

## **Changing Patterns in Informal Work Participation in the United States 2013–2015**

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### **Abstract**

In light of the weak labor market conditions that prevailed in the United States from 2008 until recently, participation in alternative income-generating activities, such as informal side jobs, is likely to have increased during that period. According to the same logic, participation in informal work should have declined more recently, as conditions in the formal labor market improved. However, in recent years technological innovations have created a number of new opportunities for engaging in informal work. Such innovations may have promoted structural increases in informal work participation, and, if so, we would expect informal work participation to remain elevated or increase further even as the economy improves. To test these predictions we designed the Survey of Informal Work Participation, fielded within the Federal Reserve Bank of New York's Survey of Consumer Expectations (SCE-SIWP). The survey was fielded in December 2013 (Survey 1) and again in January 2015 (Survey 2), on two separate, nationally representative samples. We find that the participation rate increased significantly between the surveys, among both men and women. Differences in participation rates based on educational attainment (among both men and women) and differences based on an individual's formal wage (among men) became less pronounced between the surveys or disappeared altogether. We hypothesize that recent increases and improvements in the supply of informal work platforms help to account for the higher participation rate in Survey 2, as well as for the fact that the set of informal workers appears more socioeconomically diverse in Survey 2 than in Survey 1. Our results further suggest the existence of two distinct groups—one group of individuals who work informally to offset negative economic shocks, and another group who work informally despite being already fairly well off.

### **JEL Classification: R11, R23**

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# 1. Introduction

The Great Recession caused the loss of millions of jobs across the United States. Of those able to maintain their employment, many faced reductions in hours that shifted them into part-time status and were often accompanied by a loss of essential benefits such as health care. The job losses also contributed to significant income losses that were not fully replaced by unemployment insurance and other government programs (Rothstein and Valletta 2014). According to the Bureau of Labor Statistics (BLS), the national unemployment rate increased from 5 percent to 9.5 percent from the beginning of the recession (December 2007) to its official end date (June 2009) and subsequently rose to a peak of 10 percent in October 2009. Nearly eight years after the onset of the Great Recession, the unemployment rate has only recently approached its pre-recession range and remains, at 5.1 percent as of September 2015, well above the 4.4 percent rate achieved in May 2007. In addition, a broader measure of labor market slack given by the U6 rate—which includes people working fewer hours than desired—remains at 11.3 percent as of the second quarter of 2015 (seasonally adjusted), more than 3 percentage points above its pre-recession minimum of 8.2 percent.

In light of the weak labor market conditions that prevailed in the United States from 2008 until recently, we might have expected that participation in alternative income-generating activities, such as informal side-jobs, would have increased during that period.<sup>1</sup> According to the same logic, participation in informal work should have declined more recently, as conditions in the formal labor market improved. However, in recent years technological innovations have created a number of new opportunities for engaging in informal work. Such innovations may have promoted structural increases in informal work participation, and, if so,

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<sup>1</sup>By informal work we refer to any income-generating activity that does not involve a contract between an employer and an employee (except possibly for contracts involving a single task). This definition includes activities that monetize possessions (such as selling used goods or renting out one's property) as well as activities that monetize free time and skills (such as babysitting). Typical features of informal work are the following: (1) it involves a greater degree of scheduling freedom than a formal job would, (2) the worker is paid on a per-service or per-good basis, and (3) the work does not provide benefits such as health insurance or pension contributions. See Gërxhani (2004) for a literature review discussing the wide range of definitions of the informal sector. Gërxhani's discussion, however, predates the recent rise of mobile technologies facilitating informal work.

we would expect informal work participation to remain elevated or increase further even as the economy improves.

To test these predictions, we designed the Survey of Informal Work Participation, fielded within the Federal Reserve Bank of New York's Survey of Consumer Expectations (SCE-SIWP).<sup>2</sup> The survey was fielded in December 2013 (Survey 1) and again in January 2015 (Survey 2), on two separate, nationally representative samples. Our main motivation in the first survey (Survey 1) was to assess the extent and intensity of participation in paid informal work activities and its determinants, the types of activities engaged in, and the extent to which engaging in such activities helped individuals to compensate for negative economic shocks experienced during the recession and afterwards.<sup>3</sup> Our main motivation in the second survey (Survey 2) was not only to follow up on the main outcomes from Survey 1, but also to determine whether the motivations for engaging in informal work, and/or the types of individuals drawn to such work, changed over time as the labor market improved.

In Survey 1, 40 percent of respondents (whether female or male) participated in some type of informal paid activity (other than completing surveys). Among men, those employed part time were more likely to participate than those employed full time, whereas among women, employment status was not a significant factor in participation. Among both women and men, and controlling for employment status, individuals with higher formal wages were less likely to participate than those with lower formal wages and informal work was driven mainly by the motivation to earn extra money. Informal work helped a significant share of those who engaged in it to offset negative effects of the recession.

In Survey 2, the share of survey-takers who reported participating in informal paid work increased significantly—from 40 percent to 52 percent among men and from 40 percent to 60 percent among women. Earning extra money remained the most widely cited reason for participating in informal work. Among both women and men, participation rates became more equal across education classes in Survey 2. Among women, this equalization reflected in part a large increase in participation among those with high school or less, while among men, the

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<sup>2</sup>The SCE, and thus also the SCE-SIWP, is operated jointly by The Conference Board and Nielsen.

<sup>3</sup>For a complete description of results from Survey 1, see Bracha and Burke (2014).

equalization embedded a large increase in participation among those with a graduate degree. Among men, participation rates became more equal across groups classified based on employment status. As of Survey 2, men from across the formal income distribution are roughly equally likely to participate in informal work, while among women, the negative association between formal income and informal participation remains in force.

The Survey 1 finding that informal work (among men) was concentrated among part-time employees—many of them seeking to offset negative employment shocks—suggested that informal participation was indicative of labor market slack. Accordingly, we observe that among men employed part time, the informal work participation rate decreased between the survey periods, while labor market conditions (including the U-6 rate) improved, consistent with the notion that individuals take on informal work in order to smooth income across the business cycle. At the same time, however, informal participation increased between the surveys among highly educated and highly paid men, an outcome that likely reflects the fact that recent technological innovations have expanded the set of informal work opportunities and made it easier to engage in such work. Indeed, among both men and women and in both surveys, more than half of those who report engaging in informal work are performing internet-based tasks. In addition, one of the categories with the highest increase in participation between surveys was “online tasks,” which refers to activities such as rating pictures or copy-editing online.

Female informal work participants in Survey 2 were more likely than those in Survey 1 to report both that informal earnings were their main source of income and that informal work helped at least somewhat to offset recent negative employment shocks. Taken together, our results suggest that some individuals continue to seek out informal work in order to offset negative economic shocks, while others engage in informal work—despite already being fairly well off—because it offers an easy way to earn extra cash. Supporting this idea, we observe that informal work participants with higher formal wages also tend to earn higher informal wages.

Another important finding from Survey 2 concerns how the Bureau of Labor Statistics would classify those who participate in informal work. We find that the BLS system classifies

some informal work participants as “employed” even though they self-report that they are *not* employed. The same type of disagreement in classification occurs to a much lesser degree among people who do not participate in informal work. This result suggests that those who engage only in informal work may be classified by the BLS as employed despite the fact that the individual does not consider informal work to constitute solid employment and may still be looking for formal work.

## **Background and Related Studies: Informal Work and the Peer-to-Peer Economy**

The number and types of paid informal work opportunities have expanded in recent years, in no small part due to the appearance of new technologies facilitating the so-called peer-to-peer economy.<sup>4</sup> Well-known peer-to-peer businesses include Uber, a taxicab-like business that connects drivers with riders via mobile phones; Airbnb, which enables individuals to rent out their home for brief stays; Amazon Mechanical Turk, which offers the opportunity to do basic computing work from home on a fee-for-service basis; and Taskrabbit, which facilitates spot contracting for personal services. All four of these businesses and many others operate through websites and/or mobile applications, and all of them were born relatively recently: Amazon Mechanical Turk was founded in 2005, and the other three in 2008 and 2009.

While online platforms have the potential to disrupt existing labor markets, information on the supply of labor to these platforms is lacking. In the past, the BLS has studied “contingent workers,” defined as those working in temporary jobs or jobs not expected to last. However, the last such report was issued in July of 2005, before many of these platforms were created, and the agency currently lacks funding to conduct a follow-up study that might capture new classes of contingent workers (Weber 2014). The U.S. Government Accountability Office (GAO 2015) recently issued a report on contingent work, but the definition of a contingent worker used in

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<sup>4</sup>These activities, or some subset of them, are also referred to as “the sharing economy” and also include cases of “crowdsourcing,” in which actors (including firms) divide a large work task among many individuals operating independently of one another, often using online-based, spot contracting.

the underlying surveys would not have captured those supplying labor to most or all online platforms.<sup>5</sup>

The best estimates of the size of the peer-to-peer economy and its importance in the U.S. economy so far have come from private firms and organizations with a wide range of interests in the topic. PricewaterhouseCoopers (PWC) estimated that, as of 2013, the five core sharing economy sectors together accounted for \$15 billion in global revenue.<sup>6</sup> Further, they predicted that between 2013 and 2025 these sectors would experience revenue growth rates ranging from 17 percent to 63 percent. The same report estimated that the five traditional rental sectors totaled \$240 billion in global revenue in 2013 and would grow at rates between -5 percent and 5 percent between 2013 and 2025.<sup>7</sup>

A self-reported study of administrative data from Uber, the online platform attracting numerous headlines recently, suggests that the firm grew exponentially during the past few years. In the 18 months ending in January 2015, the number of drivers (referred to internally as “driver-partners”) providing rides through Uber grew from nearly 0 to over 160,000. The report also found that most Uber drivers held formal employment prior to joining Uber and that they were attracted to the platform because it offers flexible hours and stable wages. This analysis by Hall and Krueger (2015) finds that many Uber drivers cite the desire to smooth income fluctuations as a reason for participating. While our own survey does not cover enough Uber drivers to enable direct comparisons with these studies, its findings shed light on broader informal labor market patterns that may also apply to Uber.

The study most comparable to our own comes from a July 2014 survey with over 5,000 respondents—commissioned by Freelancers Union and Elance-oDesk—which finds that 34 percent of the national labor force, or approximately 53 million Americans, engaged in freelance

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<sup>5</sup> Surveys of contingent workers have focused largely on employees at traditional temporary employment agencies, or those who expect formal jobs to end soon. To our knowledge, these surveys have not, so far, incorporated the expanding range of informal work opportunities.

<sup>6</sup> The core sectors consisted of: (1) peer-to-peer lending and crowdfunding, (2) online staffing, (3) peer-to-peer accommodations, (4) car sharing, and (5) music and video streaming. See PWC, “The Sharing Economy—Sizing the Revenue Opportunity.” Accessed October 15, 2015 at <http://www.pwc.co.uk/issues/megatrends/collisions/sharingeconomy/the-sharing-economy-sizing-the-revenue-opportunity.html>.

<sup>7</sup> The traditional rental sectors included: (1) equipment rental, (2) B&B and hostels, (3) book rental, (4) car rental, and (5) DVD rental.

work<sup>8</sup> over the previous 12 months.<sup>9</sup> They estimate that total annual earnings from this freelance work amounted to \$715 billion. Freelancers in this survey most often reported taking up such work for the extra income and schedule flexibility.

To the best of our knowledge, the SCE-SIWP is the only survey of informal work participation that covers a nationally representative sample and is conducted and analyzed by a disinterested party. The survey covers a broad range of types of informal work, including but not limited to, those that are facilitated by internet or mobile platforms, and allows participants to write in unlisted activities. It has the added advantage of being conducted on a recurring basis, which allows us to track changes in informal work participation and its determinants over time.<sup>10</sup> Attaching the survey to the established Survey of Consumer Expectations grants us access to the surveying expertise of Nielsen as well as additional information on responding households, including these households' expectations of economic conditions for the nation at large and for their own household. Therefore, we are in a unique position to be able to comment on changes in the informal participation rate over time and to offer insights into the reasons for such changes.

There are also several limitations of our survey that are worth noting. By definition, all individuals responding to our survey (which is conducted online and offers \$15 compensation to respondents) are doing an online task for pay. Despite the fact that our sample is nationally representative based on standard demographic and geographic dimensions, it is reasonable to suspect that individuals doing paid online survey work are more likely to participate in other forms of informal work, and, in particular, in online-based informal work, than those not responding to paid surveys would be. This selection effect may cause us to overestimate the percentage of Americans who are engaged in informal work. Given this potential bias in estimated participation levels, we focus the analysis on identifying the determinants of informal work and the motivation for such work. In addition, we have no reason to believe that the

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<sup>8</sup> Freelance work in this survey is loosely defined as supplemental, temporary, project- or contract-based work, meaning that it largely overlaps with, but does not perfectly coincide with, our definition of informal work.

<sup>9</sup> Elance-oDesk, Freelancers Union. 2014. "Freelancing in America: A National Survey of the New Workforce."

<sup>10</sup>While two surveys are not sufficient to identify a trend, as future surveys are conducted (beginning in December 2015), our ability to discern trends will improve.

selection bias should have increased between the surveys, so changes over time in participation rates should be at least qualitatively robust.

The remainder of the paper is organized as follows. Section 2 provides an overview of our data and sample characteristics. Section 3 conducts a graphical analysis of the changes in informal work participation between our two surveys. Section 4 presents a controlled analysis of these changes within a regression framework. Section 5 provides a summary of key findings and offers concluding remarks.

## **2. Data Overview**

### **2A. Survey Overview, Key Definitions, and Selection of the Analysis Sample**

Both surveys solicited information on the nature and extent of informal work activities of respondents, the reasons for participating in informal work, and the economic importance of informal work to those who participated. We also collected basic information on individual and household characteristics, such as formal employment status, homeownership status, amount of liquid savings, and household size. We have access to additional demographic and other information (such as inflation expectations and job search activity), based on subjects' prior participation in the monthly Survey of Consumer Expectations. In Survey 2 we preserved all of the most important questions from Survey 1 and added a series of questions designed to gather additional details about earnings and hours on specific informal tasks, as well as new questions designed to better assess how respondents coped with any negative effects the Great Recession had on their household financial situation. The full texts of the surveys can be found in Appendix: Survey 1 and Appendix: Survey 2.

Individuals' employment status is based on their response to the self-categorizing question "What best describes your current employment situation?" We then classify the responses into one of four employment status groups: (1) employed full time, (2) employed part time, (3) not employed formally but would like a job, and (4) other not working. The first three categories are distinct options in the multiple choice question, while the "other not working"



category includes anyone reporting one of the following: that they have no job and are not interested in a job, that they are currently on leave from a job, or that they are temporarily laid-off from a job.

The survey respondents are classified as informal work “participants” if they meet both of the following criteria: (1) on a checklist question, they indicate that they engaged in at least one paid informal work task (other than paid survey completion)<sup>11</sup> in the previous two years, and (2) on a separate question, they report a positive number of (total) paid informal work hours in a typical month. We require both outcomes to avoid any ambiguity concerning participation, because some individuals may check off an activity on the list of informal tasks and then report zero hours of typical informal work per month.<sup>12</sup> Also, the combined criteria allow us to perform Heckman regressions (covered in Section 4) that jointly examine participation and hours.

To track movements in informal work participation patterns between Survey 1 and Survey 2, all questions defining employment and informal work engagement from Survey 1 (as well as the control variables in the regression analysis) were repeated either verbatim or nearly verbatim in Survey 2.<sup>13</sup> A full draft of Survey 2, can be found in Appendix: Survey 2. We also apply a consistent set of criteria in selecting analysis samples from each set of survey responses.

