male or female—survey respondents are asked to provide their gender, where they may identify as either male, female, transgender, or none of these. If an individual replies with a gender which is not the same as that the respondent's birth sex, they are asked to either confirm this difference or correct their responses.

This paper will utilize six gender categories which arise from this gender verification process. Cisgender men and women are men and women who were assigned male and female genders at birth and whose gender continues to be male and female, respectively. Transgender women are individuals who were assigned male at birth but who currently identify as a woman or as a transgender person. Transgender men are individuals assigned female at birth who identify currently as men or as transgender. Male "nones" are individuals who were assigned male at birth but who do not identify as men, women, or transgender. Similarly, female "nones" were assigned female at birth but do not identify as men, women, or transgender.

These six gender categories differ from those constructed within HPS, which categorizes respondents as either men, women, transgender, or none of these. Even with the two-step gender verification process described above, 4463 respondents responded as identifying as either a woman

but assigned a male gender at birth or a man assigned a female gender at birth but not identifying as transgender. While small compared to the 1,800,997 total unweighted responses, this subset of responses could, if coded as transgender, compose nearly 40% of the transgender population and could sway results if they differ systematically from the respondents who answered affirmatively as to their transgender status.

This paper will also exclude individuals who would be identified as trans* due to sex-at-birth imputation. In the HPS, 16,646 respondents had their sex at birth imputed. Individuals with their birth sex imputed were those who had not provided their birth sex when answering the survey but who, in the construction of survey weights, had a birth-sex assigned to their observation by the Census Bureau (US Census Bureau, 2022).

These individuals with birth sex imputed were more likely to be Latine and report lower levels of educational attainment and a higher median age. The income distribution for these individuals was, compared to their peers without imputed sex at birth, far more extreme, with higher proportions reporting household incomes below $25,000 per year and, for transgender men and male and female "nones", higher proportions reporting household incomes above $200,000 per year. Roughly half of those 4463 individuals who identified as either a woman but assigned a male gender at birth or a man assigned a female gender at birth but not as transgender were individuals whose gender assigned at birth was imputed by the Census Bureau.

As an analysis of race, it is important to clarify the approach this paper takes with regards to racial categories utilized compared to their deployment by the survey. This paper utilizes four racial categories, which are mutually exclusive: white, Black, Asian, and Latine. An individual, in the HPS, reports their race and Hispanic status separately, and an individual reporting Hispanic status is categorized as Latine, regardless of their identified race. Individuals who do not report a Hispanic ethnicity are classified by the race they identify as, excepting those who were classified as having "some other race". These individuals, who may identify as American Indian or Alaska Native, Native Hawaiian, Chamorro, Samoan, or Other Pacific Islander, are excluded from the

subsequent analysis due to the racial heterogeneity induced by their aggregation in a single racial residual category.

As shown in Table 2.1, the cisgender population is older and whiter than transgender men and women as well as male and female "nones". Furthermore, cisgender men and women report far lower rates of disability than do other genders. The cisgender population is more likely to finish high school and earn graduate degrees, too. Median incomes for cisgender men and women are in higher bins than most other genders, as male "nones" have median incomes in the same bin as cisgender women. Average rent payments do not differ much between genders. While the overwhelming majority of weighed responses come from cisgender men and women, male and female "nones" easily outnumber the transgender population, with 8529 total "nones" compared to 3513 total transgender men and women.

2.6 Housing Affordability

In the analysis that follows, housing affordability will be measured using the rent burden of the household. Rent burden is the ratio of household rental payments divided by household income:

$$rent\ burden = \frac{rental\ payments}{income} \tag{2.1}$$

In the HPS, the amount an individual spent on rent was asked in Phases 3.5 to 3.8. While rental payments are listed directly in the HPS, income is reported residing within a range with an upper and lower bound. Using 2.1, the lower bound for rent burden is calculated using the upper bound of income, $income_{upper}$:

$$rent\ burden_{lower} = \frac{rent}{income_{upper}} \tag{2.2}$$

and the upper bound for rent burden is calculated using the lower bound, $income_{lower}$:

$$rent\ burden_{upper} = \frac{rent}{income_{lower}} \tag{2.3}$$

Table 2.1. Respondent Demographics

	Cisgender man	Cisgender woman	Trans-gender woman	Trans-gender man	Male "none"	Female "none"
Median age	48	49	32	27	40	35
disabled	30.9%	33.7%	54.2%	59.4%	52.2%	51.3%
White	62.9%	61.6%	56.2%	59.8%	45.8%	51.0%
Black	10.0%	12.4%	4.9%	3.8%	9.4%	15.3%
Asian	5.9%	4.6%	3.1%	3.2%	4.7%	4.6%
Hispanic	17.5%	16.8%	30.8%	26.6%	29.5%	21.2%
Some HS or Less	7.3%	7.1%	17.9%	21.8%	25.0%	12.5%
Highschool	32.8%	28.5%	31.0%	17.0%	25.2%	30.9%
Some College or Associates	28.7%	30.8%	33.0%	37.4%	27.2%	31.4%
Bachelor's Degree	17.3%	18.4%	10.4%	17.1%	11.8%	15.6%
Grad Degree	13.9%	15.2%	7.7%	6.7%	10.9%	9.7%
Median Income	$75,000 - $99,999	$50,000 - $74,999	$35,000 - $49,999	$35,000 - $49,999	$50,000 - $74,999	$35,000 - $49,999
Mean Rent	$1,473.55	$1,368.05	$1,309.99	$1,408.62	$1,456.49	$1,334.48
N	237,358	309,409	896	1,460	2,024	3,617
Weighted N per Week	133,741,791	140,134,989	812,359	1,162,006	1,776,537	2,226,130

Table calculated using observations in Phases 3.6-3.9 of the Household Pulse Survey and using person-level weights. Racial categories do not add up to 100% due to the exclusion of a residual racial category. A person is classified as disabled if they report great difficulty or an inability to see, hear, remember or concentrate, undertake self-care, understand or be understood by others, or walk or climb stairs.

By definition:

$$rent\ burden_{lower} < rent\ burden < rent\ burden_{upper} \tag{2.4}$$

Substituting 2.4 into 2.1:

$$\frac{rent}{income_{upper}} < \frac{rent}{income} < \frac{rent}{income_{lower}} \tag{2.5}$$

With an interval regression, the rent burden for households can be estimated using both the upper and lower bounds of the rent burden. This regression for individual i takes the form:

$$rent\ burden_i = \beta_0 + \beta_1 Gender + \beta_2 Race + \beta_3 X_i + \alpha_1 State + \alpha_2 Week \tag{2.6}$$

Where β_1 and β_2 are vectors of coefficients modelling the impact of an individual's gender and race, respectively, on rent burden, relative to the base case: a cisgender man who is white. β_3 is a vector of coefficients for the impact of the matrix of controls (age, age squared, education, marital status, labor force status) on rent burden, and α_1 and α_2 are vectors of coefficients that correspond to state and time fixed effects.

In addition to estimating coefficients which model the influence of gender and race on rent burden relative to an individual's total income, the relative change in rental housing payments as a proportion of income can provide further context as to the importance of identity on rent burden. As identity aspects like race and gender are discrete changes relative to a reference group, the relative change will utilize the difference in rent burden for an individual with the identity aspect of interest relative to an individual from the control group. The relative change of rent burden for an identity aspect ia, evaluated at the mean values for other control variables, $\beta_3\bar{X}$, takes the form:

$$\frac{rent\ burden_{ia=1} - rent\ burden_{ia=0}}{\beta_3\bar{X}} = \frac{\beta_{ia}}{\beta_3\bar{X}} \tag{2.7}$$

Where β_{ia} is the coefficient estimating the difference in rent burden associated with an individual having identity aspect ia compared to the reference, where that identity aspect is not found. This proportional change of rent burden with regards to an identity aspect should be interpreted as the percent change in rent burden an individual with a particular identity aspect would face compared to someone without that identity aspect.

Rent burden is a relationship between rental payments and income, and changes in rent burden found in subsequent estimations may be the result of differences in either rental payment or income due to trans* identity. Higher (lower) rent burden facing a population may be driven by higher (lower) yearly rent payments or by lower (higher) income. Coincidence of higher (lower) rent payments with higher (lower) yearly income would have an ambiguous influence on rent burden . To decompose the influence of trans* identity onto rent burden into both income and rent payment effects, both will be estimated using separate regressions. The regression for the income for individual i takes the form:

$$income_i = \beta_{0y} + \beta_{1y}Gender + \beta_{2y}Race + \beta_{3y}X_i + \alpha_{1y}State + \alpha_{2y}Week \tag{2.8}$$

The regression for the rent payment for individual i takes the form:

$$RentPayment_i = \beta_{0rp} + \beta_{1rp}Gender + \beta_{2rp}Race + \beta_{3rp}X_i + \alpha_{1rp}State + \alpha_{2rp}Week \tag{2.9}$$

The coefficients estimated in both equations correspond to the influence of each vector, defined before, on income and rent payment, respectively. β_{1y} and β_{1rp}, then, are vectors corresponding to differences in income and rental payments, respectively, arising due to an individual's gender, relative to the base case of a cisgender man.

To estimate heterogeneous racial effects on the influence of trans* status on an individual's rent burden, the above interval regression can be estimated within specific racial groups. The following regression for individual i of race j takes the form:

$$rent\ burden_{ij} = \beta_{0j} + \beta_{1j}Gender + \beta_{3j}X_{ij} + \alpha_{1j}State + \alpha_{2j}Week \tag{2.10}$$

Each coefficient will vary based on the sample of the population which the regression is limited to. Differences in the values of these coefficients across racial groups will indicate heterogeneity between racial groups as to the influence of identity factors on rent burden, with differences in the influence of trans* status of particular interest.

2.7 Results

Table 2.2 presents the estimated difference coefficients for gender and race effects relative to cisgender men and white people on rent burden, income, and rent payments. Each estimation controlled for education, marital status, employment, age, age squared, disability status, housing type, number of kids, and type of work, and each utilized state and week fixed effects.

Under the "Rent Burden" heading are estimated difference coefficients between a given identity category and its reference group. These coefficients were estimated with an interval regression of the form of equation (2.6).

The second column shows estimated percent change in rent burden associated with the difference between an identity category and the reference group, and take the form of equation (2.7). These values are calculated using the interval regression coefficients estimated in column one, and each is calculated at the mean values of controlled variables (education, marital status, employment, age, age squared, disability status, housing type, number of kids, and type of work). While coefficients for rent burden correspond to differences in rent burden associated with different identities, they do not provide intuition as to how significant a change in rent burden may be as a proportion of an individual's income; these coefficients provide that intuition, showing the change in rent burden as a proportional change as opposed to a change in level.

The third column shows coefficients of income differences between an identity category and the reference group. This equation takes the form of equation (2.8). These coefficients were estimated using an interval regression.

Table 2.2. Estimations of Rent Burden and its Proportional Change, and Income and Yearly Rent Payments

	Rent Burden	Rent Burden $\%\Delta$	Income	Yearly Rent
Black	0.048***	0.138***	-17696.78***	-1111.54***
	(0.000)	(0.016)	(0.00)	(263.78)
Asian	0.049***	0.140***	-3360.11	217.36
	(0.015)	(0.041)	(2149.85)	(404.74)
Latine	0.052***	0.149***	-17466.37***	-577.49*
	(0.010)	(0.026)	(2131.53)	(296.12)
Cisgender Woman	0.046***	0.134***	-13626.18***	-470.76***
	(0.000)	(0.014)	(0.00)	(135.27)
Transgender Woman	0.078*	0.217**	-6125.90	-408.08
	(0.043)	(0.109)	(6424.64)	(1475.68)
Transgender Man	0.079***	0.220***	-16217.00***	-482.93
	(0.018)	(0.045)	(4124.58)	(463.46)
Male "None"	-0.016	-0.051	10706.17	-144.28
	(0.027)	(0.088)	(11139.54)	(743.71)
Female "None"	0.095***	0.259***	-18793.47***	-202.19
	(0.013)	(0.031)	(2981.99)	(441.55)

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients in each row correspond with the difference for the outcome of interest, given by the column header, between the identity category and that of the reference group. Standard errors are in parentheses. The reference group for gender variables is cisgender men, while the reference group for race is a white person. Further, each regression clusters standard errors at the state level, excludes individuals who are recorded as trans* due to imputation of gender at birth, and considers only observations during weeks 49 through 57. Each estimation controls for education, marital status, employment, age, age squared, disability status, housing type, number of kids, and type of work, and features state and week fixed effects.

The fourth column shows estimates of differences in yearly rent between an identity group and the reference group, estimated using a linear regression of the form of equation (2.9).

First considering the influence of gender, these results find statistically significant evidence that cisgender women, transgender men, and female "nones" face higher rent burdens than cisgender men. The estimated difference in rent burden between transgender women and cisgender men is positive and significant at a $p < 0.08$ level, implying strong evidence that transgender women face higher rent burdens than cisgender men (though the statistical significance of this result may be debated). Male "nones" report rent burdens which do not differ from those of cisgender men in any meaningful way, statistical or otherwise. These results are further reinforced by the estimated percent change in rent burden, which show that transgender women and men face a rent burden which is more than 20% higher than cisgender men, while female "nones" face a rent burden which

is nearly 26% larger. These increases in rent burden are far larger than that for cisgender women, whose rent burden is 13% higher than cisgender men.

