THE INDEPENDENT WORKFORCE IN AMERICA:
The Economics of an Increasingly Flexible Labor Market.
The Independent Workforce in America

The composition of the US workforce is changing as demographic shifts impact labor supply and demand, interstate commerce and international trade grow, and technology makes it easier for people to work independently. The independent workforce (“IW”) has grown to become a sizable share of the American labor pool, and is widely expected to grow even larger in coming years. This growth has created (and will continue to create) large benefits for the US economy, both for the IW itself and the buyers of their services.

As technology has enabled the growth in the IW, independent work has grown at a faster rate, in terms of attention from the media and those interested in influencing policy, than its growth in the actual economy. As this part of the economy grows and changes rapidly, analyzing the IW requires looking at somewhat of a moving target. In order for policy-makers and the business world to make the best decisions about how to shape and make use of the IW, it is important to understand the variety in the IW labor market as it currently stands, and how this part of the economy is likely to develop.

This study, which was commissioned by Upwork, the world’s largest freelancing marketplace, places the IW in context by examining the economic drivers, impacts, and facts around the growth of work performed by self-employed professionals and other freelance businesses. To more fully understand the IW and provide informed judgments about the wisdom of policy reforms that may affect freelancers and their economic opportunities, this study analyzed two distinct data sources and reviewed the related literature.

The primary data sources are the 2014 and 2015 Freelancing in America (“FIA”) survey of American workers co-sponsored by Freelancers Union and Upwork, and the 2015 transactions between buyers and sellers using Upwork’s website.

Findings based on the FIA data include:

• The IW is a substantial part of the American workforce. Over 30% of American workers – 50 million – participate in the IW, and they are a diverse group. The IW is fairly similar to the traditional workforce in terms of age, education, and other demographic characteristics.

• Most American IW participants choose independent work. A substantial majority of the IW work independently by choice, finding the combination of flexibility and financial rewards in the IW preferable to traditional employment.

• The IW is growing. The IW has grown substantially and is expected to grow in years to come. For example, a recent paper by economists Lawrence Katz and Alan Krueger found that Americans in “alternative work arrangements” grew by about 66% from 2005 to 2015, with an annualized growth rate of approximately 5%.

• Technology is enabling IW growth. Emerging technologies are making self-employment more efficient. As many as 20 million of the American IW found freelance work online in 2015. Websites devoted to matching buyers and sellers of freelancing services have made it easier for the IW to find and evaluate clients from any location, and to work with many clients over short periods of time.

Executive Summary

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• Technology is enabling IW growth. Emerging technologies are making self-employment more efficient. As many as 20 million of the American IW found freelance work online in 2015. Websites devoted to matching buyers and sellers of freelancing services have made it easier for the IW to find and evaluate clients from any location, and to work with many clients over short periods of time.
• **The IW is well paid.** A majority of the IW get better financial returns on their skills than similar groups in the traditional workforce. An examination of hourly earnings shows, for example, that the IW earns a 15% premium over traditional employees. Those who joined the IW more by choice than necessity earn an even higher premium over traditional employees.

• **An alternative safety net.** A segment of the IW uses time in the IW to stay financially afloat while between traditional jobs. Members of this group earn less overall than they would in a traditional job, but still earn more per hour than traditional employees and earn far more than the alternative of unemployment.

• **The IW enjoys greater flexibility.** Perhaps the biggest benefit to the IW is the flexibility self-employment provides, which allows the IW to balance work, family, and leisure activities better than traditional employees. One indication of this is that 68% of IW respondents to the 2015 FIA survey reported that schedule flexibility is a reason they freelance.

• **Income variability is an IW challenge.** The most widely cited concern of the IW is the income risk inherent in freelance work. In the 2015 FIA survey, 39% of respondents cited “unpredictable income” as “very concerning.” For many members of the IW, this is mitigated because they hold a regular job in addition to their independent work, have a portfolio of clients, or have a spouse or partner with a full-time job.

Findings based on data from the Upwork website include:

• **Online labor platforms expand markets.** Online platforms used by the IW reduce search costs and expand the choices for both sellers and buyers. This increases opportunities for the IW, and gives their clients more opportunity to find the skills they need than if they could use only local labor. That is, online platforms make labor markets “thicker,” which creates the potential for better matching of the specific skills a member of the IW offers with the specific skills a client is looking for.

• **Online labor platforms spread wealth.** Online platforms such as Upwork facilitate transactions between buyers and sellers in different locations. Upwork data shows that, within the United States, the website moves money from buyers in relatively wealthy areas to sellers in more typically middle-class areas. The buyer and seller on Upwork are more than 50 miles apart for 96% of transactions.