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<sup>11</sup>If someone checks off only “survey completion” among the checklist of informal tasks, we do not consider that person an informal work participant. We rule out such individuals because, by virtue of participating in the SCE-SIWP, all of our respondents do paid survey work; therefore, if we included survey work among the qualifying tasks, we would (or at least should) observe a 100 percent participation rate. In fact, not all respondents mark paid survey work on the checklist, but that issue is not relevant here.

<sup>12</sup>This combination of responses does not necessarily represent a direct contradiction, because someone might have engaged in a task in the previous two years, but if that individual is not currently engaged in the task, he or she may consider zero hours to be appropriate for the “typical” month.

<sup>13</sup>The checklist question that provides the first criterion for informal participation differs in two respects between Survey 1 (question 29) and Survey 2 (question 27). The checklist in Survey 2 contains an additional item not included in Survey 1, “Driving for a ride sharing service like Uber, Lyft, or Sidecar.” Both checklist questions include an item labelled “other,” within which respondents could fill in something not on the list. Also, in Survey 1, respondents were presented with a list of tasks and were asked to check the box next to each task they engaged in during the past two years, while in Survey 2 respondents were presented with a list of tasks and asked to mark either “yes” or “no” for each task (regarding engagement in the task during the past two years). In Survey 1, no one wrote in any form of driving in the “other” tasks. In Survey 2 only six respondents marked “yes” for the “driving...” item, and, among these, only one individual marked *only* the “driving...” task. Therefore, only this last person might have been classified as a non-participant in Survey 1, and we conclude that the addition of the “driving” item to the list of tasks cannot account for the increased participation in Survey 2 compared with Survey 1.

To focus on adult respondents of working ages, we restricted the analysis sample to those ages 21 and over, and we removed anyone who indicated that he or she was retired. Any respondent supplying incomplete information on questions about his or her informal work participation, informal hours, informal earnings, formal employment status, formal earnings, formal hours, age, race, gender, educational attainment, homeownership status, or economic expectations was also removed from the analysis sample. We dropped two respondents from Survey 1 and one from Survey 2 for seemingly erroneous reporting of informal income or hours.<sup>14</sup> Finally, from each survey we removed five respondents who had (individual) annual formal incomes of \$600,000 or greater, a cutoff that is further justified in the regression analysis. Taken together, these restrictions reduced the sample size in Survey 1 from 1,218 to 778, and in Survey 2 from 1,220 to 701. Combining analysis samples from Survey 1 and Survey 2 results in a total of 1479 subjects, of whom 732 are women and 747 are men.

Although the monthly Survey of Consumer Expectations is a rolling panel survey, participants are retired after a maximum of 12 months. Accordingly, there is no overlap between the sets of respondents to our two surveys. The rolling sample is maintained by Nielsen to approximately represent Census demographics along selected dimensions. Nielsen does not use hard quotas to maintain representativeness. Sample weights are used to adjust for remaining differences between the sample characteristics (along the selected dimensions) and the national population characteristics. Therefore, each of our (weighted) samples constitutes a distinct, representative sample of the U.S. population.

## **2B. Sample Characteristics**

For each survey, summary statistics were calculated separately for women and men using survey weights to match American Community Survey national population estimates based on income, education, region, and age.<sup>15</sup> Table 1 shows summary statistics across all variables of interest for women in both surveys; Table 2 presents the corresponding statistics for

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<sup>14</sup> One subject in Survey 1 reported informal income almost identical to his formal income, while another reported formal income 87 times the amount of her formal income. In Survey 2 a subject reported 500 hours of informal work in the typical month.

<sup>15</sup> Survey 1 was weighted based on 2012 ACS population estimates, Survey 2 was weighted based on 2013 ACS population estimates.

men. For the most part, sample characteristics do not differ markedly between the surveys for either women or men, except that the (weighted) share of nonwhite respondents more than doubles between the survey periods among women and nearly doubles among men. Race is not a factor in constructing the sample weights, and therefore the increase in the nonwhite share most likely reflects natural sampling variation that is not offset by the weighting process. We include a dummy variable for nonwhite race in all regression analysis.

Along most dimensions, the sample appears representative of the U.S. population. Some differences can be expected based on the fact that our sample is restricted to non-retired individuals ages 20 and over. For example, the sample has a relatively high average level of educational attainment and relatively high average income compared with total population estimates.<sup>16</sup> Among both sexes and in both surveys, a large majority of the analysis sample are employed full time, although this share is significantly greater among men than among women. Accordingly, women are significantly more likely than men to belong to each of the other three (not full-time) employment groups. In both surveys, the percentage of self-employed is significantly higher among men than among women.

### **3. Graphical Analysis of Informal Work Patterns**

The following section discusses a series of graphical representations of various outcomes pertaining to informal work, comparing results from Survey 1 with those from Survey 2, side-by-side. The key findings that emerge from these comparisons include the following: (1) informal work participation increased significantly between the surveys, (2) between the surveys, participation rates and hours equalized across employment groups among men, (3) participation rates equalized across education groups among both women and men, (4) female informal work participants in Survey 2 were more likely than their counterparts in Survey 1 to say that informal work helped them to offset negative employment shocks, and a much larger share of these women indicated that informal work represented a primary income source, (5) for the internet-based tasks specifically, the direction of change in participation is ambiguous,

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<sup>16</sup> Population estimates refer to the 2014 Current Population Survey, Table PINC-04.

and (6) not including individuals who exclusively rent or sell their own property, informal hourly wages were roughly flat between the surveys.

### **3A. Changes in Informal Participation Rates and Hours by Employment Status**

The participation rate in informal work, based on our definition above, increased among women from 40 percent to 60 percent between Survey 1 and Survey 2 (Table 1), a sizable gain considering that the surveys were conducted just 13 months apart. Among men, the participation rate increased from 40 percent to 52 percent (Table 2). The increases are highly statistically significant for both sexes.<sup>17</sup>

Among women, the participation rate increased between the surveys within each of the four employment status groups (Figure 1C), but the increases are statistically significant only among those employed either full time or part time. Among men, the overall increase in informal participation between the surveys masks marked differences across employment status groups in the way that participation changed (Figure 1A). Participation increased more than nine-fold among men in the “other not working” group and increased significantly, if less dramatically, among men employed full time. However, participation was roughly flat among non-employed men who want a job, and actually declined among men employed part time, although the latter change is statistically insignificant. Among men, the net result of changes in participation by employment status is that rates appear to differ less across the different employment groups in Survey 2 than in Survey 1.

Among all female informal work participants, average hours of informal work per month increased between the surveys (Table 1). The absolute increase in hours was roughly equal across all four employment groups (Figure 1D) among women. These increases would appear to be economically significant, but in general the hours estimates are imprecise and none of the differences are statistically significant. Among male informal participants, average informal hours per month declined in the aggregate between surveys (Table 2). However, the changes in

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<sup>17</sup> Two way *t*-tests show a statistically significant difference for both men and women at below the 1 percent level.

hours differ in magnitude and/or sign depending on employment status, such that hours are much closer to equal across the employment groups in Survey 2 (Figure 1B).

Figures 1E and 1F show informal work participation rates by educational attainment. Among men (Figure 1E), the participation rate increased between the surveys within each of our four education groups. The increase was greatest among men with a graduate degree, who had the lowest participation rate in Survey 1, and weakest among those with a bachelor's degree, who had the highest participation rate in Survey 1. Combined with moderate increases among the remaining two groups, the result is that participation rates in Survey 2 exhibit considerably less variation across education groups than in Survey 1. Participation rates among women also increased across all education groups and became less dispersed in Survey 2. The largest increase occurred among women with a high school diploma or less, the group with the lowest initial participation rate, and participation also increased by a large and significant margin among those with some college.

### **3B. Informal Pay: Monthly Income and Hourly Wages**

Figures 2A and 2B describe average monthly income from informal work and average informal hourly wages, by sex and survey. The informal hourly wage for each informal work participant is calculated as the ratio of total monthly income from informal work to total monthly hours of informal work, based on the relevant survey questions.<sup>18</sup> In both figures, averages are calculated first over the set of all informal participants and then over a sample that excludes participants who engage only in renting out their own property and/or selling their own goods (whether online or in stores). The excluded group, which comprises 21 percent of the female analysis sample and 22 percent of the male analysis sample, will be referred to as

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<sup>18</sup> There are some wording differences between the surveys in the questions on total informal hours and total informal pay. In Survey 1, respondents are asked to write in the total number of hours spent on all informal activities in a typical month (including paid survey work), and the total money earned across all activities on average in a month. Survey 2 first prompts respondents to consider all informal activities in which they participated during the past two years, including paid survey work, and then elicits hours in a typical month and average earnings per month. These changes were made to clarify the questions and help participants answer them correctly. Although we cannot isolate the impact of these wording changes, we do not expect them to significantly bias the comparison of responses across survey periods. However, the survey differences will be kept in mind when interpreting these comparisons. In Survey 1, total informal hours and total informal pay, respectively, are elicited in questions 36 and 38. The corresponding questions in Survey 2 are numbered 29 and 30.

(exclusive) “lessors/sellers,” and the remaining sample will be referred to as “non-lessors/non-sellers.” However, non-lessors/non-sellers may engage in renting and selling tasks in addition to other informal work.<sup>19</sup> We exclude lessors/sellers from some calculations because previous results from Survey 1 (reported in Bracha and Burke 2014) suggest that the motivations for participating in informal work, as well as outcomes from such work, may be quite different among lessors/sellers than among others. In particular, those who rent or sell their own property may be monetizing stored asset values more than their time and skills; therefore, engaging in such tasks may be less indicative than engaging in some other types of tasks, of a willingness to supply additional labor to a formal job.

Among all female informal work participants, average informal income per month decreased between the surveys. However, excluding lessors/sellers, women’s informal monthly income increased by a small (but not statistically significant) margin, indicating that the aggregate decline in informal income was driven by declines among the exclusive lessors/sellers. Among male participants, average monthly informal income increased between the surveys by roughly 10 percent, regardless of whether we consider the full sample or only non-lessors/non-sellers; however, neither increase achieves statistical significance.

For the full participant sample, women’s average informal *hourly* wage declined by more than half between the surveys, an economically and statistically significant margin. Similar to the case of women’s monthly informal income, however, the decline in the hourly wage is much smaller (and becomes statistically insignificant) when lessors/sellers are excluded. Among men, the average informal hourly wage fell by a modest margin between surveys for the full set of participants and yet increased by a decent margin among non-lessors/non-sellers. Although neither of these changes in men’s informal wages is statistically significant, the results suggest that declines in the informal hourly wage were concentrated among lessors/sellers.

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<sup>19</sup>To be considered a non-lessor/non-seller, a participant must mark engaging in at least one informal work task *other than* paid survey work, selling goods online, selling goods in consignment shops, or renting property. The individual must also report a positive value for total informal work hours per month.

### 3C. Reasons for Informal Work and its Economic Importance to Participants

Our survey (in both iterations) asks the relevant respondents to describe their reasons for participating in informal work. The survey question provides six specific reasons, as well as the option to write in other reasons, and respondents are asked to check (or fill in) all reasons that apply. Figure 3 shows the percentage of informal work participants who marked each of five specific reasons, as well as the percentage who filled in other reasons. (The two reasons “maintain existing job-related skills” and “acquire new job-related skills” are combined into a single category marked “skills,” to yield five reasons. Percentages do not sum to 100 because participants could select more than one reason.) Not surprisingly, the top reason by far for engaging in informal work, selected by both men and women and in both surveys, was to earn extra income. A related reason was “to earn primary income,” but this choice was much less common than earning extra income (see immediately below). The second most frequently chosen reason (for both sexes in both surveys) was that informal work represents a hobby or source of fun, and this response increased significantly among women between the surveys. The ranking of the remaining responses varies by sex and by survey period, resulting in no consistent third place choice. While less common than either the “extra income” response or the “hobby” response (for both sexes and both surveys), the “primary income” response more than doubled among women between the surveys, and this difference is statistically significant. Among men, the frequency of the “primary income” response declined significantly between the surveys, however.

Figure 4 summarizes responses among informal work participants to the following survey question: “To what extent has paid informal work or side jobs helped you to offset the negative effects of unemployment spells, loss of working hours, loss of benefits, or stagnant wages in a formal job?” The available responses to the question were “very much,” “somewhat,” “not at all,” and “the question does not apply.”<sup>20</sup> Comparing the responses to this question between the two surveys, it appears that, among female participants, informal work became more important in offsetting economic shocks. The percentage of women who marked the

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<sup>20</sup> Among informal work participants, those who marked “does not apply” presumably did so because they did not suffer any of the negative events described, rather than because they didn’t engage in informal work.

“somewhat” response increased by a large margin, as did the share who said “very much,” while the share who marked “does not apply” fell by a similar margin. However, none of these differences is highly statistically significant, and the share of women who marked “not at all” increased between surveys by a small margin. Among male informal work participants, responses to the same question show no clear change in either direction between the surveys and the most common response in both surveys was “does not apply.”

Figure 5 shows informal participation rates by task among women for both surveys, conditioning on general participation in informal work. The most popular task by far in both surveys was selling goods online. Among the 11 tasks that saw increases in participation rates among women, performing online tasks (which does not include selling goods online) posted by far the biggest increase, and among the three tasks for which participation declined, renting property online saw the biggest decrease. Figure 6 shows participation rates by task and survey period among male informal workers. Selling goods online was also the top-ranked task among men in both surveys, and participation in this task increased by a moderate margin between the surveys. Participation in performing online tasks increased by a decent margin among men, while renting property online declined in popularity, changes that agree qualitatively with those observed among women but that are not statistically significant. These patterns indicate that participation in online-based informal work did not increase uniformly between the surveys, but rather that the changes were task-specific. For the remaining tasks, participation rates among men did not exhibit economically or statistically meaningful changes between surveys.

#### **4. Regression Analysis: Changes in the Determinants of Informal Work between Surveys**

To delve more deeply into the factors associated with informal work outcomes and their changes over time, we estimate Heckman models of discrete informal work participation (extensive margin) and log informal hours, conditional on participation (intensive margin).<sup>21</sup>

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<sup>21</sup> We estimated the models using maximum likelihood with robust standard errors.



Lacking a formal conceptual framework for the simultaneous choice of labor supply to formal and informal markets, coefficient estimates are treated as associations that may or may not be causal. The discussion section that follows offers possible interpretations for the associations observed in this section.

Within each sex, we combined the analysis samples from Survey 1 and Survey 2 and conducted regressions over the merged (sex-specific) samples. Summary statistics by survey period and sex are provided in Tables 1 and 2. Combining the samples allows us to test for differences in the associations between the explanatory variables and informal work participation (or hours) between the two survey periods, and to test for wholesale shifts in average outcomes over time, controlling for other factors. In merging the samples, we adjusted the sample weights such that the sum of the weights from either survey accounts for exactly half of the total sum of weights.<sup>22</sup>

The main results of the regression analysis are that: (1) among both women and men, significant differences in participation rates by educational attainment that hold in Survey 1 become insignificant in Survey 2, consistent with observations from the graphical analysis above; (2) among men, the significant negative association between the formal wage and the participation probability observed in Survey 1 increases to zero or even a small positive value in Survey 2; (3) among men, as of Survey 2, having “other not working” employment status no longer predicts a lower participation probability compared with being employed full time; and (4) for both women and men and conditional on participation, a significant negative association continues to hold between the informal hourly wage and the average number of informal hours worked per month, and among women, the coefficient increases in magnitude in Survey 2.