While the differences in rent burden between cisgender men and cisgender women, transgender men, and female "nones" is statistically significant, there is insufficient evidence to completely decompose these results into their component parts—differences in rent payments and income—for each population. Strong and statistically significant evidence suggests that cisgender women report both lower incomes and lower rent payments than cisgender men. These results, alongside the earlier evidence suggesting that both cisgender women report higher rent burdens than cisgender men indicate that, despite lower average yearly rent payments, cisgender women face higher rent burdens due to incomes which are far lower than cisgender men. Transgender men and female "nones" face higher rent burden and lower income than cisgender men, but evidence does not suggest they have systematic differences in rent payments compared to cisgender men, with the average cisgender woman earning $13626 per year but also paying $470 less in rent per year. This result comports with the aforementioned higher rent burdens faced by both populations. Neither transgender women nor male "nones" show any systematic differences in income or yearly rental payments compared to cisgender men. Existing research on differences in incomes between cisgender and trans* individuals find that cisgender men have higher average incomes than transgender women and men as well as nonbinary individuals.

Compared to white individuals, Black, Asian, and Hispanic/Latine report higher rent burden. For Black individuals, this result is driven by incomes which are far lower than that of whites, as Black people also have rents which are far lower than that for whites. Meanwhile, Latine individuals have lower incomes than whites. Latine individuals may pay lower rent payments than whites, though this result is not statistically significant except at a $p < 0.06$ level. Differences between white and Asian incomes and rent payments are not statistically significant. Every racial group has a similar estimated percent change of rent burden, where each racial category pays a roughly 14% larger share of their income on rental payments.

2.8 Decomposing by Race

As discussed earlier, evidence suggests that gender influences on rental market outcomes may be heterogeneous with regards to race. Evidence presented below suggests that the influence of gender—and especially transgender status—on rent burden may be heterogeneous.

Table 2.3. Estimations of Rent Burden, Conditional on Race

	White	Black	Asian	Latine
Cisgender Woman	0.031***	0.082***	0.007	0.077***
	(0.007)	(0.000)	(0.010)	(0.000)
Transgender Woman	0.049**	0.257	0.051	-0.061
	(0.024)	(0.182)	(0.101)	(0.071)
Transgender Man	0.051***	0.012	0.370	0.188**
	(0.017)	(0.053)	(0.259)	(0.074)
Male "None"	-0.007	0.041	-0.037	-0.064
	(0.025)	(0.029)	(0.051)	(0.062)
Female "None"	0.083***	0.054*	0.031	0.151***
	(0.019)	(0.033)	(0.037)	(0.054)

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients in a particular row are the estimates of rent burden associated with the difference between an individual of a specific gender and that of the reference group, cisgender men, within a specific racial group, given by the column. Standard errors are in parentheses. The rent burden is estimated using an interval regression which controls for education, marital status, employment, age, age squared, disability status, housing type, number of kids, and type of work. Further, the interval regression includes state and week fixed effects, clusters standard errors at the state level, excludes individuals who are recorded as trans* due to imputation of gender at birth, and considers only observations during weeks 49 through 57.

Table 2.3 presents the estimated differences in rent burden between a cisgender man and a person with a different gender but contingent on the race of the individual. As such, differences in the influence of gender across racial groups is indicative of the heterogeneous influence of gender across racial groups. By further estimating gender effects, conditional on race, on income and rental payments, the sources of the gendered differences in rent burden can be decomposed. As in the estimations presented in Table 2.2, each model presented controls for ducation, marital status, employment, age, age squared, disability status, housing type, number of kids, and type of work, and utilized state and week fixed effects.

Evidence suggests that white, Black, and Latine cisgender women face higher rent burdens than cisgender men of their same race. This finding comports with the earlier estimation that found cisgender women, regardless of race, face higher rent burdens than cisgender men. This increased rent burden is driven by incomes which are far lower than that of cisgender men of their race, as white and Black cisgender women have both lower incomes and smaller yearly rents and there is insufficient evidence to suggest that cisgender Latine women pay rents which differ systematically from those of cisgender Latine men. There is insufficient evidence to conclude that Asian cisgender women face higher rent burden than Asian cisgender men.

White transgender women face higher rent burdens than white cisgender men. This result follows from the far lower incomes white transgender women report, where average income differences between white cisgender men and white transgender women amount to about $11645 per year, as shown in Table 7. Further, as there is insufficient evidence to suggest that white transgender women pay higher yearly rent payments, as shown in Table 8. Black transgender women have higher yearly rent payments than cisgender Black men, with the average difference amounting to $5019.02, as shown in Table 8. As shown in Table 7, there is not statistically significant evidence that Black transgender women have incomes which differ from Black cisgender men. Still, the estimated difference in rent burden between Black transgender women and Black cisgender men, while positive, is only statistically significant at a $p < 0.16$.

White and Latine transgender men face larger rent burdens than cisgender men of their same race. While the estimated income difference between white cisgender and transgender men is large and negative, implying income differences drive the differences in rent burden between white cisgender and transgender men, the decomposition process for the differences between cisgender and transgender Latine men is inconclusive. Neither estimated differences in rent or income between transgender and cisgender Latine men are statistically significant. Additionally, the difference between the incomes of Asian cisgender and transgender men is large, negative, and statistically significant, though there are not statistically significant estimates of the differences in rent. This lower relative income would imply a higher rent burden for transgender Asian men compared to

cisgender Asian men; there is weak evidence of Asian transgender men facing higher rent burdens than their cisgender Asian peers, but this result is only statistically significant at a $p < 0.16$.

As shown when not conditioning on race, white, and Latine female "nones" face rent burdens larger than that of cisgender men of their same race. Further, Black female "nones" are found to face an increased rent burden relative cisgender men of their race at a significance level of $p < 0.1$. For each race, there is strong evidence that female "nones" have lower incomes than cisgender men of their race, though there are no clear results as to whether or not cisgender men pay more or less in rental payments relative to female "nones" of their race. This result mirrors that found when estimating without conditioning on race, where female "nones" face increased rent burden and lower income but no clear differences in rental payments.

Male "nones" remain the exception amongst the population who are not cisgender men; there is no evidence of mean differences in rent burden between cisgender men and male "nones" of any race. These results are corroborated by the decomposition of differences in income and rent payments, to an extent. There is robust evidence that Asian male "nones" pay higher yearly rent amounts than cisgender Asian men, but also weaker evidence suggests that these same Asian male "nones" may earn higher incomes. Further, there is weak evidence that Black male "nones" may face higher rent burden, but this finding is undermined by similarly statistically significant evidence these same Black male "nones" pay less in yearly rent. There is a further lack of evidence as to the relationship between the incomes of Black cisgender men and male "nones".

The findings discussed above are reinforced by the percent change of rent burden shown in Table 2.4. Cisgender women face a rent burden penalty compared to cisgender men of their race for individuals who are white, Black, or Latine. This penalty is smallest for white cisgender women, who pay a 10% larger proportion of their income on rental payments, while Black women face the largest estimated penalty, paying more than a 22% larger share.

White transgender women face a much larger penalty in rent burden payments compared to cisgender women, paying a 15% larger proportion of their income on rental payments compared to the 10% for cisgender women. While statistically insignificant when considering just differences

Table 2.4. Estimations of the Proportional Change in Rent Burden due to Gender Identity relative to Cisgender Men of Their Race

	White	Black	Asian	Latine
Cisgender Woman	0.099***	0.227***	0.019	0.183***
	(0.022)	(0.040)	(0.028)	(0.028)
Transgender Woman	0.155**	0.586*	0.136	-0.174
	(0.070)	(0.314)	(0.253)	(0.219)
Transgender Man	0.159***	0.035	0.722**	0.398***
	(0.051)	(0.159)	(0.361)	(0.127)
Male "None"	-0.024	0.119	-0.112	-0.181
	(0.088)	(0.080)	(0.164)	(0.195)
Female "None"	0.248***	0.154*	0.085	0.331***
	(0.048)	(0.088)	(0.098)	(0.101)

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients in a particular row are the percent change of rent burden associated with the difference between an individual of a specific gender and that of the reference group, cisgender men, within a specific racial group, given by the column. Standard errors are in parentheses. These estimates are calculated using an interval regression which controls for education, marital status, employment, age, age squared, disability status, housing type, number of kids, and type of work. The estimates are calculated at the mean values at controlled variables. Further, the interval regression includes state and week fixed effects, clusters standard errors at the state level, excludes individuals who are recorded as trans* due to imputation of gender at birth, and considers only observations during weeks 49 through 57.

in rent burden, the estimated proportional change of rent burden estimated here for Black transgender women indicates further evidence of an increased cost burden of housing compared to Black cisgender men.

Transgender men are shown here to face rent burdens which are far larger, proportional to the rent burdens of cisgender men of their race, than their earlier rent burden measures indicated. Here, point estimates of relative change in rent burden relative to cisgender men of their race vary from roughly 16% for white transgender men to up to 72% for Asian transgender men. As with the estimate for Black transgender women, the percent change in rent burden for Asian transgender men is large but with a large standard error and also has a large but statistically insignificant rent burden estimate, as shown in Table 2.3. These results do both indicate that Asian transgender men face rent burden penalties compared to Asian cisgender men, and further data must be collected to confirm these results.

Female “nones” have large rent burden estimated percent changes in rent burden relative to cisgender men of their race, shown in Table 2.4, to match the large rent burden differences estimated in Table 2.3. In both, strong evidence suggests female “nones” face higher rent burdens than cisgender men. As point estimates of proportional changes in rent burden, white female “nones” pay nearly a 25% larger proportion of their income towards rental payments, while Latine female “nones” pay more than 33% more. The estimated percent change in rent burden relative to Black cisgender men for Black female “nones”, as well as the coefficient estimated in Table 2.3, are statistically insignificant but just barely, indicating evidence of higher rent burdens. There is no evidence of a rent burden penalty for Asian female “nones”, just as there is no evidence that male “nones” face higher rent burden than cisgender men.

These results provide evidence of racial heterogeneity in gender effects. Most clearly, this is seen when comparing rent burden differentials and the relative change of rent burden attributable to gender identity between cisgender women and cisgender men across racial groups; the estimated difference between Black cisgender women and cisgender men is far greater than that for white cisgender men and women, for example. Generally, too, the rent burden difference and the relative change of rent burden attributable to gender identity are much larger for Latine individuals than for white individuals of the same gender. It is difficult to draw too many conclusions from these results, however, due to large standard errors associated with rent burden differences and rent burden proportional changes; more data must be collected to draw further conclusions.

2.9 Conclusion

Using the Household Pulse Survey, this paper has shown transgender people and individuals who identify as neither cisgender nor transgender, compared to cisgender individuals, report higher cost burden for housing. Estimates show that cisgender women, transgender men, and female "nones" pay larger proportions of their monthly income in rental housing payments compared to similar cisgender men. These rent premia are largest for transgender men and female "nones", who pay an additional 7.9 and 9.5 percent of their total income, respectively, as rent premia compared

to cisgender men. These increases amount to increases in rental housing spending by transgender men and female "nones" of 22.0% and 25.9%, respectively. Meanwhile, cisgender women faced a 13.4% higher rent payment than similar cisgender men. The evidence as to whether or not transgender women face higher rent burdens than cisgender men is not statistically significant but point towards the existence of rent premia, with an estimate of rent premia which was statistically significant at the $p < .10$ but not at the $p < .05$ levels alongside an estimated positive proportional change in rent burden which was significant at the $p < .05$ level. There was, however, no evidence that male "nones" pay rent premia compared to cisgender men.

When estimating rent premia within racial groups, results suggest heterogeneous gender effects on rent payments. As when estimated across racial categories, white, Black, and Latine cisgender women faced rent premia compared to cisgender men of their race. In contrast, cisgender Asian women did not. White and Latine transgender men faced rent premia compared to cisgender men of their race, while this was not true for Black or Asian transgender men. White and Hispanic female "nones" faced rent premia, and there is some evidence, though not significant at the $p < .05$ level, that Black female "nones" face rent premia. In contrast, while there was insufficient evidence to conclude that transgender women pay rent premia compared to cisgender men, there is evidence that this is the case for white transgender women compared to white cisgender men. There are large differences in the effect size of these gender effects based on race. These results suggest that the influence of gender on relative rent burden may be contingent on the race of individuals considered. Rent burden premia, when found, for Latine or Black individuals are larger than that of white individuals of the same gender. White cisgender women pay a rent premia which constitutes an additional 3.1% of their total income, while Black and Latine cisgender women pay rent premia of 8.2% and 7.7%, respectively. The rent premia faced by white transgender men (5.1%) and white female "nones" (8.3%) is smaller than that for Hispanic transgender men (18.8%) and female "nones" (15.1%), as well. Similar patterns are found when estimating the increases in rent payment faced for individuals of a specific gender compared to cisgender men of their race, with the relative change in rent burden estimated for white individuals smaller than

those estimated for Black, Asian, and Hispanic individuals (when both relative change in rent burden are statistically significant). Together, these results indicate that gender is translated into economic gain or loss differently across racial groups, with the hardships of transgender or gender nonconformity felt by individuals of many races but felt most acutely by Black or Latine people.

As argued in the context of racial discrimination, bargaining power heterogeneity in housing markets can lead to those weak populations paying premia and the functional extraction of rents from that population to the more powerful party. While it is not possible to determine from this data if transgender and gender non-conforming individuals face discrimination in housing markets, the existence of rental housing payment premia is consistent with discrimination in the rental housing market. Further research must be pursued.

These results should be interpreted cautiously. Sample sizes for Black and Asian populations inflated standard errors and may have led to statistically insignificant estimates of real rent premia. Further, these small sample sizes limit the capacity to compare the influence of gender across racial groups. Further research is needed to estimate racial differences in rental housing payment premia more accurately.

Bibliography

Ahmed, A. M. and M. Hammarstedt (2009, July). Detecting Discrimination against Homosexuals: Evidence from a Field Experiment on the Internet. *Economica 76*(303), 588–597.

Banks, N. (2021). Intersectional identities and analysis. In *The Routledge Handbook of Feminist Economics*. Routledge. Num Pages: 9.

Bayer, P., M. Casey, F. Ferreira, and R. McMillan (2017). Racial and ethnic price differentials in the housing market. *Journal of Urban Economics 102*, 91–105. Publisher: Elsevier.

Becker, G. S. (2010). *The economics of discrimination*. University of Chicago press.

Campbell, T. and Y. V. D. M. Rodgers (2023, May). Conversion therapy, suicidality, and running away: An analysis of transgender youth in the U.S. *Journal of Health Economics 89*, 102750.

Carone, N., E. D. Rothblum, H. M. Bos, N. K. Gartrell, and J. L. Herman (2021). Demographics and health outcomes in a US probability sample of transgender parents. *Journal of Family Psychology 35*(1), 57. Publisher: American Psychological Association.

Carpenter, C. S., S. T. Eppink, and G. Gonzales (2020, May). Transgender Status, Gender Identity, and Socioeconomic Outcomes in the United States. *ILR Review 73*(3), 573–599.

Carpenter, C. S., M. J. Lee, and L. Nettuno (2022). Economic outcomes for transgender people and other gender minorities in the United States: First estimates from a nationally representative sample. *Southern Economic Journal 89*(2), 280–304. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1002/soej.12594.

Centers for Disease Control and Prevention (2023, August). CDC - BRFSS - 2022 BRFSS Modules Used by Category.

Christensen, P. and C. Timmins (2022, August). Sorting or Steering: The Effects of Housing Discrimination on Neighborhood Choice. *Journal of Political Economy 130*(8), 2110–2163. Publisher: The University of Chicago Press.

Early, D. W., P. E. Carrillo, and E. O. Olsen (2019, September). Racial rent differences in U.S. housing markets: Evidence from the housing voucher program. *Journal of Regional Science 59*(4), 669–700.

Feldman, J. L., W. E. Luhur, J. L. Herman, T. Poteat, and I. H. Meyer (2021). Health and health care access in the US transgender population health (TransPop) survey. *Andrology 9*(6), 1707–1718. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/andr.13052.

Flage, A. (2018, September). Ethnic and gender discrimination in the rental housing market: Evidence from a meta-analysis of correspondence tests, 2006–2017. *Journal of Housing Economics 41*, 251–273.

Friedman, S., A. Reynolds, S. Scovill, F. Brassier, R. Campbell, and M. Ballou (2013, June). An Estimate of Housing Discrimination Against Same-Sex Couples.

Glick, J. L., A. Lopez, M. Pollock, and K. P. Theall (2019, October). "Housing Insecurity Seems to Almost Go Hand in Hand with Being Trans": Housing Stress among Transgender and Gender Non-conforming Individuals in New Orleans. *Journal of Urban Health 96*(5), 751–759.

Glick, J. L., A. Lopez, M. Pollock, and K. P. Theall (2020). Housing insecurity and intersecting social determinants of health among transgender people in the USA: A targeted ethnography. *International Journal of Transgender Health 21*(3), 337–349.

Hanson, A. and Z. Hawley (2011). Do landlords discriminate in the rental housing market? Evidence from an internet field experiment in US cities. *Journal of urban Economics 70*(2-3), 99–114. Publisher: Elsevier.

Ihlanfeldt, K. and T. Mayock (2009). Price discrimination in the housing market. *Journal of Urban Economics 66*(2), 125–140. Publisher: Elsevier.

James, S., J. Herman, S. Rankin, M. Keisling, L. Mottet, and M. Anafi (2016). The Report of the 2015 U.S. Transgender Survey.

James, S. E., J. L. Herman, L. E. Durso, and R. Heng-Lehtinen (2022). Early Insights: A Report of the 2022 U.S. Transgender Survey.

Kattari, S. K., D. L. Whitfield, N. E. Walls, L. Langenderfer-Magruder, and D. Ramos (2016, September). Policing Gender Through Housing and Employment Discrimination: Comparison of Discrimination Experiences of Transgender and Cisgender LGBQ Individuals. *Journal of the Society for Social Work and Research 7*(3), 427–447. Publisher: The University of Chicago Press.

Krueger, E. A., S. Divsalar, W. Luhur, S. K. Choi, and I. H. Meyer (2020). TransPop - U.S. Transgender Population Health Survey (Methodology and Technical Notes).

Levy, D. K., D. Wissoker, C. L. Aranda, B. Howell, R. Pitingolo, S. Sewell, and R. Santos (2017). A paired-testing pilot study of housing discrimination against same-sex couples and transgender individuals. *Urban Inst*.

Ondrich, J., A. Stricker, and J. Yinger (1999). Do landlords discriminate? The incidence and causes of racial discrimination in rental housing markets. *Journal of Housing Economics 8*(3), 185–204. Publisher: Elsevier.

Parker, C., S. Scott, and A. Geddes (2019). Snowball sampling. *SAGE research methods foundations*. Publisher: Sage.

Robinson, J. K. (2002, January). Race, Gender, and Familial Status: Discrimination in One US Mortgage Lending Market. *Feminist Economics 8*(2), 63–85.

Rosen, E., P. M. E. Garboden, and J. E. Cossyleon (2021, October). Racial Discrimination in Housing: How Landlords Use Algorithms and Home Visits to Screen Tenants. *American Sociological Review 86*(5), 787–822.

Schwegman, D. (2019, March). Rental Market Discrimination Against Same-Sex Couples: Evidence From a Pairwise-Matched Email Correspondence Test. *Housing Policy Debate 29*(2), 250–272.

Shannon, M. (2022, August). The labour market outcomes of transgender individuals. *Labour Economics 77*, 102006.

US Census Bureau (2022, March). Household Pulse Survey User Notes Phase 3.3.

US Trans Survey (2024). Project Overview.

Wilson, B. D., S. K. Choi, G. W. Harper, M. Lightfoot, S. Russell, and I. H. Meyer (2020). Homelessness among LGBT adults in the US.

Chapter 3

Ability of Transgender People to Access Unemployment Insurance

3.1 Introduction

Unemployment is an essential element of labor discipline within capitalism. The social discontent associated with unemployment, especially mass unemployment, has encouraged the development of welfare programs throughout the capitalist world which seek to mitigate this unrest through some state provision of basic needs for the unemployed. In the United States, Unemployment Insurance (UI) was first developed during the New Deal to battle the effects of the Great Depression and, further, to combat the growing influence of class-conflictual politics (Levine, 1988). Gender was also a significant factor in determining access to UI benefits; exclusion of agricultural and domestic laborers from New Deal programs meant disproportionate exclusion of women of color and poor white women (Lovell, 2002). After 90 years and countless reforms, available evidence suggests racial and gender inequalities in utilization of UI, as well as in the distribution of benefits to recipients. The existence of these inequalities, which coincide with the structure of hierarchical social systems like white supremacy and patriarchy, imply the possibility for other power relations to structure access to welfare programs, broadly, and UI, in particular. This paper, for its part, will seek to estimate the influence of gender identity outside a cisnormative gender binary on UI access.

In recent years, research on trans* individuals has exploded, especially within the economics discipline. This research has documented that trans* people face worse social/economic outcomes than their cisgender peers. These worse outcomes range from lower incomes (Carpenter et al., 2020, 2022; Shannon, 2022), and higher use of SNAP and Medicaid (Carpenter et al., 2022), to worsened mental health (Campbell and Rodgers, 2023; Campbell et al., 2024, 2023). There has not been, to the author's knowledge, systematic research which seeks to understand the relationship trans* people with access to unemployment insurance. This paper seeks to fill that lacunae utilizing newly released data from the Household Pulse Survey. Specifically, this paper finds that cisgender men are less likely than transgender men and women, as well as individuals assigned male at birth

but identifying as not a man, a woman, or transgender, to engage with Unemployment Insurance, though this result may be driven by differences in unemployment. The households of transgender men, transgender women, and individuals assigned male at birth but identifying as not a man, a woman, or transgender are also more likely to engage with UI, compared to cisgender men.

3.2 Literature Review

A growing literature surrounding unemployment insurance programs highlights racial and gender disparities in its utilization.

Racial characteristics are a strong predictor of the capacity for an individual to utilize UI as well as the depth of that benefit. Kuka and Stuart (2021) find that Black people are less likely to receive UI as whites. Half of the 24% decrease in UI recipiency is driven by lower average incomes for Black individuals as well as the increased propensity for Black people to live in southern states with anaemic and under-resourced UI systems. Skandalis et al. (2022), also finding lowered utilization rates among Black individuals, find that state policy can explain entirely racial differences in UI recipiency after accounting for differences in work histories.

Gender differences in UI utilization often occur alongside racial differences. Latimer (2003) finds evidence that women and people of color are more likely to be excluded from UI eligibility due to income and separation type qualifications (which require individuals to meet income thresholds or separate from employment in particular ways to be eligible for UI benefits). Similarly, O'Leary et al. (2021) find statistically significant relationships between population characteristics and UI access. Increased shares of the unemployed who are women, Black, or Native American are associated with lower UI recipiency among the eligible. Furthermore, the authors find statistically significant positive associations between the unemployment shares of women, Black, Native American, and Hispanic people and their shares of UI recipients; these associations are positive but small, suggesting that changes in unemployment share for some population are associated with a far smaller change in the share of that population in UI recipiency.

Research highlighting gender disparities fails, however, to study gender outside of a cisnormative binary. Still, preliminary evidence suggests trans* individuals may engage less frequently with state programs due to increased psychological costs. James et al. (2016), reporting the results of the 2015 US Transgender Survey, found that 11% of respondents who had accessed public assistance or government benefits offices and who believed their transgender/gender nonconformist status was recognizable to employees reported being denied equal service due to their gender identity.

Table 3.1. Trans* Unequal Treatment and Avoidance of Government Services

Government Entity	Reported Unequal Treatment Due to Gender	Avoided Use Altogether
Public Assistance Office	11%	2%
DMV	9%	3%
Court System	8%	2%
Social Security Office	8%	4%

The proportion of individuals who reported unequal treatment due to gender is of those individuals who had visited that government entity and believed the staff and employees at that entity recognized their transgender status or gender nonconformity.
Source: James et al. (2016)

As shown in Table 3.1, notable proportions of the populations surveyed who engaged with government entities like public assistance offices, the DMV, the court system, or Social Security offices reported receiving unfair treatment due to their gender expression. Similarly, many surveyed avoided the use of these institutions altogether due to concerns they would be subjected to this unequal treatment due to their gender expression. These tendencies for avoidance were further clarified by Butz and Gaynor (2022), who find that trans* women of color were more likely, compared to other trans* people or trans* women to avoid visiting or report experiencing unequal treatment at public assistance or Social Security offices.

Why might these differences in UI utilization exist? Administrative burden is a broad framework which emphasizes the negative impact of barriers on program utilization. These barriers may arise from program structure, but may also be social-psychological. Moynihan et al. (2015) recognize three main categories of administrative burden: learning costs, psychological costs, and

compliance costs. Learning costs are those which require potential program users to know about the program and understand, sufficiently, their potential eligibility. Psychological costs include stigma associated with program use, but include, broadly, the psychological result of participation. Compliance costs, finally, include all the hardship necessary to access a program and maintain eligibility. As noted by Herd et al. (2023), though government programs may be designed to mitigate economic or social inequality, these costs may lessen the efficacy of that mitigation or even reinforce inequality. Within the administrative burden framework, the data presented in Table 3.1 is suggestive of uniquely trans* forms of psychological cost–concerns about gendered mistreatment lead to 2-4% of respondents reporting avoiding utilization of government entities essential to the everyday function of the social system.

Differences may also exist due to differences in eligibility for UI. As shown in Chapter 1.1, there is evidence that trans* people may face higher rates of unemployment than the whole population. This could increase the rate at which trans* people apply for UI, as they may be more likely to be unemployed in the first place. Also from that Chapter, it was shown that trans* individuals were more likely to work in low-income or part-time work. While UI eligibility varies by state, differences in local rules may increase or decrease the relative availability of UI benefits for the unemployed, and this may influence the ability of trans* people to access those benefits.