As above, an individual is deemed an informal work participant if he or she reports having engaged in at least one non-survey informal work activity within the past two years *and*

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<sup>22</sup> Conditioning on the observations included in a given regression, original weights are multiplied by a constant and divided by the sum of original weights over the included observations in the survey-by-sex subgroup. The value of the constant does not affect the relative weights and thus has no bearing on regression results. We used the value 350 because it is approximately equal to the sum of subgroup weights and leads to a minor adjustment ratio.

indicates a positive number of typical informal hours.<sup>23</sup> Among those currently employed in one or more formal jobs, the formal wage is defined as the individual's hourly wage in his or her current (main) job. Among those not currently employed, we use the reported hourly wage in the most recent formal job held by the individual.<sup>24</sup> We find that while the (log) formal wage is a significant factor in the discrete participation decision, in most models it does not affect the choice of informal hours, conditional on participation. Therefore, we omit the formal wage from the log hours equation, a step that helps to identify the Heckman model. A key factor to include in the hours equation is the (log) hourly wage earned in informal work. This wage represents a natural economic incentive affecting the supply of informal hours, but it is likely to be endogenous; this issue is discussed in the interpretation of results. As described above, the informal wage is calculated as the ratio of subjects' reports of total informal earnings per month and total informal hours per month.

In both the participation equation and the hours equation, we also include three employment status indicators (the omitted category is employed full time), three educational attainment indicators (high school or less is the omitted group), age, dummy variables for nonwhite race, married or cohabiting, and owning one's home, and a list of household expectations observed in the SCE.<sup>25</sup> The effects of the main covariates are robust to omitting the expectations variables and the homeowner dummy.

## 4A. Primary Results

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<sup>23</sup> The individuals who are assigned a zero for the participation equation must have zero hours. Therefore, in cases in which a respondent marked only survey work on the checklist and reported nonzero informal hours, we set their hours to zero. Although those who participated only in survey work are defined as non-participants, among those defined as participants the reported number of hours spent on informal work could include hours spent on surveys, because participants might engage in survey work in addition to their other informal tasks and they are asked to report total hours across all tasks.

<sup>24</sup>In both surveys, individuals have the option to report formal earnings (either in their main current formal job or in their most recent formal job) on either a per-year, per-month, per-two weeks, per-week, or per-hour basis. For those reporting on a per-year, per-month, per-two week, or per-week basis, the formal hourly wage is determined by using the individual's separate report of typical hours of formal work per week.

<sup>25</sup> These include the household's expectations (all at the one-year-ahead horizon) of inflation, the family's financial situation (better off or worse off), the chance that unemployment will increase, and the chance that stock market indexes will increase.

Table 3 shows, for women and men respectively, results of the Heckman regressions on the combined analysis sample. Model 1 includes the full set of controls, a Survey 2 dummy variable, and interaction terms between all covariates and the Survey 2 dummy. Model 2 excludes all interaction terms that have statistically insignificant coefficients in Model 1. The values of both the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) are lower for Model 2 than Model 1, for both women and men, indicating that the parsimonious model is preferable to the model with all interaction terms. Therefore, in the following discussion, unless noted otherwise, we refer exclusively to results from Model 2. However, the selection is not critical because most results are qualitatively robust across the two models.

*i) Women's Participation*

Recall from above that raw participation rates increased between the surveys among women from 40 percent to 60 percent. However, in the estimated participation equations for women (Table 3, column 3) the coefficient on the standalone dummy for Survey 2 is not significantly different from zero and the point estimate is close to zero. The main effect on participation of having a bachelor's degree is positive and significant, but the interaction between bachelor's degree and Survey 2 is negative and significant, such that in Survey 2 the net effect of having a bachelor's degree on participation cannot be distinguished from zero. (We conduct a Wald test to determine whether the sum of the main effect and the interaction effect differs from zero; the p-value, shown in one of the bottom rows of the table, indicates that the sum is not significantly different from zero.) A similar qualitative pattern applies to the effect of having a graduate degree on participation—it predicts higher participation in Survey 1 (with marginal significance), but the net effect in Survey 2 is not different from zero (again see the p-value on the test of the sum of relevant coefficients in the bottom of Table 3). Referring back to Figure 1F, the flattening of the education gradient can be accounted for by the fact that participation increased by a large margin among women with a high school degree or less and increased by more modest margins among women with either bachelor's or graduate degrees.

The main coefficient on the formal wage is negative and significant.<sup>26</sup> The coefficient on the interaction between the formal wage and the Survey 2 dummy is positive in both Model 1 and Model 2, suggesting that the negative association between the formal wage and participation became weaker in Survey 2. However, based on the p-value for the sum of coefficients in Model 2, we cannot draw this conclusion, even though the Model 1 results suggest that this may be the case.

Among women, employment status exhibits no significant effects on the tendency to participate in informal work in either survey period. This result may seem surprising, but it agrees broadly with the findings of the graphical analysis.

ii) *Women's Hours*

Turning to the hours equation for women—column 4 of Table 3—the positive coefficient on the Survey 2 dummy suggests that, among female informal work participants, average informal hours increased between the surveys for reasons not captured by the other factors. However, the effect is small in magnitude (an increase of less than one hour) and only marginally statistically significant. We also observe a significant negative association between the (log) hourly informal wage and the (log) number of informal hours worked. The coefficient on the interaction between the informal wage and the Survey 2 dummy is negative and highly significant, indicating that the negative association grew even stronger in Survey 2.

Results also indicate that women employed part time supply more hours to informal work than women employed full time, and the coefficient does not differ significantly between the surveys. The coefficient on “want a job” is also positive but is not statistically significant.

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<sup>26</sup> Taking the example of a woman in Survey 1 and applying Model 1, where the coefficient on the reservation wage is strongest in absolute value, the probability of participating in informal work declines by 19.1 percent (relative to the baseline probability) for each additional *log* dollar of hourly wage in formal work. For the median woman in Survey 1 with a reservation wage of \$16.93, a one-dollar increase (*not* in logs) in her reservation wage would result in a 1.1 percent decrease in the probability of participating in informal work. The impact of a one-dollar wage increase grows as the initial wage decreases; for example, an increase in the reservation wage from \$9 to \$10 implies a 2 percent decline in the probability of informal work participation.

iii) *Men's Participation*

Turning to men's informal work outcomes, we noted previously (in the descriptive analysis) that informal work participation among men increased by a statistically significant margin (from 40 percent to 52 percent) between the surveys. However, in the participation equation for men (Table 3, column 7) the coefficient on the Survey 2 indicator is negative and significant. Therefore, the increase in men's participation must reflect a combination of differences in explanatory variables and/or differences in their effects between surveys. The formal wage exhibits a negative and significant effect on men's participation probability in Survey 1. However, the coefficient on the interaction between the formal wage and the Survey 2 dummy is positive and highly significant. Based on the p-value of the sum of the main effect and the interaction coefficient (in the lower rows of the table), the net effect of the formal wage on participation in Survey 2 is significantly positive (Model 2). These results suggest that increases in participation between the surveys were concentrated among men with relatively high formal wages, resulting in a flat or even positive association between the formal wage and participation. We verify this hypothesis in the discussion section below.

The coefficients on the employment status variables indicate that, as of Survey 1, men employed part time were significantly more likely to participate in informal work, and men in the "other not working group" were significantly less likely to participate in informal work, both relative to men employed full time. The positive effect of part-time employment on participation appears to hold up in Survey 2—the coefficient on the interaction term is negative but insignificant. However, in both models the negative effect on participation of being "other not working" becomes a net zero effect in Survey 2 (testing the joint effect,  $p \geq 0.17$ ). This shift is not surprising in light of Figure 1A, which showed that participation among "other not working" men increased dramatically between the surveys, while participation among men employed full time increased by a smaller margin, bringing the rates in the two groups closer together.

Just as we observed for women, we also find for men that the significant positive effect of holding a bachelor's degree on informal participation seen in Survey 1 becomes zero in

Survey 2. Consistent with this result, Figure 1E showed that informal participation increased by a moderate margin among men with a high school education or less and increased by only a small margin among men with a bachelor's degree.

*iv) Men's Hours*

In the hours equation for men (Table 3, column 8), the significant negative coefficient on the Survey 2 dummy indicates that average hours of informal work declined between the surveys, controlling for other factors. The result agrees with the fact that men's average informal hours declined moderately in the raw data. The coefficient on the informal wage is negative and statistically significant in Survey 1. Although there is a positive coefficient on the interaction effect between Survey 2 and the informal wage, the net effect of the informal wage on hours in Survey 2 remains significantly negative.

For Survey 1, the "other not working" employment status predicts lower supply of informal hours among men, compared with full-time status, and the effect is highly significant. Just as the participation differential between these two groups disappeared between Survey 1 and Survey 2, the large and positive interaction coefficient between "other not working" and Survey 2 suggests that the hours differential may have moderated between the surveys as well, but we do not have high statistical confidence in this result. Similarly, holding a bachelor's degree exerts a negative effect on men's informal hours in Survey 1, but this effect is eliminated in Survey 2. In Survey 1, men with "some college" supply only marginally more hours than those with only a high school diploma and the effect is insignificant; however, in Survey 2 having "some college" becomes associated with supplying more hours, by a larger and statistically significant margin.

Men who expect higher inflation one year ahead supply significantly fewer hours to informal work (in both models and both surveys), and men who expect their household will be better off next year supply more hours than those with neutral expectations.

#### **4B. Robustness Analysis**

To make sure that our results are not being driven by an atypical group within our analysis sample, we estimate the above models over three different restricted samples.<sup>27</sup> First, we exclude individuals in the top 10 percent of the informal hourly wage distribution. To calculate the top 10 percent within each gender-by-survey sample, we calculate unweighted percentiles of the informal hourly wage distribution for people with strictly positive informal wages. We then omit those at the 91<sup>st</sup> percentile or higher—a total of 30 observations among women and 34 among men. We then combine the remaining observations from Survey 1 and Survey 2, separately for women and men.

Table 4 shows results of Heckman regressions on the resulting samples, using model specifications otherwise identical to those in Table 3. Again we refer only to Model 2 results in the discussion, but robustness characteristics are similar for Model 1. Coefficient estimates for the women's participation equation are highly robust (column 3), both qualitatively and quantitatively. In particular, the participation differential between women with a bachelor's degree and those with only high school is again eliminated in Survey 2. In the hours equation for women (column 4), the overall increase in hours in Survey 2 (constant term) becomes insignificant, but the point estimate is only slightly lower than in Table 3. The negative association between the informal wage and hours remains highly significant (the Survey 1 coefficient increases in magnitude), and, as above, this negative association becomes stronger in Survey 2. Effects on male participation (column 7) and hours (column 8) are also highly robust, with a few minor differences. The association between the reservation wage and informal participation increases at least to zero (if not a positive value) in Survey 2, but we are somewhat less confident that informal hours declined among men in Survey 2, and also less confident that the negative effect on hours of holding a bachelor's degree is attenuated in Survey 2 relative to Survey 1.

Figure 2 above revealed some important differences between the informal work outcomes of people who exclusively lease or sell their own property ("lessors/sellers") and other informal participants. For example, lessors/sellers supply significantly fewer hours to

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<sup>27</sup>For each new resulting sample, weights are readjusted according to the method described above.

informal work per month on average than other participants and (with the exception of women in Survey 2) also earn a higher hourly wage from informal work. Given these differences, we run regressions that omit exclusive lessors/sellers in order to ensure that they are not driving the overall results. This restriction removes 152 women and 163 men, respectively, from the baseline female and male analysis samples.

Results, shown in Table 5, are robust, with only a few exceptions worth noting. In the hours equation for women (column 4), the (positive) coefficient on the Survey 2 dummy is smaller than in Table 3 and statistically insignificant, indicating that—among non-lessors/non-sellers—average informal hours increased marginally at best in Survey 2. Also in contrast with Table 3, the negative association between the informal wage and women’s informal hours does not strengthen significantly in Survey 2 compared with Survey 1. In the men’s participation equation (column 7), the effect of the reservation wage is reduced to zero in Survey 2 (from a negative value in Survey 1), rather than becoming positive. In the men’s hours equation (column 8), results suggest that among non-lessors/non-sellers the negative association between the informal wage and men’s informal hours is attenuated in Survey 2 relative to Survey 1.

As a final robustness test we conduct regressions excluding *both* the top 10 percent of the informal wage distribution and exclusive lessors/sellers; results are in Table 6. The combined restrictions remove only 15 additional women and 17 more men (from the respective baseline samples) than were removed by disallowing lessors/sellers alone. Since there are 30 women and 34 men, respectively, in the top 10 percent of the sex-specific informal wage distributions, half of the top 10 percent of informal wage earners, whether male or female, happen to be exclusive lessors/sellers. Not surprisingly, results in Table 6 are very similar to those obtained when omitting only the lessors/sellers (Table 5). Among men, as in Table 5, the net effect of the reservation wage on participation in Survey 2 is reduced to zero rather than becoming positive as in Tables 3 and 4.



## 5. Summary and Discussion

Based on two successive, nationally representative surveys, we find that participation in paid informal work activities increased significantly in the United States between late 2013 and early 2015. While more individuals were drawn to informal work, average hours of informal work per month (among participants) did not change in any economically significant sense. Also during this time, the composition of the participant pool changed in a number of important ways. Among both women and men, participation rates became more equal across groups with different education levels, whereas previously those with a bachelor's degree were more likely to participate than members of other education groups. Among men, participation rates became more equal across different employment status groups, driven mainly by a dramatic increase in participation among those we classify as "other not working," a status similar to not being in the labor force. Also among men, the strong negative association between an individual's formal wage and his chance of engaging in informal work observed in the 2013 survey is eliminated in the 2015 survey; in some models this association becomes strictly positive in 2015. Among women, the negative association between informal hours and the informal wage becomes stronger in Survey 2, and, among men, this negative association is roughly unchanged between the surveys.

In Survey 1, many informal work participants indicated that working informally helped them at least somewhat to cope with adverse economic conditions. Among informal work participants in that survey, those who had part-time formal jobs (rather than full-time jobs or some other employment status) were most likely to report that informal work was economically meaningful to them as a response to hard times. These findings suggested that such individuals took on informal work as a way to compensate for inadequate hours or low pay in a formal job. This apparently countercyclical participation response might have led one to expect that informal work participation would decline once economic conditions improved. And while participation did in fact decline among men employed part time, the overall informal participation rate (but not hours) increased significantly during a period in which the U.S. unemployment rate fell by a full percentage point, the augmented (U6) unemployment rate fell

by 1.8 percentage points, and payroll employment increased by 2 percent. This outcome suggests that structural factors facilitating informal work may have driven a significant share of new informal work participation in recent years. At the same time, a significant share of participants in Survey 2—women in particular—were still driven to such work by economic hardship.

Among men, the informal participation rate nearly doubled among those with graduate degrees and increased by more moderate (or even small) margins among other education groups, while among women, those with only a high school education or less exhibited the largest increase in participation among education groups. Men employed part time were less likely to participate in Survey 2 than in Survey 1, while the participation rate increased dramatically among men classified as “other not working.” For women, participation increased fairly equally across all four employment groups.

The above patterns in male participation suggest that there may be two different types of male participants. On one hand, there is a group who participate in informal work mainly to make ends meet. Members of this group are likely to be unemployed men or men who are underemployed and/or earning low wages, such as those with less education. In Survey 1, indeed, the men employed part time were most likely to engage in informal work (the relatively low participation rate among unemployed men may reflect a desire to retain unemployment benefits, but we cannot be sure). By 2015, in the face of improved labor market conditions, fewer men reported that informal work represents a main source of income and men employed part time were less likely to participate than previously. That is, the part-time employed men responded as expected if informal work participation is countercyclical. However, as mentioned above, overall participation among men actually increased between the surveys. This increase stems in part from the sharp increase in participation among men with graduate-level education. These men are unlikely to be struggling to make ends meet, but might nonetheless work informally if it offers an easy way to earn extra cash.