3.3 Data

The Household Pulse Survey (HPS) is an experimental data product designed and issued by the Census Bureau as a collaboration between numerous federal agencies. The HPS was designed to provide timely information as to the health of US society during the COVID-19 pandemic and relied upon issuing frequent nationally representative surveys. As the HPS was constructed to inform policymakers as to the impact of state action, many of the questions asked in the survey were attempts to analyze the impact of government programs started in response to the pandemic. Importantly for this analysis, the HPS surveyed respondents as to their engagement with UI. Specifically, this paper will analyze the influence of gender identity on applicants engaging with UI: applying

for it, receiving it, and utilizing funds distributed from it. Due to the flexibility of the format of the HPS, changes to the questions asked of those surveyed, as well as how those questions are asked, was common.

Alongside relevant information collected as to the ability of individuals surveyed to access UI, the HPS is the only nationally representative survey produced by the federal government which allows for the explicit identification of transgender and gender-nonconforming individuals. Starting in the summer of 2021, the HPS began to collect sexual orientation and gender identity (SOGI) information. Respondents to the survey are asked to provide both their assigned sex at birth—respondents may answer as either male or female—and their current gender, where respondents may identify as male, female, transgender, or "none of these". Using this information, this analysis assigns respondents to one of six possible gender identifications: cisgender man, cisgender woman, transgender man, transgender woman, male "none" and female "none". Table 2 is a matrix showing how an individual's gender is determined in this analysis, based on their assigned sex at birth and their current gender.

Table 3.2. Determining Respondent Gender

		Sex At Birth	
		Male	Female
Current Gender	Male	Cisgender Man	Transgender Man
	Female	Transgender Woman	Cisgender Woman
	Transgender	Transgender Woman	Transgender Man
	None of These	Male "None"	Female "None"

Respondent Gender is given by their sex at birth and current gender. In this matrix, an individual's gender can be determined as the intersection the column of an individual's sex at birth and the row of their current gender.

A cisgender respondent has a gender identity which corresponds with the gender identity assigned to them at birth (based on their birth sex). As such, a cisgender man is a man who was assigned a male gender at birth, while a cisgender woman is a woman assigned female at birth. A transgender man is an individual assigned a female gender at birth but who currently identifies as a male or as transgender. Similarly, a transgender woman was assigned a male gender at birth but currently identifies as a woman or as transgender. Finally, female and male "nones" were assigned

either female or male genders, respectively, at birth but identify, currently, as neither transgender, male, or female.

The possible gender designations utilized in this analysis are not all common/popular gender identities; a gender of "none of these" should not be assumed to be a form of gender nonconformity or a nonbinary gender, though it is possible for nonbinary or gender nonconforming individuals to, had they been surveyed, to list their gender identity as "none of these" (just as much as those same individuals could mark "transgender", "male", or "female"). The HPS has experimented with providing those surveyed with other gender identity options, like "nonbinary" and "I use a different term" (where individuals were further asked to list that term), but this was done in a proportion of surveys issued during Phase 3.10, data from which is not included in this analysis (US Census Bureau, 2023).

The demographic composition of the respondents, divided along gender lines, is presented in Table 3.3. The transgender population is younger, less white, more likely to be disabled, and reports lower incomes than cisgender individuals.

Male and female "nones" also exhibit many of the same differences as between the transgender and cisgender populations, though these tendencies are less pronounced. "Nones" are younger than cisgender people, though not as young as transgender people. They report incomes with medians in the same band as those for transgender people, and further are the least likely of any population to report holding employment. As with transgender men and women, disability rates among "nones" are far higher than that for cisgender men and women.

Table 3.4 further disentangles the aggregate relationships between UI engagement and gender identity while highlighting differences in the relationships trans* people have with employment.

Engagement with UI is determined in two ways in the HPS. The first asks those surveyed as to their personal engagement with UI over the course of the past months, though the time period varies widely. [18] The engagement includes application, and recipiency, further considering current

[18]The time period varies, as the surveyed are asked if they have engaged with UI in the time between filling out the survey and either June 1st of the past year or January 1st of that year, depending on when the survey was administered. Questionnaires in Phase 3.3, issued between December 1st 2021 and February 7 2022, use June 1st

Table 3.3. Respondent Demographics

	Cisgender Man	Cisgender Woman	Trans-gender Woman	Trans-gender Man	Male "None"	Female "None"
Median age	48	49	31	27	41	36
disabled	0.92%	1.04%	6.02%	5.46%	7.15%	5.50%
White	63.0%	61.87%	54.44%	58.58%	47.59%	49.30%
Black	10.11%	12.36%	5.60%	4.70%	8.93%	15.66%
Asian	5.88%	4.85%	2.76%	2.97%	5.35%	4.69%
Hispanic	17.46%	16.65%	30.66%	24.77%	27.99%	21.83%
Some HS or Less	7.55%	7.22%	20.38%	18.71%	21.62%	14.93%
Highschool	32.66%	28.79%	29.26%	20.24%	28.21%	28.33%
Some College or Associates	29.06%	31.09%	31.67%	35.05%	26.73%	31.63%
Bachelor's Degree	17.01%	18.06%	10.15%	17.48%	11.41%	14.68%
Grad Degree	13.72%	14.83%	8.55%	8.52%	12.03%	10.44
Median Income	$75,000 - $99,999	$50,000 - $74,999	$35,000 - $49,999	$35,000 - $49,999	$35,000 - $49,999	$35,000 - $49,999
N	703,251	974,737	2,546	3,863	6,431	11,191
Weighted N per Week	122,076,261	128,920,118	742,806	934,551	1,693,911	2,088,381

Table calculated using observations in weeks 34-60 in the Household Pulse Survey and using person-level weights. Racial categories do not add up to 100% due to the exclusion of a residual racial category. A person is classified as disabled if they report complete inability to see, hear, remember or concentrate, undertake self-care, understand or be understood by others, or walk or climb stairs.

beneficiaries. The second method of determination is through household income. Respondents are asked if they, or a household member, have utilized income from various sources, including UI, in the past 7 days.

Engagement with UI programs are similar between the transgender and "none" populations. An individual who applies in the past half-year for UI, without consideration of receiving it or not, is categorized as a UI applicant. While HPS does not provide sufficient information to consider if an individual was necessarily eligible for UI, differences in rate of UI application indicate the propensity for an individual to face unemployment as well as their tendency to overcome adminis-

2021. Questionnaires in Phase 3.4 and 3.5, issued between March 2nd 2022 and August 8th 2022, use January 1st 2022. Phase 3.6 through 3.8, issued between September 14th 2022 and May 8th 2023, use June 1st 2022. Phase 3.9, issued between June 7th 2023 and August 7th 2023, use January 1st 2023.

Table 3.4. Respondent Engagement with UI

	Cisgender Man	Cisgender Woman	Trans-gender Woman	Trans-gender Man	Male "None"	Female "None"
UI Applicant	3.16%	3.05%	7.72%	4.48%	7.22%	5.23%
N	2,833,456	2,881,342	41,168	32,555	80,836	78,577
UI Recipient	2.27%	2.08%	6.69%	7.32%	5.50%	3.39%
N	2,031,854	1,966,904	35,569	53,966	61,381	51,016
Current UI Beneficiary	28.85%	24.46%	62.82%	29.52%	27.50%	35.00%
N	579,820	476,524	22,324	15,877	16,543	17,577
Reports Current UI Income	2.22%	2.27%	7.84%	5.22%	5.94%	4.19%
N	2,379,336	2,572,920	47,667	41,179	80,884	73,370
Employed	75,138,192	68,401,575	411,820	543,240	873,658	1,053,110
Unemployed	3,693,490	3,464,184	40,652	66,145	92,535	94,454
Unemployment Rate	4.96%	4.82%	8.98%	10.85%	9.58%	8.23%
Labor Force Participation Rate	64.58%	55.74%	60.91%	65.21%	57.04%	54.95%
$\frac{\text{UI Applicant}}{\text{Unemployed}}$	76.71	83.18	101.27	49.22	87.36	83.19
$\frac{\text{UI Recipient}}{\text{Unemployed}}$	55.01	56.78	87.50	81.59	66.33	54.01
$\frac{\text{Current UI Income}}{\text{Unemployed}}$	64.42	74.27	117.26	62.26	87.41	77.68
N	703,251	974,737	2,546	3,863	6,431	11,191
Weighted N per Week	122,076,261	128,920,118	742,806	934,551	1,693,911	2,088,381

Table calculated using observations in weeks 34-60 in the Household Pulse Survey and using person-level weights. Current UI Beneficiaries corresponds with the proportion of those who have received UI benefits in the recent past and who are currently receiving those benefits. The Unemployment Rate was calculated as the proportion of the labor-force (employed and unemployed) who is unemployed. The Labor Force Participation Rate is defined as the ratio of the Labor Force to the population. Integer values given in this table, with the exception of those in row "N", are weighted using person-level weights and the weeks across which these data were combined. $\frac{\text{UI Applicant}}{\text{Unemployed}}$ gives the ratio of UI applicants to unemployed persons of a particular gender. $\frac{\text{UI Recipient}}{\text{Unemployed}}$ gives the ratio of individuals who have received UI benefits recently to unemployed persons of a particular gender. $\frac{\text{Current UI Income}}{\text{Unemployed}}$ gives the ratio of individuals who report current household use of UI benefits to unemployed persons of a particular gender.

trative burden and apply for the program. Cisgender men and women report the lowest rates of UI applicancy of any population, while transgender women and male "nones" indicated the highest rate of application.

An individual is categorized as a UI beneficiary if they have, in the past half-year, received UI payments. Those who respond in the affirmative indicate their past eligibility for UI payments alongside their capacity to apply for and receive UI. Again, these rates are far lower among cisgender men and women. In contrast with UI application rates, though, recipiency rates are slightly higher among transgender men and women relative to male and female "nones".

A current UI recipient is the subset of those who, reporting UI income in the past half-year, are currently receiving it. Unlike prior measures of engagement with UI, there are weaker gender patterns here. While transgender women report rates of current recipiency which are twice as high as the population rates, other gender categories feature far less variation between them, only varying from 24% to 35%, with most estimates below 30%. While Table 3.3 does not control for important covariates, such results indicate some degree of heterogeneity across genders in UI use, though these may be confounded by low engagement rates by transgender women.

Finally, HPS respondents were asked to indicate if they or another household member have utilized, in the past week, income received from UI for their spending needs. An individual who responds in the affirmative is, then, categorized as reporting current UI income. While a similar question to the previous one, there are two main differences: time frame and question scope. A current UI recipient reports if they are currently receiving UI, while an individual currently utilizing UI income may be utilizing income saved from past UI payments. A current recipient may, further, not utilize that the income received. More significantly, though, a current user of UI income is responding on behalf of themselves and their household. There is insufficient information to determine whether or not the respondent is the recipient, as another household member may be receiving UI payments. Still, individuals reporting current household use of UI income largely mirror the demographic characteristics of those who have received UI in the past 6 months, with

cisgender men and women reporting the lowest rates compared to transgender men and women and male and female "nones".

Respondents provide sufficient information about their employment status to construct employment and unemployment counts (which also allow for the construction of labor force counts, and rates of unemployment and labor force participation). Respondents were asked if they were employed, or have been during the previous 7 days. A response in the affirmative was necessary for a respondent to be classified, in this analysis, as employed. Answers in the negative were given an opportunity to clarify. Respondents were classified as unemployed if they reported that they were laid off, if their employer was closed, or if they lacked transportation to work. While this measure is not capable of establishing if the respondent was also actively looking for work, individuals who were not looking for work were capable of answering as such. As shown, trans* individuals reported unemployment rates higher than cisgender men or women. This result is consistent with the finding from Chapter 1.1, where USTS respondents reported higher unemployment rates than ACS respondents (though the unemployment rates found in the HPS are lower than those of the USTS and ACS). The labor force participation rates of trans* individuals bookend those of the cisgender population. Cisgender men and transgender men report the highest labor force participation rates, both hovering around 65%. Cisgender women and female "nones" report the lowest rates of labor force participation, hovering around 55%. In the middle are the rates for transgender women and male "nones", with rates of roughly 60% and 57%, respectively. These rates follow similar dynamics to those of USTS and ACS populations (that of a gendered divergance between the trans* population and the whole population), though ACS and USTS rates are lower than those found in the HPS.

$\frac{\text{UI Applicant}}{\text{Unemployed}}$, $\frac{\text{UI Recipient}}{\text{Unemployed}}$, and $\frac{\text{Current UI Income}}{\text{Unemployed}}$ illustrate the relative rates of engagement with UI, relative to unemployment counts.

Differences in $\frac{\text{UI Applicant}}{\text{Unemployed}}$ illustrate differences in the rates at which unemployed people of particular genders will have applied for UI. There is preliminary evidence, suggested by these ratios, that unemployed trans* people apply for UI at a higher rate than cisgender men (though it is un-

clear if these rates differ significantly from the rates at which cisgender women engage with UI). The exception to this are transgender men, who reported relatively low rates of application for UI but far higher unemployment rates, and female "nones", with a ratio similar to that of cisgender women.

While $\frac{\text{UI Applicant}}{\text{Unemployed}}$ may describe willingness to engage with UI among the unemployed of particular genders, $\frac{\text{UI Recipient}}{\text{Unemployed}}$ shows the capacity for the unemployed to successfully receive UI payments. As before, this ratio is smaller for cisgender men and women than for most trans* individuals. Transgender women and men, as well as male "nones", have higher rates of receiving benefits than cisgender men and women, but female "nones" report lower rates. These ratios may differ because of differences in eligibility for UI, though this cannot be determined with available data.

Finally, $\frac{\text{Current UI Income}}{\text{Unemployed}}$ shows the relationship between unemployment and household UI access. A higher rate indicates an increase in the probability someone in the household of an unemployed individual, either themselves or a housemate, receive UI payments. A higher value could relay tendencies for unemployed people to receive UI income or to live with peers who receive it. This value is highest for transgender women and lowest for transgender men. Male and female "nones" have rates near the middle, but higher than those for cisgender men or women.

These results do indicate there are differences in the take-up of UI across gender identity, but it is difficult to attribute these results solely to gender identity without further investigation. Differences in age, income, employment, disability, and race may drive these differences, so statistical analysis will be utilized to estimate the influence of gender identity on UI engagement.

3.4 Method

To investigate the influence of gender identity upon accessing these welfare programs, this paper shall estimate access to these programs in the form of a probit model. That model, estimating the probability an individual i accesses a particular program will take the form:

$$Pr(Access)_i = \beta_0 + \beta_1 Gender_i + \beta_2 X_i + \alpha_1 State_i + \alpha_2 Week_i \tag{3.1}$$

Where β_0 is an intercept term, β_1 is a vector of coefficients modelling the impact of an individual's gender on the probability of accessing the program, β_2 is a vector of coefficients for the impact of the matrix of controls. These controls include race, education, marital status, employment, age, age squared, disability status, number of kids, and presence in a metropolitan area. α_1 and α_2 are vectors of coefficients that correspond to state and time fixed effects.

β_1 is a vector of differences and captures the change in probability of accessing a program, compared to a cisgender man, for an individual of a specific gender. As such, a statistically significant β_1 value would indicate a statistically significant difference in the probability of accessing a program, compared to a cisgender man, attributable to an individual's gender. Because, however, the probit function underlying the model is nonlinear, this paper will present the average marginal effect of a different gender identity on the probability of accessing the program. This average marginal effect can be interpreted as the average difference in probability of accessing a benefit between a cisgender man (the reference group) and a person of a particular gender identity.

3.5 Results: Unemployment Insurance

Table 3.5 shows the average marginal effects of particular gender identities on applying for or receiving UI, estimated using a probit model of the form specified above in equation (3.1).

The "Applied" column shows the estimated average differences in probability in application rates attributable to gender identity, compared to cisgender men. These results indicate that cisgender women are less likely than cisgender men to apply for UI, while transgender women and male "nones" are more likely. The estimated difference coefficient for cisgender women is negative, small, but statistically significant. In contrast, transgender women and male "nones" have average differences which are estimated to be positive, statistically significant, and of middling size (though much larger in magnitude than that for cisgender women). There is no statistically significant evidence to indicate a difference in application rates between cisgender men, transgender men, and female "nones".

Table 3.5. Average Marginal Effect Estimations of UI Recipiency Rate Differences Due to Gender Identity

	Applied	Received	Receiving	Reports UI Income
Cisgender Woman	-0.006***	-0.005***	-0.017*	-0.002***
	(0.001)	(0.001)	(0.009)	(0.001)
Transgender Woman	0.019**	0.025***	0.098	0.018**
	(0.009)	(0.006)	(0.067)	(0.008)
Transgender Man	-0.004	0.018***	0.025	0.018***
	(0.005)	(0.006)	(0.083)	(0.006)
Male "None"	0.026***	0.017**	-0.069	0.018***
	(0.007)	(0.007)	(0.086)	(0.005)
Female "None"	0.006	0.002	-0.025	0.002
	(0.004)	(0.004)	(0.078)	(0.002)

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients in each row correspond with the difference for the outcome of interest, given by the column header, between the identity category and that of the reference group. Standard errors are in parentheses. Controls include race, education, marital status, employment, age, age squared, disability status, number of kids, and presence in a metropolitan area. All estimations utilize state and week fixed effects. The reference group for gender variables is cisgender men. Further, each regression clusters standard errors at the state level, excludes individuals who are recorded as trans* due to imputation of gender at birth, and considers only observations during weeks 40-60.

Coefficients in the "received" row are the estimated average change in the probability an individual received UI in the past half year due to their gender, compared to cisgender men. The average difference for cisgender women is negative and small, though statistically significant. This finding complies with those of the literature, suggesting that cisgender women may be less able to receive UI than cisgender men. Meanwhile, these results also suggest transgender men and women, as well as male "nones" are more likely to receive UI than similar cisgender men, with both average differences positive and statistically significant. The average difference for female "nones" is not statistically significant, providing no evidence as to a systematic difference in the probability of receiving UI between female "nones" and cisgender men.

In the final column are estimated average differences in reporting current recipiency of UI benefits of those who have received those benefits in the past half year. The small negative estimated difference between cisgender women and cisgender men is only statistically significant at a $p < .1$ level, which is an uncommon level of significance and ought to be interpreted, here, as little more

than an indication to research the difference further. None of the other gender differences are statistically significant.

The final column of Table 3.5 shows the average influence of gender identity on the probability an individual, or a member of their household, would utilize UI income in the past week. This estimate, as it considers the spending habits of the respondent and their household, should be interpreted as a broader measure of engagement with UI as it considers not only the respondent but their household. The estimates mirrors those differences in UI recipiency shown in the remainder of Table 3.5; compared to cisgender men, cisgender women report utilizing UI income less than cisgender men, while transgender men, transgender women, and male "nones" more often report utilizing it. Meanwhile, female "nones" do not report utilization of UI at rates different, on average, from cisgender men.

While Table 3.5 provide information for gender differences in the rates at which individuals (or their households) engage with unemployment insurance, it can be valuable to consider only those currently unemployed; they are, after all, the population who UI is structured to provide aid to. Table 3.6 provides estimated average marginal effects associated with gender differences across the unemployed population in their engagement with UI.

The first column are the estimated differences in likelihood an unemployed person would have applied for UI in the past half year. The estimations in Table 3.5 consider the average marginal effects across all respondents, employed or not, and there are stark differences in estimated gender effects as a result. While the estimates reported in Table 3.5 show increased likelihood to have applied for UI, relative to cisgender men, for transgender women, male "nones", and cisgender women, the influence of gender, here, changes drastically. Among the unemployed, there are no statistically significant differences attributable to gender in application or recent recipiency for UI. There is evidence that transgender men are less likely, relative to unemployed cisgender men who are recent or current beneficiaries of UI, to be current beneficiaries of UI payments. This result is substantial, where the average difference in probability is 37.6%. Another point of departure comes with the influence of gender on household use of UI; the average difference of gender

Table 3.6. Average Marginal Effect Estimations of UI Engagement Differences Due to Gender Identity, Conditional on Unemployment

	Applied	Received	Receiving	UI Income
Cisgender Woman	0.002	0.007	-0.005	0.010
	(0.008)	(0.012)	(0.024)	(0.010)
Transgender Woman	0.031	0.071	0.164	-0.010
	(0.075)	(0.073)	(0.167)	(0.076)
Transgender Man	-0.059	-0.055	-0.376***	-0.040
	(0.085)	(0.081)	(0.099)	(0.066)
Male "None"	0.015	-0.061	-0.016	-0.076**
	(0.076)	(0.040)	(0.180)	(0.032)
Female "None"	0.049	0.006	-0.162	-0.065**
	(0.059)	(0.041)	(0.154)	(0.026)

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients in each row correspond with the difference for the outcome of interest, given by the column header, between the identity category and that of the reference group. Standard errors are in parentheses. Controls include race, education, marital status, employment, age, age squared, disability status, number of kids, and presence in a metropolitan area. All estimations utilize state and week fixed effects. The reference group for gender variables is cisgender men. Further, each regression clusters standard errors at the state level, excludes individuals who are recorded as trans* due to imputation of gender at birth, and considers only observations during weeks 40-60 for personal UI engagement and 34-60 for household income.

identity on the probability for male and female "nones", relative to cisgender men, is -7.6% and -6.5%, respectively. These results, alongside the increased chance, relative to cisgender men, a male "none" would report household UI income, point towards differences in propensities to unemployment as a strong determinant of differences in UI engagement due to gender.

First, there are no statistically significant differences attributable to gender for transgender women or male "nones" among the unemployed. Unemployed transgender men are estimated to be less likely than unemployed cisgender men to report applying for UI, whereas there was no statistically significant difference in the earlier results. Finally, the direction of the relationship between cisgender men and women flips when only considering the unemployed; unemployed cisgender women are less likely than unemployed cisgender men to apply for UI (whereas cisgender women were more likely than cisgender men to report applying for UI, when considering both the employed and unemployed).

3.6 Conclusion

The results presented above paint a nuanced picture which deserves further study. Deep differences between the labor market characteristics between cisgender and trans* people are documented within the literature Carpenter et al. (2020, 2022); Shannon (2022), and the findings presented in this paper suggest similar differences are present in different relationships trans* people have with unemployment insurance in the US. Trans* people are, excepting female “nones”, more likely than cisgender men and women to receive unemployment insurance. Transgender women and male "nones" are more likely than cisgender men and women to apply for UI, while transgender women, men, and male "nones" are also more likely than cisgender men to report receiving UI (as shown in Table 3.5). There are not statistically significant differences in the rates at which cisgender men and individuals of other genders who have received UI are currently receiving it. Transgender men, women, and male "nones" are more likely to live in households which report utilizing UI in the past week, but these results are not necessarily driven by the survey respondent themselves receiving UI.

It is also valuable to specifically consider differences between unemployed individuals, as unemployment is a key factor in determining UI benefit eligibility. The results of that analysis are found in Table 3.6. Of households in which the respondent is unemployed, only female and male "nones", of all the trans* respondents, have any statistically significant difference in UI income utilization. Further, transgender men were far less likely, relative to cisgender men, to report currently receiving UI benefits (compared to receiving them in the recent past). These results, together, indicate that transgender men and women may be more likely to live in households with UI recipients, but may not be any more or less likely to be the recipients themselves. Female "nones" follow similar dynamics, where they are not more likely to live in a household where someone utilizes UI income but are less likely, compared to cisgender men, to do so if they are unemployed. Male "nones" show an even stronger change, where they are more likely to report living in a household using UI unless they are unemployed, wherein they are less likely.

These results, combined, indicate that transgender men and women, as well as male "nones", engage more often with UI than cisgender men, and this engagement is either done by themselves or the people they live with. This relationship falls apart when considering only the unemployed; this deeper engagement may be driven by the higher probability of transgender men, transgender women, and male "nones" to face unemployment.

Still, these results may not capture the whole extent of the interrelation between UI and gender identity. Small population sizes in this constrained estimation have inflated standard errors, which may have prevented uncovering of statistical relationships which exist within the underlying population. Further research, and greater data collection, ought to be pursued to remedy this.

If UI functions to reinforce gender hierarchies, why may these results be? Cisgender men being less likely to utilize UI systems in a given time period (or report utilizing income from UI) may seem counter-intuitive, if the design of UI is to reinforce patriarchal dominance. Similarly, why may it be that trans* people are often more likely to engage with UI or live in households which benefit from UI payments? First, these results do not convey differences in received benefits; without information as to the scale of UI benefits received, it is not possible to compare the expected value of UI payments for applicants across genders. Because UI payments are increasing in income and cisgender men report higher median incomes, they will likely receive a higher median UI payment. Additionally, cisgender men may face job loss less often and thus not require access to UI. UI eligibility is also a function of employment type and varies by state.

The structure of UI eligibility may also disadvantage trans* populations. Unemployed individuals with UI payments below the level at which they could feasibly satisfy their basic needs may forego UI application in favor of more immediate employment, even when such employment provides far less than their previous occupation. UI eligibility requires applicants to reach minimum income thresholds, and this can prevent low-earning people from accessing UI to begin with.

This same structure of UI may serve to reinforce gendered household divisions of labor. Cisgender men, earning higher incomes, could face larger household income losses when relying upon UI income. This could push these men to pursue employment which, though earning more than UI

payments, may be drudgery or harmful in other ways. Cisgender women who face unemployment would lose less from reduced UI income, given lower initial incomes. Together, these tendencies would reinforce "masculine breadwinner" elements of patriarchal society, but may further do so at the cost of the safety/health of men and income of women.

While trans* people are an emerging field of study by economists, there has been little research as to how they engage with welfare state systems. While there is discussion within the literature as to barriers which may limit their engagement with welfare state systems, data from the Household Pulse Survey suggests that some trans* people–transgender men and women, and male "nones" are more likely than cisgender men to report utilizing unemployment insurance or living with individuals who utilize it. This result can follow from the structure of UI, which can push cisgender men (and other high-income individuals) to avoid use of UI. Meanwhile, social pressure may push trans* individuals into unemployment at higher rates. Though trans* people may avoid using government services due to the administrative burden, tendencies towards unemployment have lead to relative increases in the probability trans* people and the people they live with utilize UI.

Bibliography

Butz, A. M. and T. S. Gaynor (2022). Intersectionality and Social Welfare: Avoidance and Unequal Treatment among Transgender Women of Color. *Public Administration Review 82*(3), 433–445. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/puar.13468.

Campbell, T., S. Mann, D. H. Nguyen, and Y. V. D. M. Rodgers (2023, May). Hormone Therapy, Suicidal Risk, and Transgender Youth in the United States. *AEA Papers and Proceedings 113*, 551–555.