The fact that, for men in Survey 2, we observe either a zero or positive association between the formal wage and the likelihood of participating, agrees with the notion that there are two

types of male participants in informal work. We also observe that, among men who engage in informal work, those with higher *formal* wages also tend to earn, on average, higher *informal* wages—the correlation between formal wages and informal wages among men is positive (0.2) and significant. Plotting informal participation rates for men by quartiles of the formal wage distribution from Survey 1 (see Figure 7), we find that, except for the lowest quartile, participation rates increased between the surveys within each quartile, and increased the most among those in the top quartile. Increased participation in informal work among highly educated and well-paid individuals suggests the presence of structural changes in the labor market, possibly brought about by technological advances facilitating new informal work opportunities. Examining the type of tasks men engage in, the two categories that saw increased participation are online tasks and selling online. Men with higher socioeconomic status are more likely to have both the skills and equipment needed to engage in informal work tasks requiring the use of computers and mobile devices. Importantly, the absence of a negative association between formal pay and informal work participation among men is robust even when we exclude men who are exclusive lessors/sellers. That is, the zero or positive association is not driven solely by a select group who can earn a high informal wage by monetizing valuable property.

In contrast with men, among women (as noted above), the increase in participation between surveys was particularly sharp among those with only a high school education or less. At the same time, the share of female participants in informal work who reported that informal work represents a “main source of income,” rather than just “extra income,” more than doubled between the surveys, and the share of the same group who said that they had recently experienced negative employment shocks also increased between the surveys. That is, despite the fact that the overall economy improved between our surveys, among women the increase in participation over that period was driven in part by increased participation among socioeconomically disadvantaged (that is, less-educated) women seeking to offset economic hardship. Yet, women employed in full-time jobs also increased their participation rate between the surveys, and, as seen in Figure 7, female participation increased across all four quartiles of the (female) formal wage distribution. These patterns are consistent with the hypothesis that

structural factors contributed to increased participation in recent years. Among women, the share of survey-takers who engaged in paid (informal) housecleaning work increased between the surveys, as did the share who performed online tasks, facts that also suggest that increases in participation may have been driven by at least two different types—those with less education and low skills and those with relatively high education and high skills.

These results, among both women and men, indicate that informal work opportunities are being used by Americans with increasingly diverse skill levels, formal incomes, and degrees of attachment to the formal labor market. This change likely reflects the increasingly diverse and accessible set of informal work opportunities that have become available in recent years. In addition, the improving economy may have spurred demand for goods and services produced in informal markets as well as formal markets. If so, additional labor resources would have been drawn into the production of such goods, independently of technological forces favoring increased participation.

On the intensive margin, the supply of informal hours is strongly negatively associated with the informal wage, an association that became stronger among women in Survey 2 but that is roughly constant over time among men. This association indicates that those earning higher informal wages tend to supply fewer hours of informal work. We cannot confidently give a causal interpretation to this latter finding because the informal wage is potentially endogenous in informal hours. For example, someone who owns a valuable apartment that can be rented out for high fees might be able to earn large sums of money via Airbnb with very little time input, and can effectively choose his informal wage simultaneously with his choice of hours.<sup>28</sup> Nonetheless, the negative association suggests that individuals may target a monthly (or yearly) earnings level from informal work.<sup>29</sup> It is likely to be easier to target earnings in the context of informal work because the supply of informal hours is subject to greater flexibility than is the supply of formal hours.

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<sup>28</sup> Depending on the type of informal work being performed, the nature of the hourly wage may be quite different. For example, Amazon Mechanical Turk pays a relatively constant wage per hour of work. In contrast, there is no set wage for selling goods on eBay or renting property through Airbnb.

<sup>29</sup> Income targeting has been observed in previous research concerning cab drivers and bicycle messengers (respectively, Camerer et al. 1997 and Goette and Fehr 2007).

Because, at least among some participants, informal work represented a response to negative events associated with the Great Recession and its aftermath, in Survey 2 we asked people to list any other actions taken to cope with the recession, not including working informally (questions 39–42). We find that, among those who experienced negative consequences of the recent recession, the primary response among both men and women was that they consumed less and reduced their spending. The two next most common responses were that they did more price searching and more house work. Women who were adversely affected by the recession and who also worked informally were more likely to report buying and spending less as a way to cope with hard times than women who suffered from the recession but did not engage in informal work; the former group also engaged in a greater number of coping strategies than the latter group, where both results suggest that women who worked informally experienced especially severe effects of the recession. Among men, however, we do not observe any difference in the response to the economic downturn between informal workers and others.

Given the increasing prevalence of informal work, it is important to consider how the U.S. Bureau of Labor Statistics (BLS) would classify informal workers in terms of employment status. The BLS employment classification hinges on whether an individual did any work for pay in the previous week. Therefore, individuals who do not have a formal job might be classified by the BLS as employed, whether part time or even full time, solely on the basis of informal work. Whether this is appropriate or desirable is an open question, but either way it is important to determine whether the meaning of “employed” status according to the BLS might be changing over time with the rise of informal participation. Survey 2 gives us a unique opportunity to determine how informal workers would be classified under the BLS system, because in that survey respondents were asked both our own employment-status question and the relevant questions taken from the BLS Current Population Survey. Of the 54 individuals in Survey 2 who described themselves as unemployed, about 13 percent (7 individuals) would be classified as part-time workers by the BLS, and of the 53 who indicated they are “other not working,” roughly 19 percent (10 individuals) would be classified as either full-time or part-time workers by the BLS. In total, 17 individuals would be classified as employed under the BLS

system even though they self-report that they are not employed. Among these, 15 people are also informal work participants. This group of 15 represents about 2.6 percent of the total number of Survey 2 respondents who would be classified as employed under the BLS system, a small, but not vanishing, number.

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Figure 1A: Informal Work Participation Rates by Employment Status

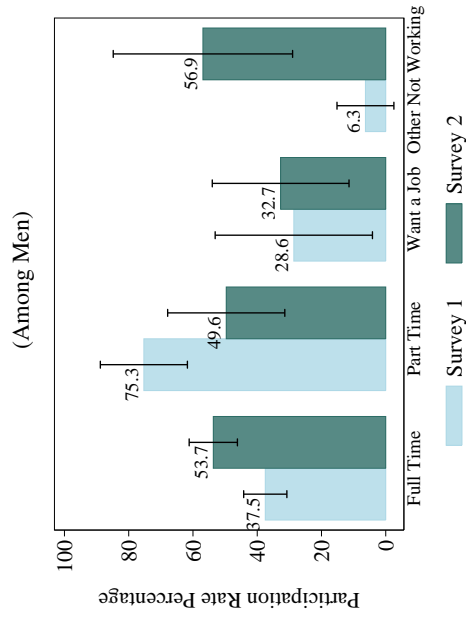
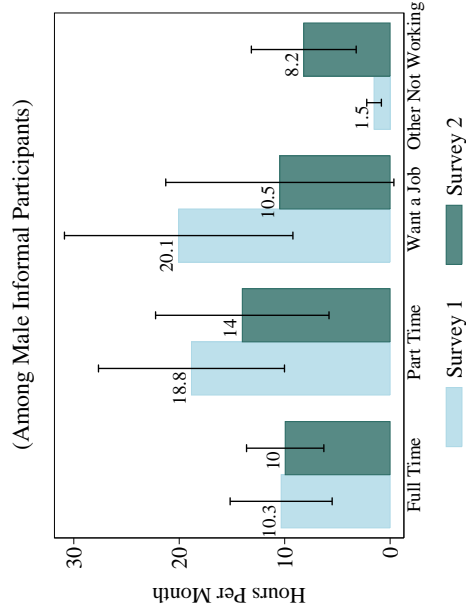


Figure 1B: Informal Work Hours by Employment Status



Source: Authors' calculations based on the Federal Reserve Bank of Boston Survey of Informal Work Participation and the Federal Reserve Bank of New York Survey of Consumer Expectations.

Notes: The black lines through each bar show a 95 percent confidence interval around each estimated mean. The upper limit of each vertical line gives the highest value in the 95 percent confidence interval of the estimated participation rate; the lower limit gives the lowest value in the 95 percent confidence interval.



Figure 1C: Informal Work Participation Rates by Employment Status

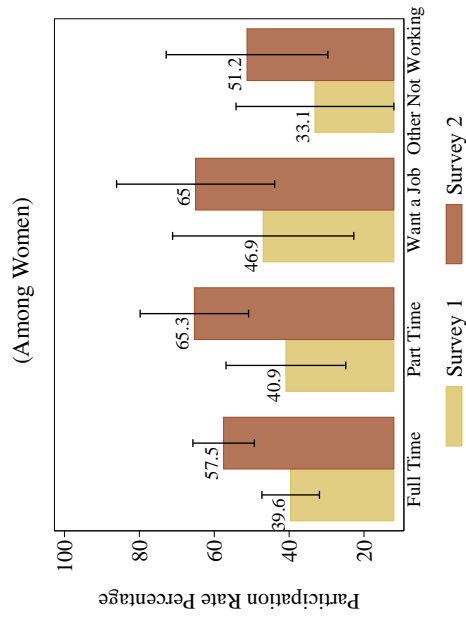
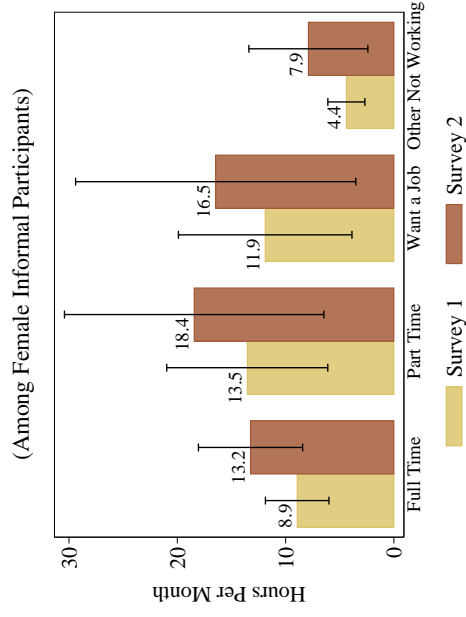


Figure 1D: Informal Work Hours by Employment Status



Source: Authors' calculations based on the Federal Reserve Bank of Boston Survey of Informal Work Participation and the Federal Reserve Bank of New York Survey of Consumer Expectations.

Notes: The black lines through each bar show a 95 percent confidence interval around each estimated mean. The upper limit of each vertical line gives the highest value in the 95 percent confidence interval of the estimated participation rate; the lower limit gives the lowest value in the 95 percent confidence interval.

Figure 1E: Informal Work Participation Rates by Educational Attainment (Among Men)

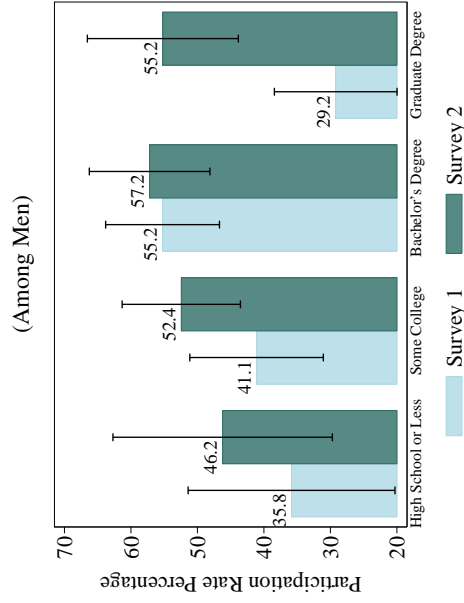
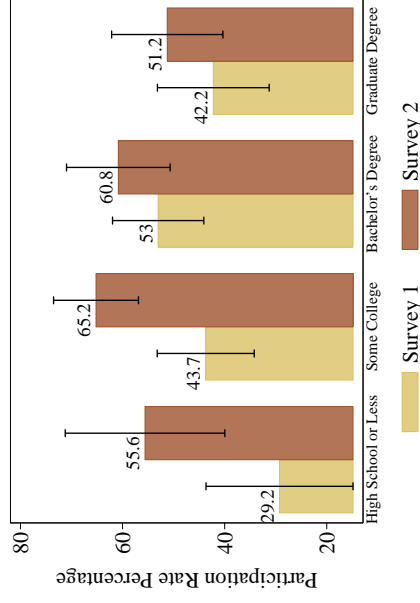


Figure 1F: Informal Work Participation Rates by Educational Attainment (Among Women)



Source: Authors' calculations based on the Federal Reserve Bank of Boston Survey of Informal Work Participation and the Federal Reserve Bank of New York Survey of Consumer Expectations.

Notes: The black lines through each bar show a 95 percent confidence interval around each estimated mean. The upper limit of each vertical line gives the highest value in the 95 percent confidence interval of the estimated participation rate; the lower limit gives the lowest value in the 95 percent confidence interval.

Figure 2A: Average Informal Income Per Month  
(Among Informal Participants)

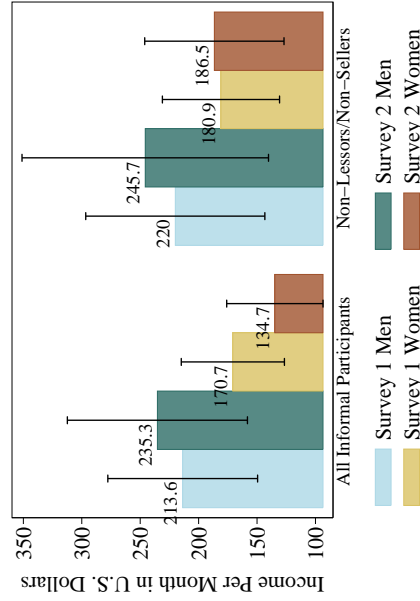
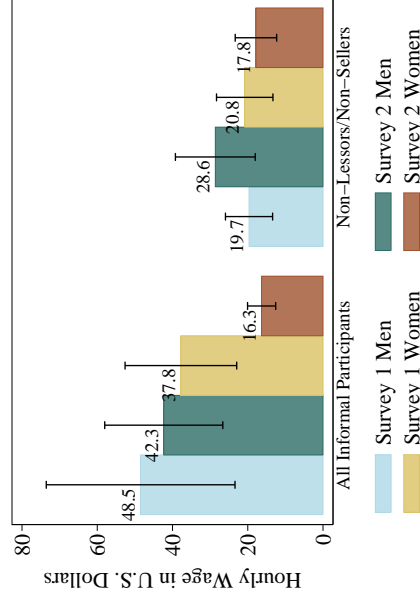