Campbell, T., S. Mann, Y. Rodgers, and N. Tran (2024, March). Family Matters: Exposure to Gender-Affirming or -Denying Practices Following Gender Identity Milestones. *AEA Papers and Proceedings 114*.

Campbell, T. and Y. V. D. M. Rodgers (2023, May). Conversion therapy, suicidality, and running away: An analysis of transgender youth in the U.S. *Journal of Health Economics 89*, 102750.

Carpenter, C. S., S. T. Eppink, and G. Gonzales (2020, May). Transgender Status, Gender Identity, and Socioeconomic Outcomes in the United States. *ILR Review 73*(3), 573–599.

Carpenter, C. S., M. J. Lee, and L. Nettuno (2022). Economic outcomes for transgender people and other gender minorities in the United States: First estimates from a nationally representative sample. *Southern Economic Journal 89*(2), 280–304. _eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1002/soej.12594.

Herd, P., H. Hoynes, J. Michener, and D. Moynihan (2023, September). Introduction: Administrative Burden as a Mechanism of Inequality in Policy Implementation. *RSF: The Russell Sage Foundation Journal of the Social Sciences 9*(4), 1–30.

James, S., J. Herman, S. Rankin, M. Keisling, L. Mottet, and M. Anafi (2016). The Report of the 2015 U.S. Transgender Survey.

Kuka, E. and B. A. Stuart (2021). Racial Inequality in Unemployment Insurance Receipt and Take-Up.

Latimer, M. (2003, December). A Comprehensive Analysis of Sex and Race Inequities in Unemployment Insurance Benefits. *The Journal of Sociology & Social Welfare 30*(4).

Levine, R. F. (1988). *Class Struggle and the New Deal: Industrial Labor, Industrial Capital, and the State*. University Press of Kansas.

Lovell, V. (2002, July). Constructing Soci Al Citizenshi P: The Exclusion of African American Women from Unemployment Insurance in the Us. *Feminist Economics 8*(2), 191. Publisher: Routledge.

Moynihan, D., P. Herd, and H. Harvey (2015, January). Administrative Burden: Learning, Psychological, and Compliance Costs in Citizen-State Interactions. *Journal of Public Administration Research and Theory 25*(1), 43–69.

O'Leary, C. J., W. E. Spriggs, and S. A. Wandner (2021, December). Equity in Unemployment Insurance Benefit Access. Technical report, W.E. Upjohn Institute.

Shannon, M. (2022, August). The labour market outcomes of transgender individuals. *Labour Economics 77*, 102006.

Skandalis, D., I. Marinescu, and M. N. Massenkoff (2022, July). Racial Inequality in the U.S. Unemployment Insurance System.

US Census Bureau (2023). Phase 3.10 Household Pulse Survey.

Chapter 1 Appendix

A Tables and Figures

Appendix Table 1. 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.

Appendix Table 2. Income Distributions by Survey: Overall and by Gender

	Overall	Overall	man		woman		nonbinary
	ACS	USTS	ACS	USTS	ACS	USTS	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.

Appendix Table 3. Income Distributions by Survey: by Race

	Overall	Overall	man		woman		nonbinary
	ACS	USTS	ACS	USTS	ACS	USTS	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.

Appendix Table 4. Labor Force Status by Survey: Overall, by Gender, and by Race

ACS	employed	part time	self-employed	unemployed	out of labor force	student	retired
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	40.74	9.61	4.35	2.70	23.39	8.81	10.40
MENA							
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	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	28.71	10.54	9.39	7.53	10.17	29.60	4.06
MENA							
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	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.

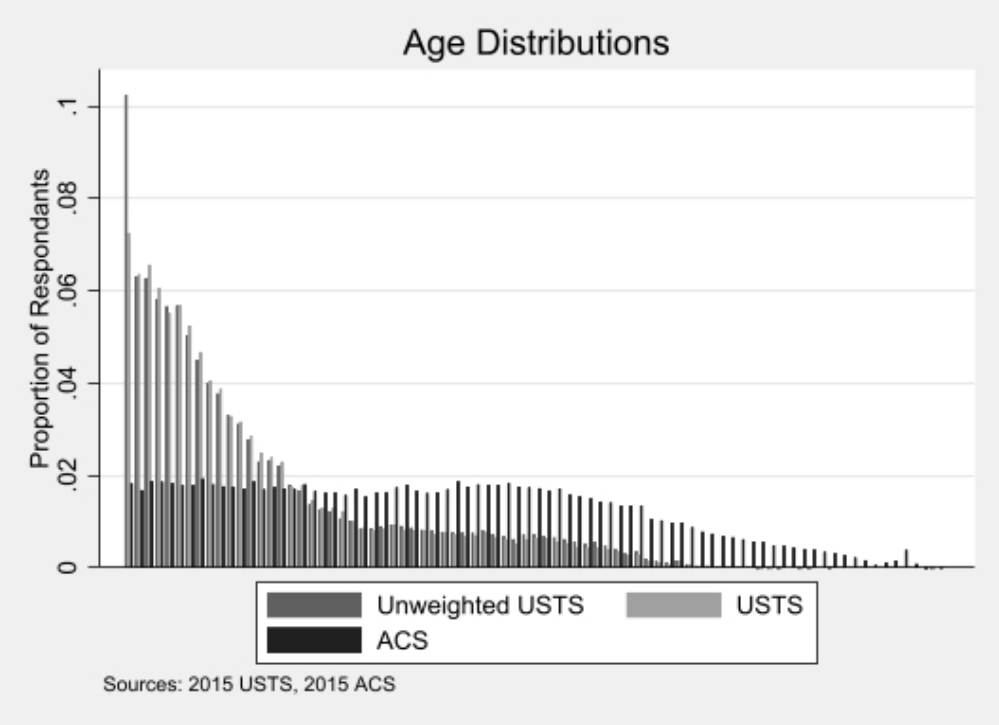
Appendix Table 5. Income Distributions by Engagement in Sex Work and Any Underground Economics, Including in the Past Year

	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
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.

B Weighting Schemes

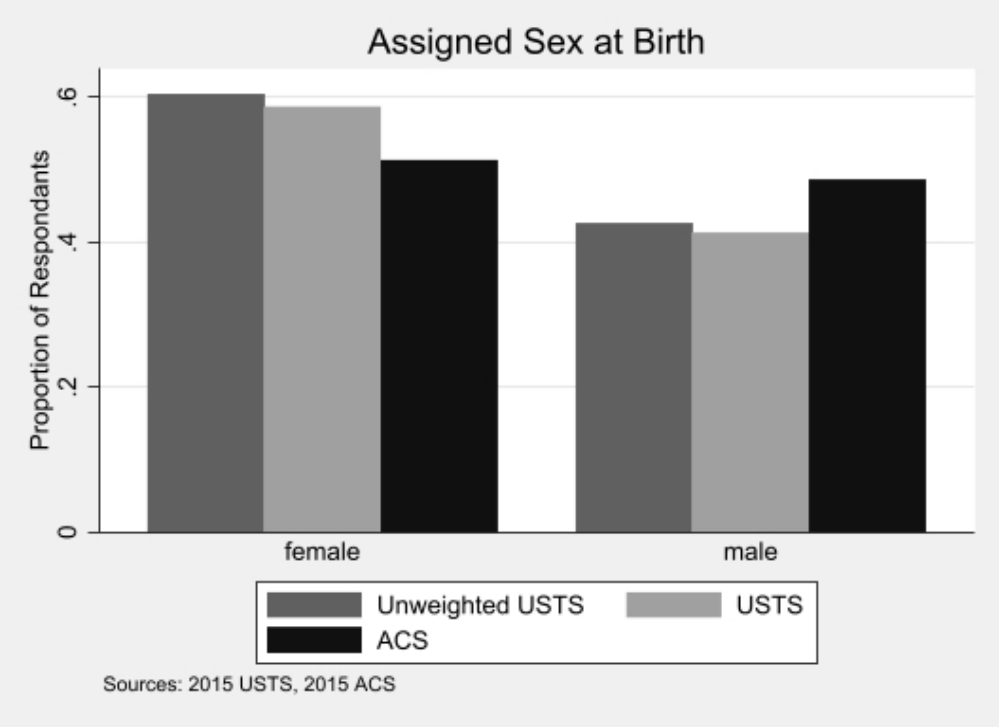
The USTS was published alongside a number of weighting schemes that sought to correct for overrepresentation of transgender people who are younger, whiter, poorer, and better educated than the public. This paper utilizes the weighting scheme constructed by the creators of the USTS that transforms the population to be older, less white, and slightly less poor (James et al. 2016). 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.



Appendix Figure 1

Weights shift the USTS age distribution towards the right, though the result is still vastly different from that of the ACS.

The weighting scheme lowers the proportion of AFAB respondents as a proportion of all USTS respondents, though they still constitute a large majority. This is also the case for ACS respondents.

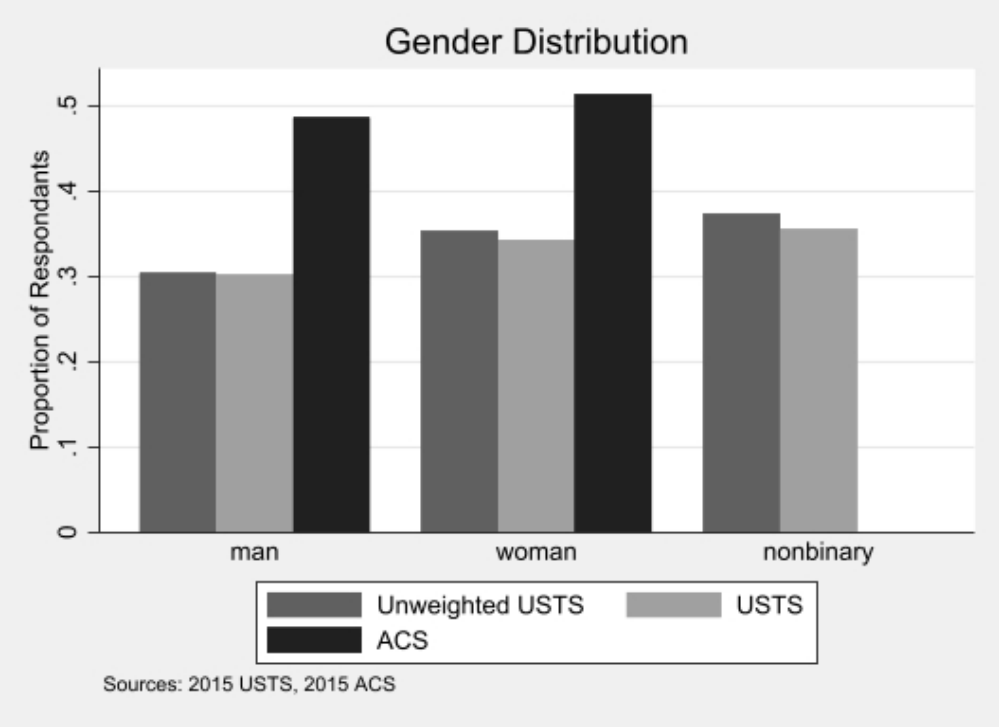


Appendix Figure 2

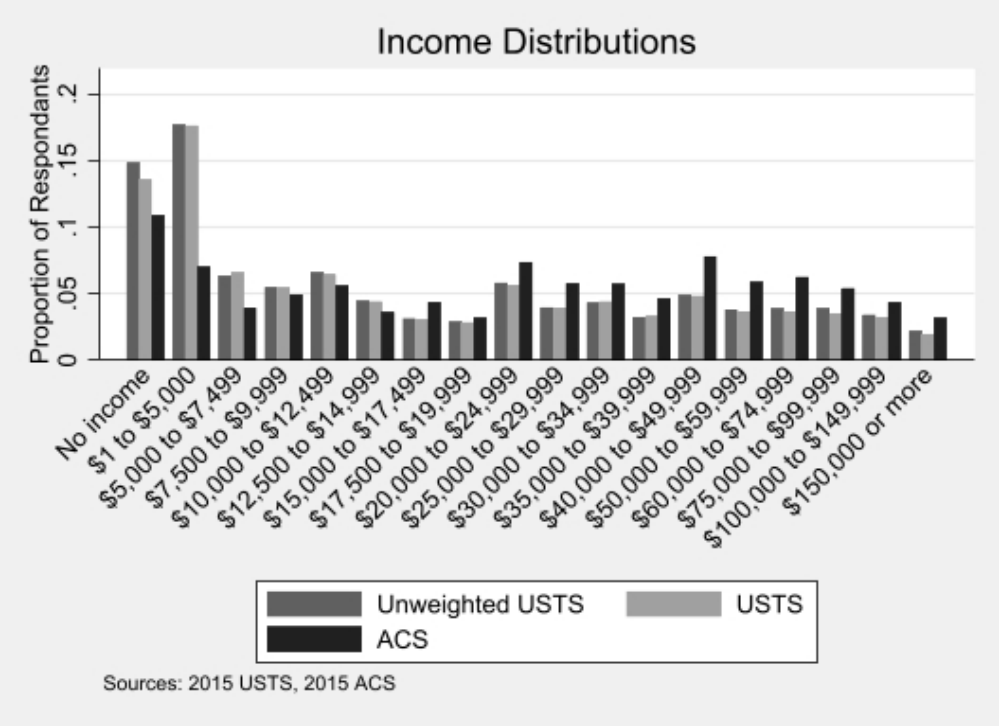
The impact of the weighting scheme on the gender distribution is negligible, due to difference in gender reporting structures.

The weighting scheme produces an income distribution with higher proportions of trans* incomes in the upper end of the income distribution and lower proportions near the bottom of the distribution.

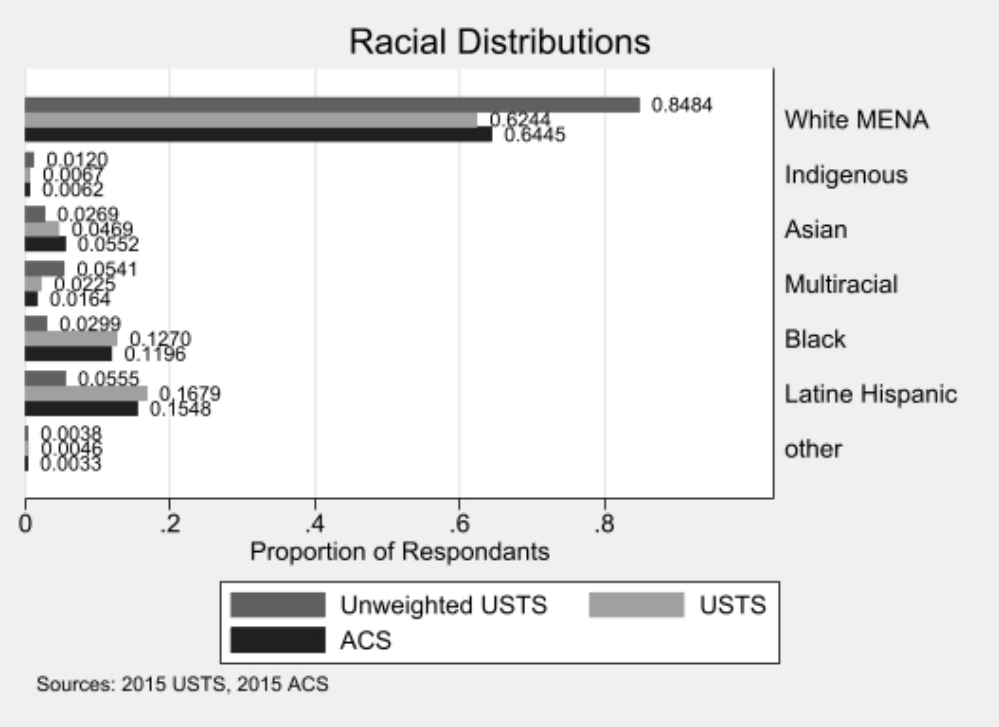
The weighting scheme strongly restructures the racial demography of USTS respondents, devaluing white/MENA respondents while increasing the impact of Latine and Multiracial respondents.



Appendix Figure 3



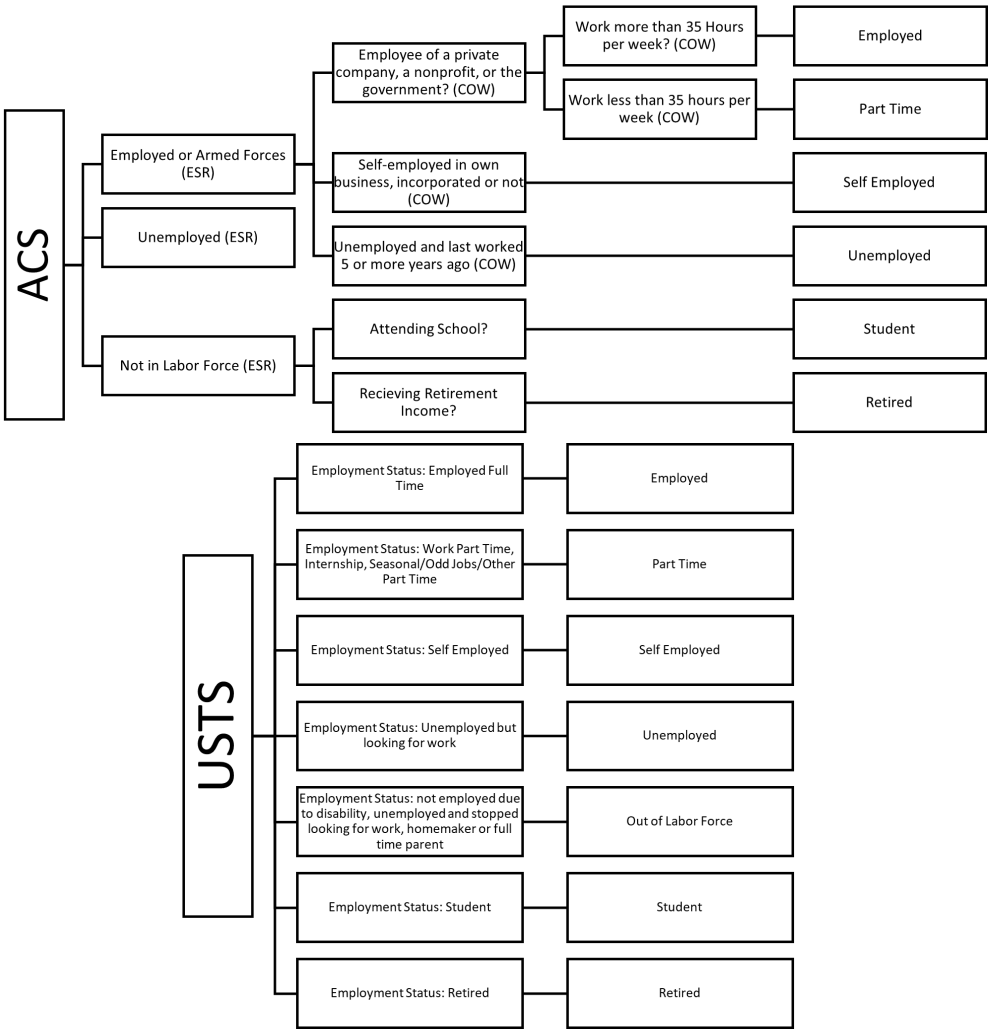
Appendix Figure 4



Appendix Figure 5

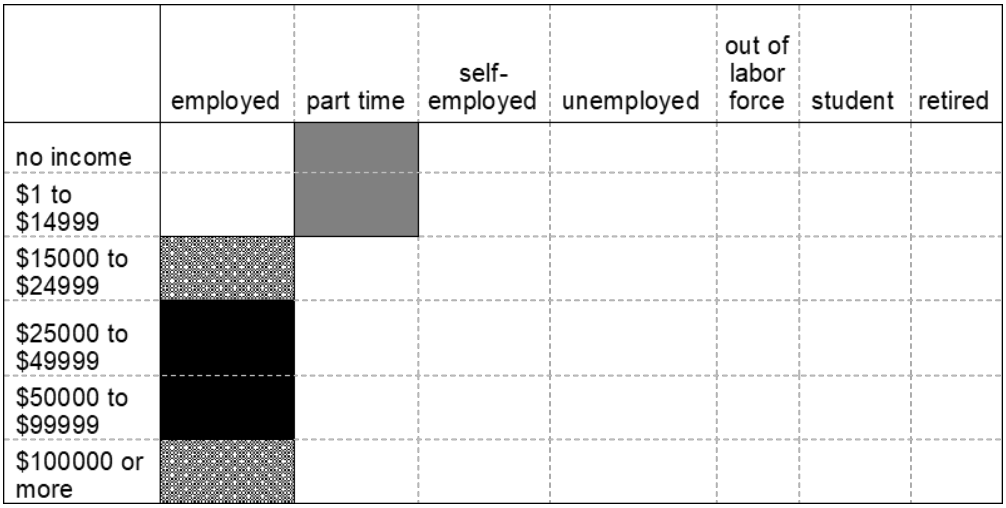
C Constructing Labor Force Categories

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 Figure 6. Determining Labor Force Categories in Both Surveys

D Broad and Narrow Full Time Employment



Appendix Figure 7. Graphical Definition of Part and Narrow and Broad Full Time Bands
The narrow Full time band is defined by full time employment and income between $25,000 and $99,999 per year. The broad Full Time band is defined by full time employment and incomes above $15,000. The part time band is defined by part time employment and income less than $15,000 per year. The full time band is shaded black, while the part time band is shaded gray.

Table 6 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. Under the broader definition of the full time band, the average marginal effect of gender becomes more pronounced, as does inclusion in the ACS (meaning, then, the average marginal effect of transgender status grows, being a larger impediment to inclusion in the full time band).

Appendix Table 6. Average Marginal Effects of Identity on Inclusion in Narrow or Broad Full Time Band, by Survey

	Narrow Full Time		Broad Full Time	
	ACS	USTS	ACS	USTS
ACS Control	0.1115***		0.1388***	
	(0.004)		(0.004)	
Woman	-0.0713***	-0.0548***	-0.1200***	-0.1042***
	(0.001)	(0.001)	(0.001)	(0.001)
Nonbinary		-0.0642***		-0.1172***
		(0.006)		(0.006)
Indigenous	-0.0424***	-0.0299***	-0.0482***	-0.038***
	(0.004)	(0.003)	(0.005)	(0.003)
Asian	-0.043***	-0.0303***	-0.0316***	-0.0253***
	(0.002)	(0.001)	(0.002)	(0.001)
Multiracial	-0.0371***	-0.0263***	-0.0462***	-0.0366***
	(0.003)	(0.002)	(0.003)	(0.002)
Black	-0.0177***	-0.0127***	-0.0263***	-0.0212***
	(0.001)	(0.001)	(0.001)	(0.001)
Latine	0.0014	0.001	0.0208***	0.0173***
	(0.001)	(0.001)	(0.001)	(0.001)
Other	-0.0150**	-0.0108**	-0.0147**	-0.012**
	(0.006)	(0.004)	(0.007)	(0.005)

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients are marginal effects for a identity factor, averaged across a survey. Standard errors are in parentheses. The average marginal effects were estimated from a probit regression on a binary variable indicating inclusion in a band. Additional controls include education, age and age squared, state of residence, and marital status.

Chapter 2 Appendix

A Tables and Figures

Appendix Table 7. Gender Income Differences by Race

	White	Black	Asian	Latine
Cisgender	-13962.07***	-16702.91***	-2569.46	-14451.30***
Woman	(0.00)	(3077.85)	(1764.14)	(0.00)
Transgender	-11645.50**	-7596.42	-17650.39	17111.67
Woman	(5146.94)	(11246.80)	(19819.88)	(21004.33)
Transgender	-19852.06***	-3525.51	-43524.31***	-8142.95
Man	(4138.11)	(7909.49)	(13647.89)	(17335.49)
Male	-3918.53	3581.23	19227.73	32063.63
"None"	(5423.45)	(10333.35)	(13220.47)	(26665.85)
Female	-21305.66***	-14348.46**	-23996.21*	-19762.39**
"None"	(2288.51)	(6653.19)	(13405.00)	(8831.24)

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients in a particular row are the estimates of income associated with the difference between an individual of a specific gender and that of the reference group, cisgender men, within a specific racial group, given by the column. Standard errors are in parentheses. The income is estimated using an interval regression which controls for education, marital status, employment, age, age squared, disability status, housing type, number of kids, and type of work. Further, the interval regression includes state and week fixed effects, clusters standard errors at the state level, excludes individuals who are recorded as trans* due to imputation of gender at birth, and considers only observations during weeks 49 through 57.

Appendix Table 8. Gender Rent Payment Differences by Race

	White	Black	Asian	Latine
Cisgender Woman	-488.23***	-555.12**	32.53	-411.39
	(155.10)	(229.22)	(329.81)	(428.16)
Transgender Woman	-862.69	5019.02***	-3168.41	-3920.75
	(1386.37)	(1237.89)	(2203.30)	(3819.91)
Transgender Man	-748.35	669.54	2404.70	379.51
	(532.23)	(2805.00)	(3247.07)	(1433.69)
Male "None"	-1273.83	-1619.01	4830.33***	282.78
	(851.56)	(1126.71)	(1598.58)	(977.29)
Female "None"	-778.42	288.02	109.81	144.03
	(702.84)	(1769.74)	(722.79)	(2185.57)

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients in a particular row are the estimates of yearly rent associated with the difference between an individual of a specific gender and that of the reference group, cisgender men, within a specific racial group, given by the column. Standard errors are in parentheses. The yearly rent difference is estimated using a linear regression which controls for education, marital status, employment, age, age squared, disability status, housing type, number of kids, and type of work. Further, the regression includes state and week fixed effects, clusters standard errors at the state level, excludes individuals who are recorded as trans* due to imputation of gender at birth, and considers only observations during weeks 49 through 57.