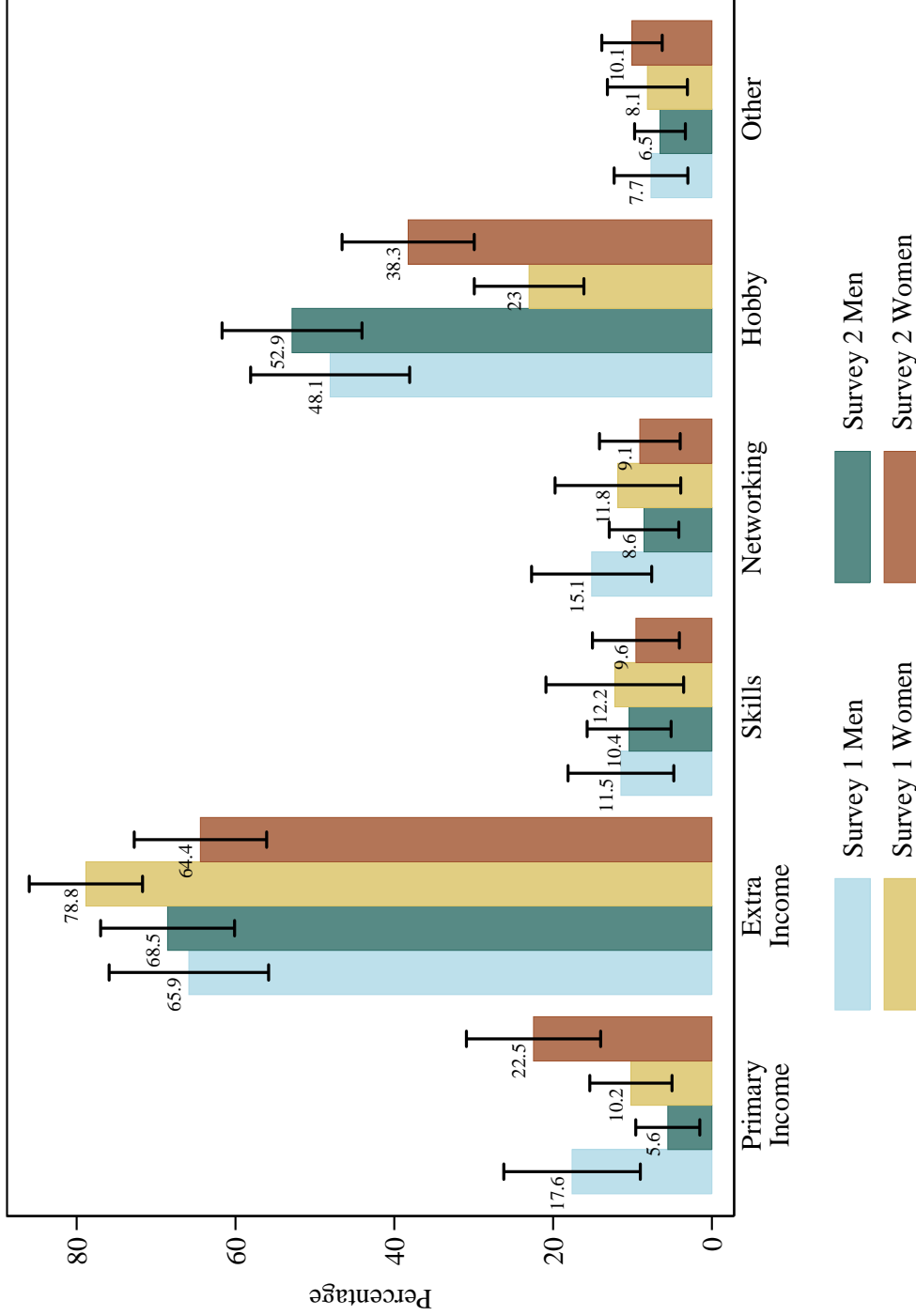
Figure 2B: Average Informal Hourly Wage  
(Among Informal Participants)



Source: Authors' calculations based on the Federal Reserve Bank of Boston Survey of Informal Work Participation and the Federal Reserve Bank of New York Survey of Consumer Expectations.

Notes: The black lines through each bar show a 95 percent confidence interval around each estimated mean. The upper limit of each vertical line gives the highest value in the 95 percent confidence interval of the estimated participation rate; the lower limit gives the lowest value in the 95 percent confidence interval.

Figure 3: Reasons for Participating in Informal Work

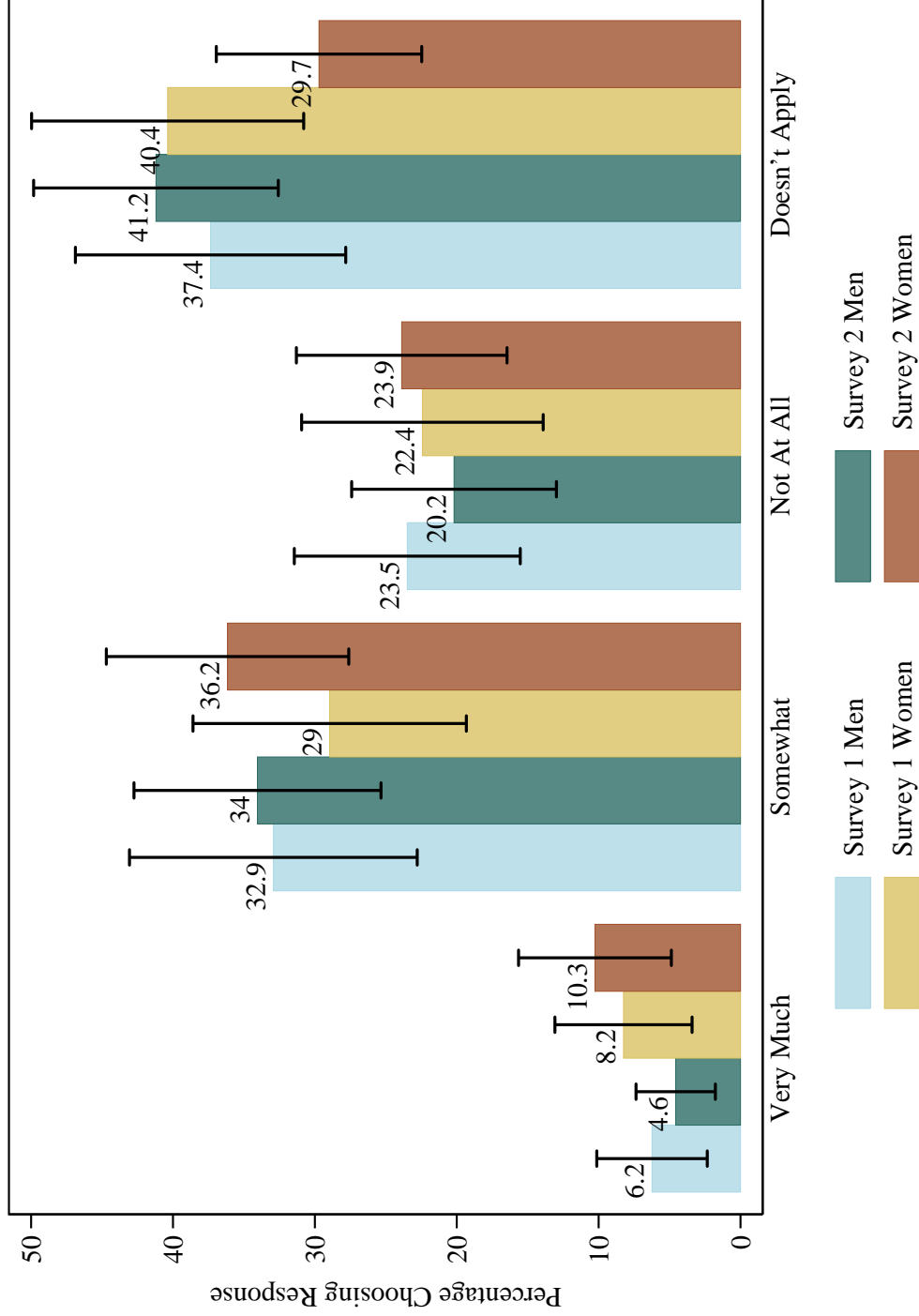


Source: Authors' calculations based on the Federal Reserve Bank of Boston Survey of Informal Work Participation and the Federal Reserve Bank of New York Survey of Consumer Expectations.

Notes: The numbers above the bars indicate the actual responses in terms of percentages. The black lines through each bar show a 95 percent confidence interval around each estimated mean. The upper limit of each vertical line gives the highest value in the 95 percent confidence interval of the estimated participation rate; the lower limit gives the lowest value in the 95 percent confidence interval.

Figure 4: How Much Did Informal Work Offset Negative Conditions of Formal Job?

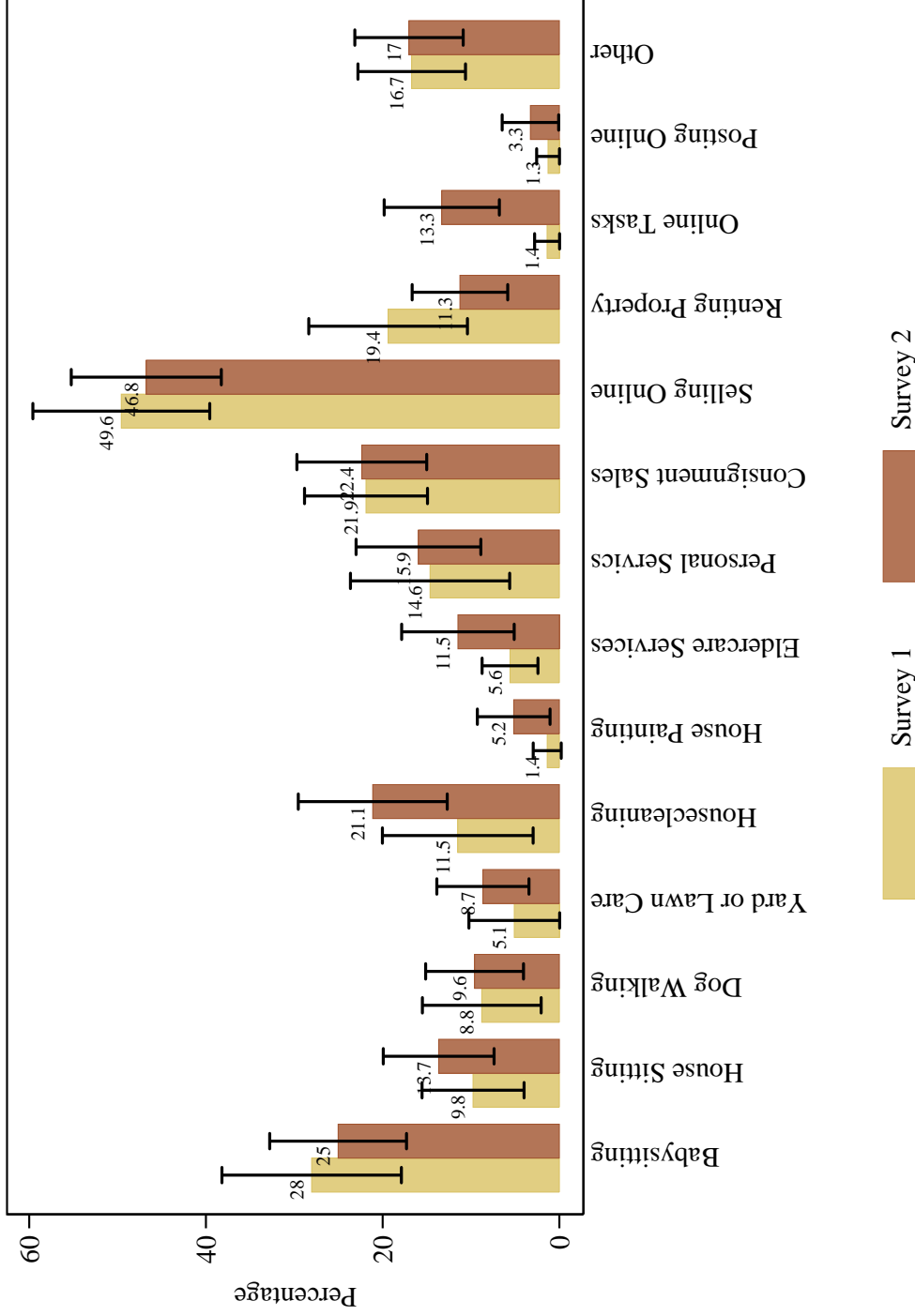
(Among Informal Participants)



Source: Authors' calculations based on the Federal Reserve Bank of Boston Survey of Informal Work Participation and the Federal Reserve Bank of New York Survey of Consumer Expectations.

Notes: The numbers above the bars indicate the actual responses in terms of percentages. The black lines through each bar show a 95 percent confidence interval around each estimated mean. The upper limit of each vertical line gives the highest value in the 95 percent confidence interval of the estimated participation rate; the lower limit gives the lowest value in the 95 percent confidence interval.

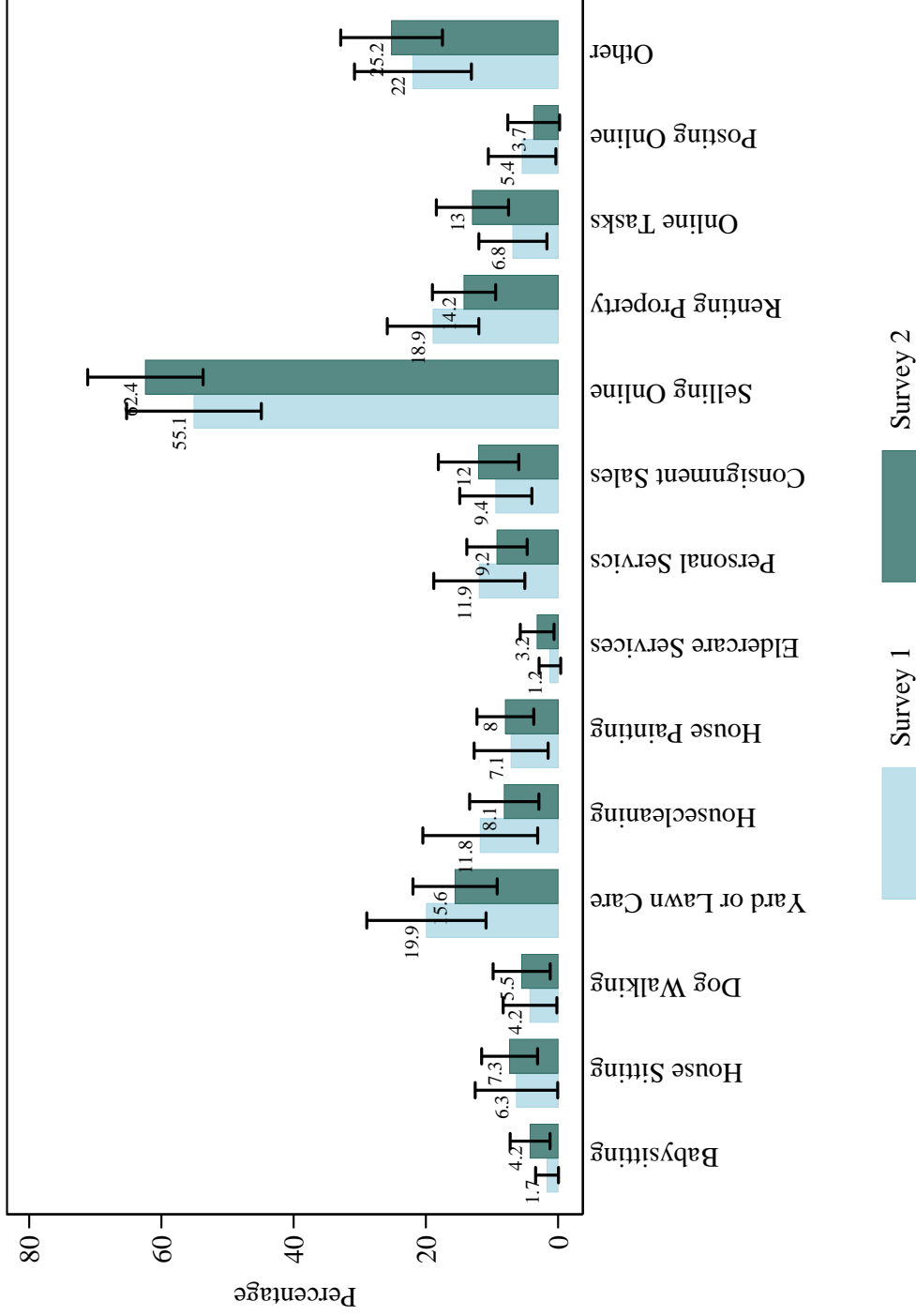
Figure 5: Informal Work Participation by Task Among Women



Source: Authors' calculations based on the Federal Reserve Bank of Boston Survey of Informal Work Participation and the Federal Reserve Bank of New York Survey of Consumer Expectations.

Notes: The numbers above the bars indicate the actual responses in terms of percentages. The black lines through each bar show a 95 percent confidence interval around each estimated mean. The upper limit of each vertical line gives the highest value in the 95 percent confidence interval of the estimated participation rate; the lower limit gives the lowest value in the 95 percent confidence interval.

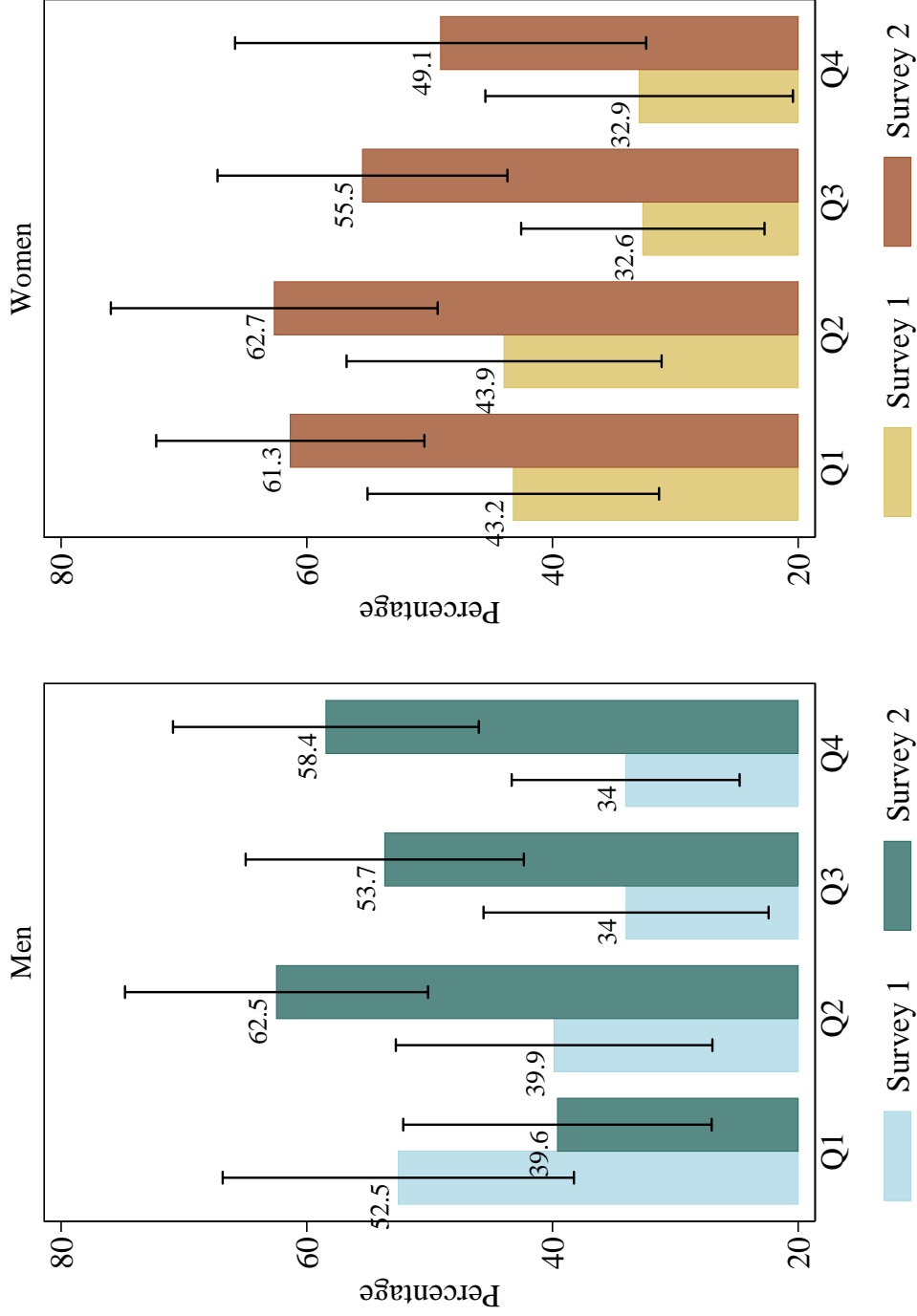
Figure 6: Informal Work Participation by Task Among Men



Source: Authors' calculations based on the Federal Reserve Bank of Boston Survey of Informal Work Participation and the Federal Reserve Bank of New York Survey of Consumer Expectations.

Notes: The numbers above the bars indicate the actual responses in terms of percentages. The black lines through each bar show a 95 percent confidence interval around each estimated mean. The upper limit of each vertical line gives the highest value in the 95 percent confidence interval of the estimated participation rate; the lower limit gives the lowest value in the 95 percent confidence interval.

Figure 7: Participation by Formal Wage Quartiles



Source: Authors' calculations based on the Federal Reserve Bank of Boston Survey of Informal Work Participation and the Federal Reserve Bank of New York Survey of Consumer Expectations.

Notes: Q1, Q2, Q3 and Q4 refer to the formal wage quartile groups, Q1 is the lowest quarter of formal wage earners and Q4 is the highest quarter. The numbers above the bars indicate the actual responses in terms of percentages. The black lines through each bar show a 95 percent confidence interval around each estimated mean. The upper limit of each vertical line gives the highest value in the 95 percent confidence interval of the estimated participation rate; the lower limit gives the lowest value in the 95 percent confidence interval.



Table 1: Weighted Summary Statistics for Women in the Analysis Samples

	Count	Survey 1 Analysis Sample			Survey 2 Analysis Sample		
		Mean	SD	Max	Mean	SD	Max
Participation (excl. survey-only)	387	.4	.49	0	.59	.49	1
Participation (incl. survey-only)	387	.9	.31	0	.9	.3	1
Age	387	47	13	21	45	12	81
High School or Less	387	.36	.48	0	.35	.48	1
Some College	387	.32	.47	0	.34	.47	1
Bachelors or More	387	.32	.47	0	.34	.47	1
Employed Full Time	387	.63	.48	0	.6	.49	1
Employed Part Time	387	.18	.38	0	.2	.4	1
Not Employed, Want a Job	387	.11	.31	0	.1	.3	1
Other Not Working	387	.09	.28	0	.11	.32	1
Formal Income, Annual	387	38,657	33,449	900	39,535	37,228	540,000
Formal Hours, Weekly	387	37	11	3	36	12	75
Formal Wage, Hourly	387	20	14	.69	20	15	207
Number of Jobs	333	1.4	1.3	1	1.4	1.1	10
Household Income, Annual	386	50-60k	2.7	1	40-50k	2.8	11
Informal Income, Monthly	179	171	289	3	135	251	2,000
Informal Hours, Monthly	179	9.8	16	.2	14	25	160
Informal Wage, Hourly	179	38	107	.75	16	31	500
Self Employed	387	.08	.28	0	.11	.31	1
Non-White	387	.13	.34	0	.28	.45	1
Expect Family Worse Off 1-Yr Ahead	387	.24	.43	0	.15	.35	1
Expect Family Better Off 1-Yr Ahead	387	.34	.47	0	.45	.5	1
% Chance U-rate Increases 1-Yr Ahead	387	.37	.24	0	.35	.23	100
% Chance Stocks Higher 1-Yr Ahead	387	.37	.23	0	.36	.24	100
Expected Rate of Inflation/Def 1-Yr Ahead	387	9.9	21	-50	4.4	16	50
Married or Living with Partner	387	.56	.5	0	.58	.49	1
Owens Home	387	.7	.46	0	.64	.48	1

Notes: \*Household income is coded in 11 discrete categories. The values reported under the mean column for this variable refer to the range corresponding to the median value. SD(standard deviation), Min(minimum) and Max(maximum) are all based on the discrete categories.

Table 2: Weighted Summary Statistics for Men in the Analysis Samples

	Count	Survey 1 Analysis Sample			Survey 2 Analysis Sample				
		Mean	SD	Max	Mean	SD	Max		
Participation (excl. survey-only)	391	.4	.49	0	1	.52	.5	0	1
Participation (incl. survey-only)	391	.87	.33	0	1	.88	.33	0	1
Age	391	46	12	22	79	356	46	21	76
High School or Less	391	.31	.46	0	1	356	.47	0	1
Some College	391	.3	.46	0	1	356	.47	0	1
Bachelors or More	391	.39	.49	0	1	356	.48	0	1
Employed Full Time	391	.74	.44	0	1	356	.44	0	1
Employed Part Time	391	.14	.34	0	1	356	.34	0	1
Not Employed, Want a Job	391	.07	.25	0	1	356	.07	0	1
Other Not Working	391	.05	.22	0	1	356	.24	0	1
Formal Income, Annual	391	62,357	57,785	1,566	530,000	56,910	52,105	15	450,000
Formal Hours, Weekly	391	41	12	5	80	356	40	13	84
Formal Wage, Hourly	391	29	27	.75	287	356	27	24	309
Number of Jobs	358	1.7	1.9	1	15	325	1.5	1	25
Household Income, Annual	391	60-75k	2.9	1	11	355	60-75k	2.8	11
Informal Income, Monthly	162	214	394	1	3,000	189	235	572	5,000
Informal Hours, Monthly	162	13	18	.1	96	189	10	20	200
Informal Wage, Hourly	162	48	185	.14	2,210	189	42	121	1,430
Self Employed	391	.17	.37	0	1	356	.16	.37	0
Non-White	391	.16	.36	0	1	356	.28	.45	0
Expect Family Worse Off 1-Yr Ahead	391	.22	.41	0	1	356	.1	.31	0
Expect Family Better Off 1-Yr Ahead	391	.39	.49	0	1	356	.46	.5	0
% Chance U-rate Increases 1-Yr Ahead	391	.39	.23	0	100	356	34	21	100
% Chance Stocks Higher 1-Yr Ahead	391	.46	.25	0	100	356	43	23	100
Expected Rate of Inflation/Def 1-Yr Ahead	391	5.5	7.2	-50	50	356	3	8.8	50
Married or Living with Partner	391	.72	.45	0	1	356	.73	.44	1
Owens Home	391	.76	.43	0	1	356	.62	.49	1

Notes: \*Household income is coded in 11 discrete categories. The values reported under the mean column for this variable refer to the range corresponding to the median value. SD(standard deviation), Min(minimum) and Max(maximum) are all based on the discrete categories.

Table 3: Weighted Heckman Regressions, Analysis Sample

	Women		Women		Men		Men	
	Participation	Hours	Participation	Hours	Participation	Hours	Participation	Hours
Survey 2	0.236 (1.58)	3.818** (1.84)	0.032 (0.55)	0.793* (0.44)	-2.126 (1.77)	-0.007 (1.76)	-1.263** (0.56)	-1.269*** (0.48)
Log Formal Wage, Hourly	-0.574*** (0.15)		-0.523*** (0.15)		-0.293** (0.13)		-0.314** (0.13)	
Log Informal Wage, Hourly		-0.412*** (0.08)		-0.388*** (0.07)		-0.454*** (0.09)		-0.472*** (0.09)
Employed Part Time	0.095 (0.25)	0.414 (0.26)	0.137 (0.17)	0.539** (0.21)	0.953*** (0.29)	0.472 (0.33)	0.609*** (0.21)	0.409* (0.23)
Not Employed, Want a Job	-0.042 (0.29)	0.451 (0.30)	0.119 (0.21)	0.260 (0.23)	-0.111 (0.43)	0.353 (0.38)	-0.250 (0.26)	0.016 (0.30)
Other Not Working	-0.293 (0.32)	-0.421 (0.29)	-0.303 (0.22)	0.016 (0.23)	-1.246*** (0.44)	-1.127* (0.60)	-1.317*** (0.44)	-1.004** (0.50)
Self Employed	0.252 (0.25)	-0.107 (0.29)	0.107 (0.19)	-0.036 (0.23)	0.283 (0.25)	0.148 (0.34)	0.218 (0.17)	0.026 (0.21)
Some College	0.535** (0.24)	-0.553* (0.32)	0.317* (0.17)	-0.418* (0.22)	0.173 (0.26)	-0.673* (0.35)	0.159 (0.23)	-0.473 (0.31)
Bachelor's Degree	0.756*** (0.26)	-0.174 (0.34)	0.657*** (0.22)	-0.149 (0.27)	0.699*** (0.26)	-0.860** (0.36)	0.624*** (0.22)	-0.582* (0.31)
Graduate Degree	0.552* (0.29)	-0.630* (0.33)	0.440* (0.25)	-0.530* (0.27)	0.112 (0.28)	-0.805** (0.36)	-0.004 (0.20)	-0.263 (0.23)
Age	-0.040 (0.05)	0.143** (0.06)	-0.045 (0.03)	0.081* (0.04)	-0.038 (0.06)	0.086 (0.05)	0.004 (0.04)	0.028 (0.04)
Age Squared	0.000 (0.00)	-0.001** (0.00)	0.000 (0.00)	-0.001* (0.00)	0.000 (0.00)	-0.001 (0.00)	-0.000 (0.00)	-0.000 (0.00)
Non-White	-0.687*** (0.22)	0.604** (0.28)	-0.488*** (0.14)	0.347* (0.21)	-0.168 (0.24)	0.346 (0.32)	-0.294* (0.15)	0.221 (0.21)
Expect Family Worse Off 1-Yr Ahead	-0.210 (0.21)	-0.357 (0.24)	-0.260 (0.18)	-0.176 (0.24)	-0.383* (0.23)	-0.079 (0.32)	-0.334* (0.18)	0.275 (0.27)
Expect Family Better Off 1-Yr Ahead	0.062 (0.20)	0.251 (0.19)	-0.061 (0.13)	0.070 (0.16)	-0.026 (0.18)	0.137 (0.22)	0.097 (0.13)	0.357** (0.16)
% Chance U-rate Increases 1-Yr Ahead	-0.003 (0.00)	-0.000 (0.00)	-0.003 (0.00)	0.005 (0.00)	0.004 (0.00)	0.006 (0.00)	0.002 (0.00)	0.005 (0.00)
% Chance Stocks Higher 1-Yr Ahead	0.011*** (0.00)	-0.008* (0.00)	0.012*** (0.00)	-0.012*** (0.00)	0.003 (0.00)	-0.001 (0.00)	0.003 (0.00)	0.000 (0.00)
Expected Rate of Inflation/Def 1-Yr Ahead	-0.004 (0.01)	0.020*** (0.01)	-0.005 (0.00)	0.019*** (0.01)	0.015 (0.01)	-0.059*** (0.02)	0.012* (0.01)	-0.043*** (0.02)
Married or Living with Partner	-0.088 (0.18)	0.261 (0.22)	-0.030 (0.17)	0.127 (0.22)	0.039 (0.20)	-0.031 (0.22)	-0.027 (0.14)	-0.205 (0.16)
Owns Home	0.381* (0.20)	-0.452* (0.24)	0.306 (0.19)	-0.377 (0.23)	0.002 (0.23)	-0.179 (0.26)	-0.034 (0.15)	0.125 (0.18)
Survey 2 X Log Formal Wage, Hourly	0.346* (0.20)		0.260 (0.19)		0.465** (0.18)		0.547*** (0.16)	
Survey 2 X Log Informal Wage, Hourly		-0.291** (0.12)		-0.325*** (0.12)		0.159 (0.12)		0.194 (0.12)
Survey 2 X Employed Part Time	0.091 (0.34)	0.075 (0.40)			-0.654 (0.40)	-0.116 (0.42)		
Survey 2 X Not Employed, Want a Job	0.359 (0.43)	-0.258 (0.46)			-0.214 (0.53)	-0.516 (0.60)		
Survey 2 X Other Not Working	-0.002 (0.43)	0.633 (0.43)			1.624*** (0.56)	1.290* (0.76)	1.798*** (0.55)	1.113 (0.70)
Survey 2 X Self Employed	-0.213 (0.38)	0.091 (0.43)			-0.088 (0.33)	-0.259 (0.42)		
Survey 2 X Some College	-0.433 (0.35)	0.140 (0.43)			-0.033 (0.35)	1.021** (0.45)	-0.032 (0.28)	0.757** (0.37)
Survey 2 X Bachelor's Degree	-0.829** (0.37)	-0.239 (0.46)	-0.636** (0.26)	-0.171 (0.30)	-0.643* (0.36)	0.923** (0.45)	-0.537** (0.27)	0.624* (0.37)
Survey 2 X Graduate Degree	-0.763* (0.40)	0.218 (0.46)	-0.530* (0.30)	0.182 (0.32)	-0.163 (0.40)	0.749 (0.48)		
Survey 2 X Age	-0.026 (0.07)	-0.114 (0.08)			0.069 (0.08)	-0.096 (0.08)		
Survey 2 X Age Squared	0.000 (0.00)	0.001 (0.00)			-0.001 (0.00)	0.001 (0.00)		
Survey 2 X Non-White	0.265 (0.29)	-0.316 (0.38)			-0.219 (0.31)	-0.115 (0.41)		
Survey 2 X Expect Family Worse Off 1-Yr Ahead	-0.053 (0.37)	0.326 (0.43)			0.061 (0.34)	0.861 (0.53)		
Survey 2 X Expect Family Better Off 1-Yr Ahead	-0.229 (0.27)	-0.321 (0.30)			0.223 (0.25)	0.464 (0.30)		
Survey 2 X % Chance U-rate Increases 1-Yr Ahead	-0.002 (0.01)	0.008 (0.01)			-0.004 (0.01)	0.000 (0.01)		
Survey 2 X % Chance Stocks Higher 1-Yr Ahead	0.003 (0.01)	-0.007 (0.01)			0.001 (0.01)	0.002 (0.01)		
Survey 2 X Expected Rate of Inflation/Def 1-Yr Ahead	-0.002 (0.01)	-0.025*** (0.01)	-0.002 (0.01)	-0.022** (0.01)	-0.005 (0.02)	0.022 (0.03)		
Survey 2 X Married or Living with Partner	0.106 (0.26)	-0.976*** (0.31)	0.011 (0.24)	-0.799*** (0.30)	-0.058 (0.28)	-0.342 (0.31)		
Survey 2 X Owns Home	-0.106 (0.29)	0.656* (0.34)	-0.007 (0.26)	0.531* (0.30)	-0.031 (0.30)	0.496 (0.35)		
Constant	2.143** (1.08)	-0.175 (1.42)	2.037** (0.82)	1.435 (1.04)	1.493 (1.41)	1.665 (1.36)	0.901 (0.98)	2.393** (1.02)
Joint P-Value on Log Formal Wage, Hourly	0.09		0.04		0.18		0.04	
Joint P-Value on Log Informal Wage, Hourly	0.00		0.00		0.00		0.00	
Joint P-Value on Other Not Working in Participation Eq.					0.29		0.17	
Joint P-Value on Bachelor's Degree in Participation Eq.	0.79		0.93		0.82		0.70	
Joint P-Value on Graduate Degree in Participation Eq.	.45389		.71395					
AIC	2017.5		1992.4		1973.9		1942.9	
BIC	2375.9		2240.6		2333.9		2173.7	
Lambda	-.31689		-.3217		-.02278		-.0667	
Standard Error(Lambda)	.19701		.2175		.32719		.29941	
Population Size	732		732		747		747	