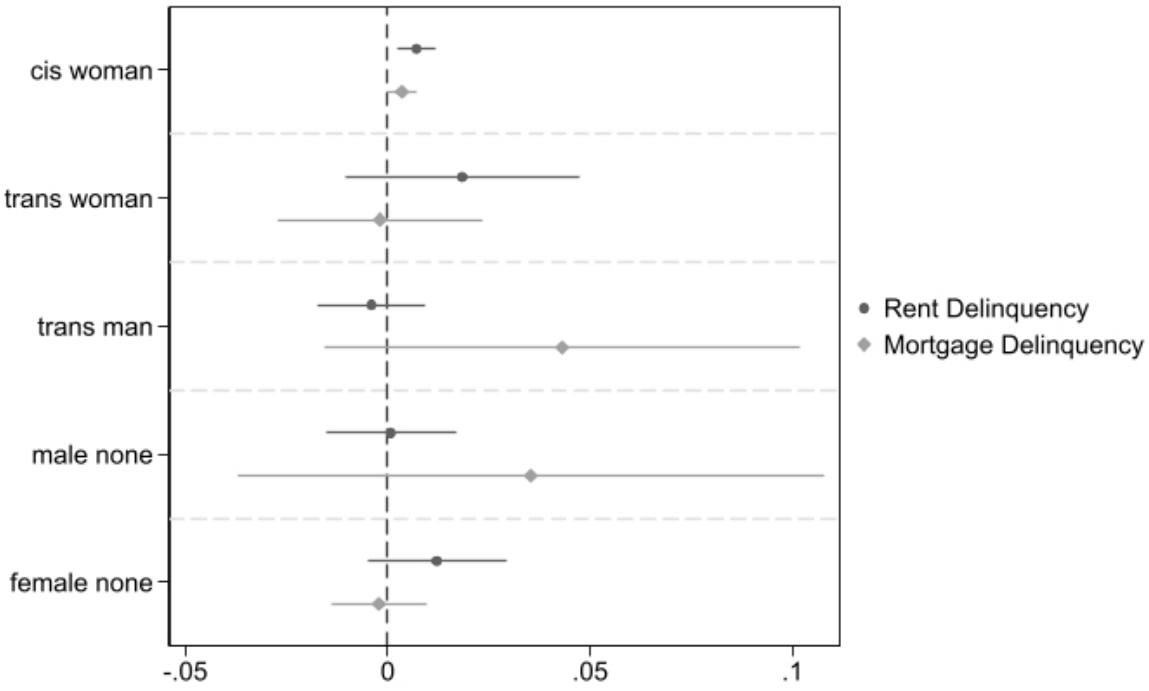
B Payment Delinquency

This measure of rent burden as an indication of the degree to which transgender people are less able to afford housing is limited, however, to considering only renters and this data was only collected for a relatively short period of time. As such, it will be worthwhile to complement analysis of rent burden with a second measure of housing affordability: payment delinquency. A respondent to the HPS who has been unable to pay for their mortgage or rental payments is considered delinquent. While the HPS has not collected payment delinquency data in each of its iterations, it has been consistently collected since Phase 3.2, which coincides with the beginning of SOGI information collection. For consistency with the earlier estimates of rent burden, however, this analysis will utilize information collected in Phases 3.6-3.9. The influence of gender on payment delinquency for individual i will be estimated using a probit model of the form:

$$\Pr(Delinquent)_i = \beta_0 + \beta_1 Gender + \beta_2 Race + \beta_3 X_i + \alpha_1 State + \alpha_2 Week \tag{2}$$

Where β_1 is a vector of coefficients modelling the impact of an individual's gender on rent burden, β_2 is a vector of coefficients for the impact of the matrix of controls (age, age squared, education, marital status, labor force status) on rent burden, and α_1 and α_2 are vectors of coefficients that correspond to state and time fixed effects. From this estimation, the average marginal effects for gender will be computed. These average marginal effects will show the average change in likelihood that an individual of a certain gender is delinquent compared to the reference category, which will be cisgender men.

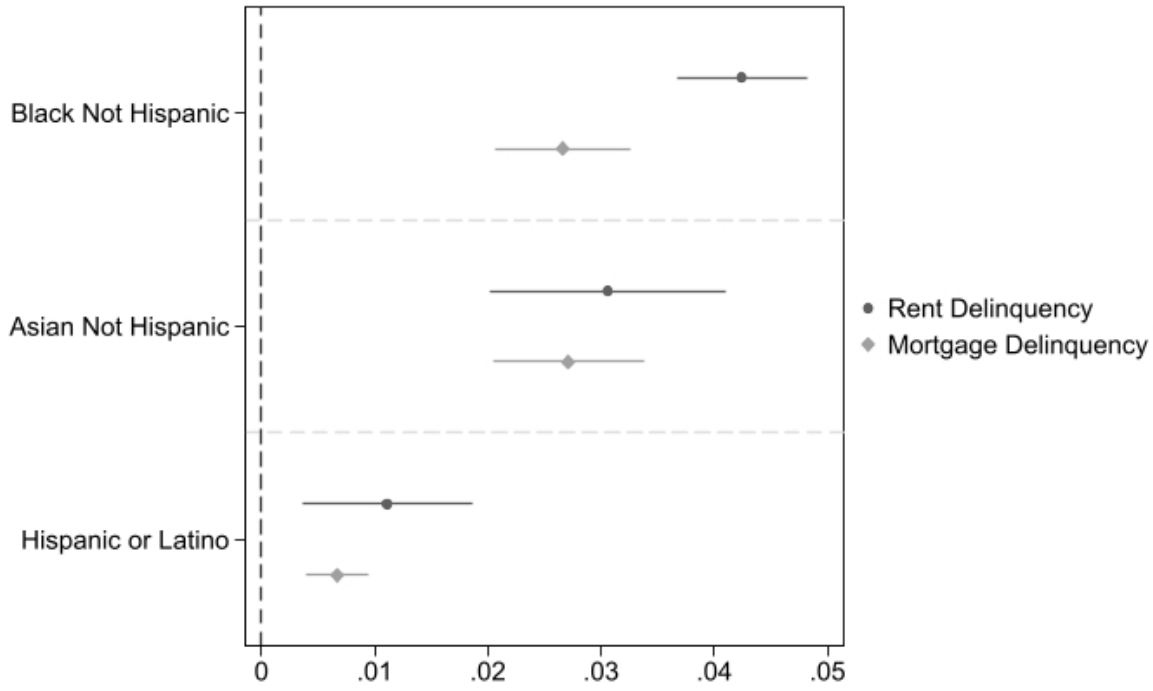
The results shown in Figure 8 indicate that, while transgender individuals, and female "nones" may face higher rent burdens, they are not any more or less likely than cisgender men to remain current on rent payments. There is weak statistical evidence to suggest transgender men and female "nones" are more likely than cisgender men to be delinquent on mortgage payments, though estimated effect sizes are small. There is stronger statistical evidence that rental payment delinquency is more probable amongst cisgender women than cisgender men, though this effect size is also small.



Appendix Figure 8. Gender Effects on Rent and Mortgage Delinquency
95% Confidence Interval. Reference Group are Cisgender Men.

As shown in Figure 9, there is clear evidence of racial differences in rent and mortgage delinquency, with white individuals far more likely to be timely in their payments as compared to Black, Asian, and Latine individuals. Compared to the estimated average marginal effects of gender on rent or mortgage timeliness, the average marginal effects associated with race are far larger and significant.

These findings, alongside earlier results showing higher rent burdens facing transgender and gender nonconforming individuals, indicates heterogeneous influences of gender on housing stability amongst transgender and gender nonconforming individuals. While they often face higher rent burden, transgender men and women alongside female GNC people are not more or less likely to be delinquent in rental payments (though weak evidence suggests transgender men and female GNC people may be less likely to remain timely on mortgage payments).



Appendix Figure 9. Average Marginal Effects of Race on Rent or Mortgage Delinquency
95% Confidence Interval. Reference Group are White People.

As before, we utilize estimations of outcomes conditioned on the race of respondents to analyze racial heterogeneity in the influence of gender on housing affordability. Here, estimations of the impact of gender for an individual i of race j on rent or mortgage delinquency take the form:

$$\Pr(Delinquent)_{ij} = \beta_0 + \beta_{1j} Gender + \beta_{2j} Race + \beta_3 X_i + \alpha_1 State + \alpha_2 Week \tag{3}$$

There is, further, evidence of racial heterogeneity in the influence of gender on rent delinquency, as shown in Table 9. Here, the average marginal effects associated with having a particular gender varies based on the race of the individual. These results suggest, for example, that white and Black cisgender women are more likely than cisgender men of their race to be delinquent in their rental payments, but find the opposite association between cisgender women and men who are Asian, where cisgender Asian women are less likely than Asian cisgender men to report rent

Appendix Table 9. Rent Delinquency Gender Average Marginal Effects, By Race

	White	Black	Asian	Latine
Cisgender Woman	0.007***	0.027***	-0.013***	-0.000
	(0.001)	(0.006)	(0.002)	(0.009)
Transgender Woman	0.002	0.267*	.	0.006
	(0.007)	(0.143)	(.)	(0.027)
Transgender Man	-0.003	-0.020	0.201*	-0.035***
	(0.004)	(0.045)	(0.107)	(0.009)
Male "None"	-0.004	-0.041**	0.040	0.014
	(0.004)	(0.021)	(0.043)	(0.031)
Female "None"	0.004	0.046	-0.019	-0.002
	(0.007)	(0.052)	(0.017)	(0.014)

*** $p < .01$, ** $p < .05$, * $p < .1$
Empty cells indicate that it was not possible to estimate the coefficient due too few observations.

payment delinquency. While there are few statistically significant results here, there is evidence that Latine transgender men and Black male GNCs are less likely to report rent delinquency than cisgender men of their race. There is weaker statistical evidence (significant at $p < .10$ but not $p < .05$) that Black transgender women and Asian transgender men are more likely to report rent payment delinquency than cisgender men of their race. It is valuable to note that the average marginal effects of gender on rent delinquency are small; the largest estimated average marginal effect, that for a Black male GNC individual, indicates that individual is 4% less likely to report rent payment delinquency than a comparable Black cisgender man.

Appendix Table 10. Mortgage Delinquency Gender Average Marginal Effects, By Race

	White	Black	Asian	Latine
Cisgender Woman	0.005***	0.003	-0.003	0.006
	(0.002)	(0.004)	(0.004)	(0.006)
Transgender Woman	0.007	.	.	.
	(0.017)	(.)	(.)	(.)
Transgender Man	0.052	.	-0.024*	-0.022***
	(0.033)	(.)	(0.014)	(0.003)
Male "None"	-0.005	-0.006	-0.029***	0.140*
	(0.006)	(0.031)	(0.006)	(0.082)
Female "None"	0.011	-0.044***	0.019	-0.022***
	(0.009)	(0.003)	(0.051)	(0.003)

*** $p < .01$, ** $p < .05$, * $p < .1$
Empty cells indicate that it was not possible to estimate the coefficient due too few observations.

There is further evidence of racial heterogeneity in the influence of gender on mortgage timeliness. While there is evidence that cisgender women, without conditioning on race, are more likely than cisgender men to report mortgage delinquency, Table 10 suggests this result is driven by white cisgender women relative to white cisgender men; there is no statistically significant average marginal effect for Black, Asian, and Hispanic/Latine cisgender women relative to cisgender men of their race, but there is for white cisgender women. There is statistically significant evidence to suggest that Latine/Hispanic transgender men and Asian male GNC individuals, alongside Black and Latine female GNC individuals, are less likely to report mortgage delinquency than cisgender men of their race. The difference in estimated average marginal effects between the conditional and unconditional estimations provides further evidence of racial heterogeneity in the influence of gender on housing affordability.

Chapter 3 Appendix

A Tables and Figures

Appendix Table 11. Estimations of UI Recipiency Rate Differences, State*Week Fixed Effects

	Recieved	Applied	Recieving
Cisgender Woman	-0.004***	-0.006***	-0.014*
	(0.001)	(0.001)	(0.008)
Transgender Woman	0.025***	0.020**	0.151*
	(0.006)	(0.009)	(0.082)
Transgender Man	0.017***	-0.004	0.048
	(0.005)	(0.005)	(0.074)
Male "None"	0.016**	0.024***	-0.072
	(0.007)	(0.007)	(0.081)
Female "None"	0.002	0.006	-0.029
	(0.004)	(0.004)	(0.082)

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients in each row correspond with the difference for the outcome of interest, given by the column header, between the identity category and that of the reference group. Standard errors are in parentheses. The reference group for gender variables is cisgender men, while the reference group for race is a white person. Further, each regression clusters standard errors at the state level, excludes individuals who are recorded as trans* due to imputation of gender at birth, and considers only observations during weeks 49 through 57.

Appendix Table 12. Estimations of UI Income Rate Differences

	UI State*Week	UI State*Week
Cisgender Woman	-0.002***	-0.001
	(0.001)	(0.001)
Transgender Woman	0.018**	0.008
	(0.008)	(0.012)
Transgender Man	0.017***	-0.005
	(0.006)	(0.006)
Male "None"	0.017***	0.004
	(0.005)	(0.012)
Female "None"	0.003	-0.009***
	(0.002)	(0.003)
		only living alone

*** $p < .01$, ** $p < .05$, * $p < .1$

Coefficients in each row correspond with the difference for the outcome of interest, given by the column header, between the identity category and that of the reference group. Standard errors are in parentheses. The reference group for gender variables is cisgender men, while the reference group for race is a white person. Further, each regression clusters standard errors at the state level, excludes individuals who are recorded as trans* due to imputation of gender at birth, and considers only observations during weeks 49 through 57.