Table 4: Weighted Heckman Regressions, Dropping 10% Informal Wage Outliers

	Women		Women		Men		Men	
	Participation	Hours	Participation	Hours	Participation	Hours	Participation	Hours
Survey 2	-0.015 (1.61)	4.303** (1.86)	-0.051 (0.56)	0.699 (0.44)	-0.706 (1.68)	1.609 (2.23)	-1.327** (0.58)	-1.009* (0.53)
Log Formal Wage, Hourly	-0.613*** (0.16)		-0.576*** (0.16)		-0.324** (0.14)		-0.351*** (0.13)	
Log Informal Wage, Hourly		-0.577*** (0.09)		-0.545*** (0.09)		-0.515*** (0.12)		-0.541*** (0.15)
Employed Part Time	0.156 (0.26)	0.474* (0.26)	0.120 (0.17)	0.403* (0.21)	1.113*** (0.31)	0.580* (0.34)	0.657*** (0.21)	0.437* (0.26)
Not Employed, Want a Job	-0.031 (0.30)	0.427 (0.32)	0.106 (0.21)	0.161 (0.24)	-0.051 (0.43)	0.413 (0.41)	-0.285 (0.27)	-0.153 (0.30)
Other Not Working	-0.274 (0.33)	-0.458 (0.29)	-0.404* (0.22)	0.046 (0.21)	-1.162** (0.45)	-1.073** (0.54)	-1.283*** (0.45)	-1.035** (0.44)
Self Employed	0.146 (0.27)	-0.199 (0.32)	0.063 (0.20)	-0.081 (0.24)	0.197 (0.26)	0.391 (0.31)	0.113 (0.17)	0.227 (0.22)
Some College	0.558** (0.25)	-0.619* (0.33)	0.350** (0.17)	-0.495** (0.23)	0.262 (0.27)	-0.812** (0.35)	0.220 (0.23)	-0.555* (0.32)
Bachelor's Degree	0.761*** (0.27)	-0.233 (0.34)	0.669*** (0.22)	-0.182 (0.28)	0.770*** (0.27)	-0.941*** (0.36)	0.676*** (0.23)	-0.640* (0.33)
Graduate Degree	0.576* (0.30)	-0.663** (0.33)	0.466* (0.26)	-0.560* (0.29)	0.181 (0.29)	-0.982** (0.38)	0.018 (0.20)	-0.429* (0.25)
Age	-0.053 (0.05)	0.160*** (0.06)	-0.055* (0.03)	0.073* (0.04)	0.028 (0.06)	0.116 (0.08)	0.033 (0.04)	0.037 (0.05)
Age Squared	0.000 (0.00)	-0.002** (0.00)	0.000 (0.00)	-0.001 (0.00)	-0.001 (0.00)	-0.001 (0.00)	-0.001* (0.00)	-0.000 (0.00)
Non-White	-0.723*** (0.24)	0.527* (0.31)	-0.473*** (0.15)	0.389* (0.22)	-0.128 (0.24)	0.434 (0.32)	-0.315** (0.16)	0.230 (0.21)
Expect Family Worse Off 1-Yr Ahead	-0.273 (0.22)	-0.467* (0.24)	-0.319* (0.18)	-0.474** (0.22)	-0.269 (0.23)	-0.001 (0.29)	-0.260 (0.18)	0.405 (0.26)
Expect Family Better Off 1-Yr Ahead	0.069 (0.20)	0.224 (0.20)	-0.038 (0.14)	0.004 (0.16)	0.024 (0.19)	0.304 (0.23)	0.111 (0.13)	0.448*** (0.16)
% Chance U-rate Increases 1-Yr Ahead	-0.002 (0.00)	0.000 (0.00)	-0.003 (0.00)	0.006* (0.00)	0.003 (0.00)	0.005 (0.01)	0.002 (0.00)	0.005 (0.00)
% Chance Stocks Higher 1-Yr Ahead	0.010*** (0.00)	-0.008** (0.00)	0.011*** (0.00)	-0.011*** (0.00)	0.002 (0.00)	0.000 (0.00)	0.002 (0.00)	0.002 (0.00)
Expected Rate of Inflation/Def 1-Yr Ahead	-0.004 (0.01)	0.023*** (0.01)	-0.004 (0.00)	0.025*** (0.01)	0.017 (0.01)	-0.068*** (0.02)	0.011 (0.01)	-0.052*** (0.02)
Married or Living with Partner	-0.089 (0.18)	0.219 (0.22)	-0.024 (0.17)	0.124 (0.24)	0.023 (0.20)	0.064 (0.22)	-0.055 (0.14)	-0.222 (0.16)
Owns Home	0.444** (0.21)	-0.554** (0.23)	0.364* (0.20)	-0.479** (0.23)	0.003 (0.23)	-0.162 (0.27)	-0.041 (0.15)	0.108 (0.19)
Survey 2 X Log Formal Wage, Hourly	0.353* (0.21)		0.290 (0.20)		0.490*** (0.19)		0.575*** (0.16)	
Survey 2 X Log Informal Wage, Hourly		-0.275** (0.12)		-0.315** (0.12)		0.020 (0.16)		0.086 (0.18)
Survey 2 X Employed Part Time	-0.050 (0.34)	-0.196 (0.40)			-0.946** (0.41)	-0.267 (0.47)		
Survey 2 X Not Employed, Want a Job	0.313 (0.44)	-0.326 (0.47)			-0.401 (0.54)	-0.914 (0.63)		
Survey 2 X Other Not Working	-0.201 (0.43)	0.819** (0.41)			1.547*** (0.58)	1.198* (0.69)	1.823*** (0.57)	1.149* (0.64)
Survey 2 X Self Employed	-0.091 (0.39)	0.183 (0.45)			-0.083 (0.34)	-0.331 (0.42)		
Survey 2 X Some College	-0.403 (0.36)	0.088 (0.45)			-0.059 (0.36)	1.065** (0.46)	-0.046 (0.29)	0.758* (0.39)
Survey 2 X Bachelor's Degree	-0.808** (0.39)	-0.332 (0.47)	-0.635** (0.27)	-0.264 (0.30)	-0.664* (0.37)	0.782* (0.46)	-0.540* (0.28)	0.484 (0.39)
Survey 2 X Graduate Degree	-0.764* (0.42)	0.162 (0.48)	-0.541* (0.31)	0.161 (0.34)	-0.232 (0.41)	0.740 (0.51)		
Survey 2 X Age	-0.017 (0.07)	-0.150** (0.07)			-0.002 (0.07)	-0.146 (0.10)		
Survey 2 X Age Squared	0.000 (0.00)	0.001* (0.00)			0.000 (0.00)	0.002 (0.00)		
Survey 2 X Non-White	0.341 (0.30)	-0.151 (0.41)			-0.323 (0.32)	-0.306 (0.41)		
Survey 2 X Expect Family Worse Off 1-Yr Ahead	-0.053 (0.38)	-0.039 (0.42)			-0.040 (0.35)	1.107** (0.51)		
Survey 2 X Expect Family Better Off 1-Yr Ahead	-0.201 (0.28)	-0.381 (0.31)			0.156 (0.26)	0.375 (0.30)		
Survey 2 X % Chance U-rate Increases 1-Yr Ahead	-0.002 (0.01)	0.008 (0.01)			-0.003 (0.01)	0.001 (0.01)		
Survey 2 X % Chance Stocks Higher 1-Yr Ahead	0.004 (0.01)	-0.006 (0.01)			0.000 (0.01)	0.001 (0.01)		
Survey 2 X Expected Rate of Inflation/Def 1-Yr Ahead	-0.003 (0.01)	-0.029*** (0.01)	-0.004 (0.01)	-0.028** (0.01)	-0.011 (0.02)	0.022 (0.03)		
Survey 2 X Married or Living with Partner	0.151 (0.26)	-0.727** (0.31)	0.039 (0.25)	-0.606** (0.31)	-0.081 (0.28)	-0.581* (0.31)		
Survey 2 X Owns Home	-0.141 (0.29)	0.542 (0.34)	-0.020 (0.26)	0.450 (0.30)	-0.026 (0.30)	0.475 (0.36)		
Constant	2.485** (1.11)	0.056 (1.45)	2.331*** (0.84)	2.008* (1.08)	0.209 (1.25)	1.124 (1.81)	0.398 (0.93)	2.362* (1.29)
Joint P-Value on Log Formal Wage, Hourly	0.05		0.02		0.20		0.06	
Joint P-Value on Log Informal Wage, Hourly	0.00		0.00		0.00		0.00	
Joint P-Value on Other Not Working in Participation Eq.					0.29		0.12	
Joint P-Value on Bachelor's Degree in Participation Eq.	0.86		0.89		0.68		0.56	
Joint P-Value on Graduate Degree in Participation Eq.	.51312		.76616					
AIC	1948.1		1923.4		1885.2		1861.2	
BIC	2303.3		2169.3		2241.6		2089.7	
Lambda	-.29388		-.31569		-.08719		-.10031	
Standard Error(Lambda)	.18291		.19333		.23663		.24775	
Population Size	702		702		713		713	

Table 5: Weighted Heckman Regressions, Dropping Exclusive Lessors or Sellers

	Women		Women		Men		Men	
	Participation	Hours	Participation	Hours	Participation	Hours	Participation	Hours
Survey 2	0.727 (1.77)	1.498 (2.15)	-0.020 (0.63)	0.308 (0.52)	-0.622 (1.93)	2.061 (2.34)	-1.872*** (0.64)	-1.369** (0.63)
Log Formal Wage, Hourly	-0.641*** (0.18)		-0.617*** (0.17)		-0.622*** (0.17)		-0.639*** (0.15)	
Log Informal Wage, Hourly		-0.509*** (0.13)		-0.467*** (0.11)		-0.555*** (0.13)		-0.514*** (0.14)
Employed Part Time	0.267 (0.27)	0.409 (0.26)	0.350* (0.18)	0.528** (0.26)	1.156*** (0.34)	0.770* (0.41)	0.766*** (0.22)	0.240 (0.30)
Not Employed, Want a Job	0.208 (0.32)	-0.012 (0.37)	0.215 (0.24)	0.151 (0.32)	-0.242 (0.42)	-0.573 (0.48)	-0.178 (0.26)	-0.492 (0.32)
Other Not Working	-0.088 (0.36)	-0.818** (0.39)	-0.228 (0.26)	-0.449 (0.28)	-1.162* (0.60)	-1.454** (0.71)	-1.180* (0.60)	-1.692*** (0.60)
Self Employed	0.107 (0.31)	-0.398 (0.49)	-0.036 (0.22)	-0.197 (0.31)	0.130 (0.29)	-0.130 (0.38)	0.068 (0.19)	0.235 (0.28)
Some College	0.418 (0.28)	-0.710** (0.34)	0.243 (0.19)	-0.333 (0.25)	0.118 (0.32)	-0.334 (0.41)	0.071 (0.26)	-0.015 (0.39)
Bachelor's Degree	0.636** (0.28)	-0.044 (0.36)	0.538** (0.24)	0.063 (0.30)	0.504 (0.31)	-0.284 (0.39)	0.439* (0.26)	-0.080 (0.35)
Graduate Degree	0.352 (0.33)	-0.573 (0.38)	0.237 (0.29)	-0.277 (0.33)	0.153 (0.34)	-0.492 (0.44)	0.016 (0.23)	-0.100 (0.27)
Age	-0.013 (0.05)	0.064 (0.06)	-0.032 (0.04)	0.064 (0.05)	0.030 (0.07)	0.169* (0.09)	0.006 (0.04)	0.047 (0.06)
Age Squared	-0.000 (0.00)	-0.000 (0.00)	0.000 (0.00)	-0.001 (0.00)	-0.001 (0.00)	-0.002* (0.00)	-0.000 (0.00)	-0.001 (0.00)
Non-White	-0.569** (0.26)	0.494 (0.32)	-0.403** (0.16)	0.282 (0.26)	0.009 (0.30)	-0.283 (0.36)	-0.081 (0.18)	-0.179 (0.25)
Expect Family Worse Off 1-Yr Ahead	-0.142 (0.25)	-0.641* (0.37)	-0.381* (0.20)	-0.202 (0.33)	-0.188 (0.29)	0.468 (0.39)	-0.249 (0.21)	0.579* (0.33)
Expect Family Better Off 1-Yr Ahead	0.284 (0.23)	-0.340 (0.27)	-0.014 (0.15)	-0.155 (0.20)	0.143 (0.23)	0.121 (0.31)	0.171 (0.15)	0.104 (0.22)
% Chance U-rate Increases 1-Yr Ahead	-0.004 (0.00)	-0.000 (0.00)	-0.003 (0.00)	0.009** (0.00)	0.003 (0.00)	0.002 (0.01)	0.002 (0.00)	0.005 (0.00)
% Chance Stocks Higher 1-Yr Ahead	0.009** (0.00)	-0.005 (0.00)	0.012*** (0.00)	-0.016*** (0.00)	0.007 (0.00)	0.002 (0.01)	0.006* (0.00)	0.002 (0.00)
Expected Rate of Inflation/Def 1-Yr Ahead	-0.004 (0.01)	0.017** (0.01)	-0.005 (0.01)	0.016** (0.01)	0.015 (0.01)	-0.036 (0.02)	0.011 (0.01)	-0.037** (0.02)
Married or Living with Partner	-0.192 (0.21)	0.421* (0.22)	-0.135 (0.20)	0.159 (0.24)	0.088 (0.23)	0.500* (0.28)	0.025 (0.17)	0.036 (0.23)
Owns Home	0.271 (0.24)	-0.201 (0.25)	0.179 (0.22)	0.011 (0.26)	-0.246 (0.27)	-0.671* (0.35)	-0.085 (0.18)	-0.009 (0.23)
Survey 2 X Log Formal Wage, Hourly	0.310 (0.23)		0.264 (0.22)		0.662*** (0.22)		0.736*** (0.18)	
Survey 2 X Log Informal Wage, Hourly		0.009 (0.17)		-0.079 (0.15)		0.350** (0.16)		0.305* (0.18)
Survey 2 X Employed Part Time	0.158 (0.37)	0.150 (0.41)			-0.798* (0.45)	-0.991** (0.50)		
Survey 2 X Not Employed, Want a Job	0.132 (0.49)	0.238 (0.66)			0.134 (0.54)	0.046 (0.67)		
Survey 2 X Other Not Working	-0.216 (0.50)	0.589 (0.53)			1.766** (0.72)	1.511* (0.87)	1.867*** (0.70)	1.708** (0.78)
Survey 2 X Self Employed	-0.208 (0.44)	0.052 (0.64)			-0.066 (0.38)	0.361 (0.53)		
Survey 2 X Some College	-0.331 (0.38)	0.492 (0.46)			-0.024 (0.42)	0.965* (0.54)	0.030 (0.33)	0.519 (0.48)
Survey 2 X Bachelor's Degree	-0.671 (0.41)	0.069 (0.51)	-0.516* (0.30)	-0.049 (0.38)	-0.409 (0.43)	0.723 (0.53)	-0.301 (0.32)	0.452 (0.45)
Survey 2 X Graduate Degree	-0.672 (0.45)	0.691 (0.55)	-0.463 (0.34)	0.326 (0.43)	-0.206 (0.46)	0.553 (0.58)		
Survey 2 X Age	-0.042 (0.07)	-0.042 (0.09)			-0.042 (0.08)	-0.193* (0.11)		
Survey 2 X Age Squared	0.001 (0.00)	-0.000 (0.00)			0.000 (0.00)	0.002 (0.00)		
Survey 2 X Non-White	0.209 (0.33)	-0.201 (0.44)			-0.102 (0.38)	0.345 (0.48)		
Survey 2 X Expect Family Worse Off 1-Yr Ahead	-0.405 (0.41)	0.623 (0.60)			-0.087 (0.42)	0.524 (0.64)		
Survey 2 X Expect Family Better Off 1-Yr Ahead	-0.513* (0.31)	0.251 (0.40)			0.074 (0.31)	0.244 (0.41)		
Survey 2 X % Chance U-rate Increases 1-Yr Ahead	0.001 (0.01)	0.015* (0.01)			-0.001 (0.01)	0.006 (0.01)		
Survey 2 X % Chance Stocks Higher 1-Yr Ahead	0.006 (0.01)	-0.018** (0.01)			-0.002 (0.01)	0.001 (0.01)		
Survey 2 X Expected Rate of Inflation/Def 1-Yr Ahead	-0.005 (0.01)	-0.022** (0.01)	-0.003 (0.01)	-0.018 (0.01)	-0.007 (0.02)	-0.001 (0.03)		
Survey 2 X Married or Living with Partner	-0.081 (0.29)	-1.143*** (0.33)	-0.127 (0.28)	-0.840** (0.34)	-0.025 (0.33)	-0.716 (0.46)		
Survey 2 X Owns Home	-0.000 (0.33)	0.556 (0.38)	0.094 (0.30)	0.255 (0.36)	0.307 (0.35)	0.976** (0.44)		
Constant	1.547 (1.22)	2.127 (1.51)	1.862** (0.94)	2.302* (1.21)	0.613 (1.44)	-0.262 (1.98)	1.344 (1.01)	2.031 (1.28)
Joint P-Value on Log Formal Wage, Hourly	0.03		0.01		0.78		0.47	
Joint P-Value on Log Informal Wage, Hourly	0.00		0.00		0.04		0.04	
Joint P-Value on Other Not Working in Participation Eq.					0.13		0.07	
Joint P-Value on Bachelor's Degree in Participation Eq.	0.91		0.93		0.75		0.61	
Joint P-Value on Graduate Degree in Participation Eq.	.31228		.41144					
AIC	1731.1		1711.8		1544.7		1519.2	
BIC	2071.4		1947.4		1881.2		1733.3	
Lambda	-4056		-38034		.27035		.20591	
Standard Error(Lambda)	.30677		.35109		.28136		.28563	
Population Size	580		580		584		584	

Table 6: Weighted Heckman Regressions, Dropping 10% Informal Wage Outliers and Exclusive Lessors or Sellers

	Women		Women		Men		Men	
	Participation	Hours	Participation	Hours	Participation	Hours	Participation	Hours
Survey 2	0.846 (1.79)	2.098 (2.17)	-0.039 (0.63)	0.838 (0.54)	-0.224 (2.01)	3.883 (2.53)	-1.876*** (0.68)	-1.169* (0.68)
Log Formal Wage, Hourly	-0.649*** (0.18)		-0.641*** (0.17)		-0.593*** (0.17)		-0.616*** (0.15)	
Log Informal Wage, Hourly		-0.412*** (0.12)		-0.420*** (0.12)		-0.496*** (0.13)		-0.451*** (0.17)
Employed Part Time	0.328 (0.28)	0.247 (0.25)	0.329* (0.18)	0.245 (0.28)	1.151*** (0.36)	0.983** (0.48)	0.692*** (0.23)	0.382 (0.38)
Not Employed, Want a Job	0.267 (0.32)	-0.160 (0.37)	0.232 (0.24)	-0.036 (0.33)	-0.214 (0.42)	-0.382 (0.53)	-0.219 (0.27)	-0.599** (0.30)
Other Not Working	-0.023 (0.36)	-0.960** (0.40)	-0.389 (0.27)	-0.491** (0.24)	-1.114* (0.60)	-1.560* (0.85)	-1.191* (0.61)	-2.065*** (0.76)
Self Employed	0.131 (0.31)	-0.500 (0.53)	-0.024 (0.23)	-0.172 (0.32)	0.072 (0.31)	0.175 (0.33)	-0.017 (0.20)	0.534* (0.29)
Some College	0.499* (0.28)	-0.926*** (0.29)	0.312 (0.19)	-0.501* (0.27)	0.104 (0.32)	-0.498 (0.39)	0.078 (0.27)	-0.078 (0.38)
Bachelor's Degree	0.666** (0.29)	-0.315 (0.31)	0.549** (0.24)	-0.134 (0.30)	0.491 (0.31)	-0.402 (0.35)	0.444* (0.26)	-0.084 (0.34)
Graduate Degree	0.453 (0.33)	-0.797** (0.33)	0.313 (0.29)	-0.444 (0.34)	0.118 (0.34)	-0.707* (0.38)	0.051 (0.23)	-0.269 (0.30)
Age	-0.018 (0.05)	0.060 (0.06)	-0.039 (0.04)	0.051 (0.06)	0.035 (0.07)	0.226** (0.10)	0.008 (0.04)	0.081 (0.06)
Age Squared	-0.000 (0.00)	-0.000 (0.00)	0.000 (0.00)	-0.000 (0.00)	-0.001 (0.00)	-0.002** (0.00)	-0.000 (0.00)	-0.001 (0.00)
Non-White	-0.563** (0.26)	0.515 (0.34)	-0.354** (0.16)	0.320 (0.28)	-0.007 (0.31)	-0.373 (0.34)	-0.097 (0.19)	-0.269 (0.25)
Expect Family Worse Off 1-Yr Ahead	-0.140 (0.26)	-0.892** (0.36)	-0.449** (0.20)	-0.598* (0.35)	-0.164 (0.29)	0.520 (0.39)	-0.263 (0.22)	0.749** (0.33)
Expect Family Better Off 1-Yr Ahead	0.335 (0.23)	-0.521** (0.26)	0.030 (0.15)	-0.274 (0.21)	0.146 (0.24)	0.314 (0.32)	0.149 (0.16)	0.207 (0.23)
% Chance U-rate Increases 1-Yr Ahead	-0.004 (0.00)	-0.001 (0.00)	-0.002 (0.00)	0.007 (0.00)	0.003 (0.00)	0.000 (0.01)	0.003 (0.00)	0.004 (0.01)
% Chance Stocks Higher 1-Yr Ahead	0.008* (0.00)	-0.004 (0.00)	0.011*** (0.00)	-0.014*** (0.00)	0.006 (0.00)	0.004 (0.01)	0.004 (0.00)	0.003 (0.00)
Expected Rate of Inflation/Def 1-Yr Ahead	-0.003 (0.01)	0.015** (0.01)	-0.004 (0.01)	0.018** (0.01)	0.014 (0.01)	-0.042** (0.02)	0.009 (0.01)	-0.041** (0.02)
Married or Living with Partner	-0.185 (0.22)	0.379* (0.21)	-0.112 (0.20)	0.157 (0.23)	0.084 (0.23)	0.591** (0.28)	-0.026 (0.17)	0.114 (0.23)
Owns Home	0.349 (0.24)	-0.417* (0.22)	0.235 (0.22)	-0.165 (0.25)	-0.246 (0.28)	-0.691** (0.31)	-0.098 (0.19)	-0.141 (0.24)
Survey 2 X Log Formal Wage, Hourly	0.234 (0.24)		0.255 (0.22)		0.609*** (0.21)		0.714*** (0.19)	
Survey 2 X Log Informal Wage, Hourly		-0.315* (0.18)		-0.380** (0.17)		0.256 (0.18)		0.250 (0.21)
Survey 2 X Employed Part Time	-0.003 (0.37)	-0.055 (0.44)			-0.971** (0.45)	-1.066* (0.58)		
Survey 2 X Not Employed, Want a Job	0.048 (0.49)	0.099 (0.68)			0.041 (0.54)	-0.348 (0.69)		
Survey 2 X Other Not Working	-0.677 (0.50)	0.813 (0.53)			1.759** (0.72)	1.452 (1.00)	1.933*** (0.71)	1.973** (0.97)
Survey 2 X Self Employed	-0.252 (0.46)	0.257 (0.68)			-0.140 (0.39)	0.281 (0.51)		
Survey 2 X Some College	-0.338 (0.39)	0.568 (0.46)			0.080 (0.43)	0.999* (0.57)	0.074 (0.34)	0.490 (0.49)
Survey 2 X Bachelor's Degree	-0.633 (0.42)	0.041 (0.49)	-0.465 (0.30)	-0.167 (0.37)	-0.253 (0.44)	0.619 (0.54)	-0.206 (0.33)	0.278 (0.45)
Survey 2 X Graduate Degree	-0.714 (0.46)	0.834 (0.57)	-0.505 (0.35)	0.376 (0.47)	-0.047 (0.47)	0.565 (0.58)		
Survey 2 X Age	-0.040 (0.08)	-0.049 (0.10)			-0.055 (0.09)	-0.255** (0.13)		
Survey 2 X Age Squared	0.001 (0.00)	0.000 (0.00)			0.001 (0.00)	0.003* (0.00)		
Survey 2 X Non-White	0.277 (0.34)	-0.148 (0.48)			-0.121 (0.39)	0.205 (0.46)		
Survey 2 X Expect Family Worse Off 1-Yr Ahead	-0.573 (0.42)	0.396 (0.63)			-0.182 (0.42)	0.854 (0.62)		
Survey 2 X Expect Family Better Off 1-Yr Ahead	-0.502 (0.31)	0.336 (0.40)			0.045 (0.32)	0.154 (0.41)		
Survey 2 X % Chance U-rate Increases 1-Yr Ahead	0.002 (0.01)	0.013 (0.01)			-0.000 (0.01)	0.009 (0.01)		
Survey 2 X % Chance Stocks Higher 1-Yr Ahead	0.005 (0.01)	-0.019*** (0.01)			-0.003 (0.01)	-0.002 (0.01)		
Survey 2 X Expected Rate of Inflation/Def 1-Yr Ahead	-0.007 (0.01)	-0.020** (0.01)	-0.006 (0.01)	-0.020* (0.01)	-0.011 (0.02)	-0.001 (0.03)		
Survey 2 X Married or Living with Partner	-0.024 (0.30)	-0.837** (0.33)	-0.123 (0.28)	-0.589* (0.33)	-0.104 (0.33)	-0.959** (0.45)		
Survey 2 X Owns Home	-0.028 (0.32)	0.477 (0.40)	0.099 (0.29)	0.166 (0.37)	0.337 (0.36)	0.929** (0.44)		
Constant	1.590 (1.23)	2.450* (1.35)	1.989** (0.95)	2.765** (1.24)	0.452 (1.46)	-1.671 (1.92)	1.274 (1.04)	1.033 (1.46)
Joint P-Value on Log Formal Wage, Hourly	0.01		0.00		0.91		0.49	
Joint P-Value on Log Informal Wage, Hourly	0.00		0.00		0.05		0.08	
Joint P-Value on Other Not Working in Participation Eq.					0.11		0.05	
Joint P-Value on Bachelor's Degree in Participation Eq.	0.92		0.75		0.44		0.39	
Joint P-Value on Graduate Degree in Participation Eq.	.41829		.49213					
AIC	1669.8		1651.4		1480.7		1459.8	
BIC	2008.1		1885.6		1815.4		1672.8	
Lambda	-52411		-45777		.29301		.25603	
Standard Error(Lambda)	.29277		.34409		.42553		.48878	
Population Size	565		565		571		571	