• **Online platforms allow efficient use of labor.** The IW can spread their time across a set of buyers worldwide, and can use their time in other valuable ways. Businesses, particularly small or resource-constrained ventures, are able to access specialized skills like mobile development, graphic design, search engine optimization, and translation that they do not need, or cannot afford, on an ongoing basis. This makes online platforms particularly valuable to small businesses, which likely explains why 80% of buyers using Upwork’s website are businesses with 10 or fewer employees.
The final part of the study considers the implications for policymakers. As policies are introduced to address the growth in the IW, it is important to maintain the flexibility of the IW. Specific policy issues considered are ensuring members of the IW are not exploited, which benefits should be mandated, the importance of portability of benefits, and the legal classification of workers into categories including employee, independent contractor, and, possibly, new groupings. Policymakers should focus their efforts on enhancing the value and benefits of the IW, without hurting the flexibility these workers seek or making the IW too expensive for firms to use relative to other options (including the option of not hiring anyone at all and, as a result, passing up an efficient use of labor inputs). The diversity and wide reach of the IW, as demonstrated by this and other studies, imply that “one-size-fits-all” policy reforms may have unintended consequences, even if they are proposed with the best of intentions.
I. The Independent Workforce in America

The independent workforce in the United States, including the so-called “gig economy” that lies within, is a diverse group that spans a wide range of skill levels and compensation. The independent workforce (IW) studied in this paper is primarily made up of self-employed workers who are classified for tax purposes as “independent contractors” and whose compensation is paid as “1099” income, but also includes owners of small businesses with at least one employee that consider themselves “freelancers.”

This study’s definition of independent work does not include work done through temporary help agencies, by professional services firms, or by providers of outsourced services such as dining, security, or cleaning, as these are examples of situations where employees provide services to a given company for short periods of time, but are traditional “employees” of the firms that then rent their services out. Anyone who does at least some independent work is included as a member of the IW. Many of these people also have full-time or part-time jobs where they are categorized as traditional employees.

As the data employed below will make clear, the IW is a heterogeneous group covering most of the distribution of skills and incomes of the American workforce. Also, the types of arrangements made between the IW and those who engage them are quite diverse, in terms of distance between service buyers and service sellers, frequency of interaction, length of relationship, and other parameters of the relationships. This diversity of the workforce and the ways in which they interact with those who buy their services lead to different costs and benefits of these relationships, and varying appropriate policy responses to be sure these relationships remain fair and efficient. It is therefore helpful to segment the work done by members of the IW.

I divide the IW market along two dimensions. First, based on the way the IW finds work, I divide the market into offline and online segments. Independent work done offline includes freelancers who get their jobs through word-of-mouth or through agencies that connect them with firms that need their services. Video producers, camera operators, court stenographers, freelance journalists, and traditional taxi drivers who get work through offline agencies or word-of-mouth all fall into this segment. The online IW includes freelancers who find their work through diverse online platforms such as Uber, Upwork, TaskRabbit, and UpCounsel (an online platform for legal services).

Second, I divide the IW market into transactions developed through “Commoditized Matching” and “Differentiated Matching” processes. “Commoditized Matching” involves a platform or agency that sets the price of the service and assigns a provider of services to a buyer of those services. Examples include agencies that place court stenographers, most local transportation (from traditional taxi companies to ride-sharing apps), and local online-based delivery services such as DoorDash. In contrast, “Differentiated Matching” involves a platform or agency acting as a marketplace (similar to an online dating site or a traditional matchmaking service) that enables sellers of services to connect to buyers of those services. Sellers do business under their own names and offer specific services. Prices are negotiated between the parties rather than, as in the case of Commoditized Matching, the platform or agency setting the price.
The specific tasks and services can vary substantially even within the same category using the same platform. Examples of Differentiated Matching include acting agencies, Upwork, and HourlyNerd (now part of Catalant). Differentiated Matching typically involves higher skill and higher compensation than Commoditized Matching, though there may be exceptions to this rule.

Figure 1: IW Employment Segments

<table>
<thead>
<tr>
<th></th>
<th>ONLINE</th>
<th>OFFLINE</th>
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<tbody>
<tr>
<td>Commoditized Matching</td>
<td>Examples: Uber, DoorDash</td>
<td>Examples: taxi associations, stenography agencies</td>
</tr>
<tr>
<td>Differentiated Matching</td>
<td>Examples: Upwork, UpCounsel, HourlyNerd</td>
<td>Example: acting agencies</td>
</tr>
</tbody>
</table>

In the rest of this study, I analyze the IW or, in some cases, the Online/Differentiated Matching segment in which Upwork participates. I will discuss various estimates of the size of the IW and use a representative sample of the American workforce to analyze how earnings, hours, and other elements of IW work compare to traditional employment. I then use Upwork data to describe and analyze the Online/Differentiated Matching segment of the IW. These two sets of empirical analyses together provide some new insights and facts regarding the IW as a whole, as well as specific evidence on the value of the Online/Differentiated Matching segment, which is a relatively highly skilled and highly paid part of the IW. The final sections of the paper consider the costs and the benefits of IW work and examine how the complexity and heterogeneity of the overall IW complicates regulatory and other policy initiatives.
II. Characteristics, Size, and Growth of the IW

A. Review of Prior Studies of the IW

Recent changes in labor supply and labor demand have led to changes in the fundamental nature of work for many people, as their labor can be more easily distributed among organizations. The availability of online platforms connecting buyers and sellers of labor services has made it easier for independent workers to serve many buyers over short periods of time, rather than working for a single entity.

These trends in the labor market have also led to calls to rethink labor market policy in the United States (and elsewhere). Most market analysts and policymakers agree that, in order to craft appropriate policies, it is important to have a sense of the size and nature of the IW. Yet, despite the calls to rethink labor market policy, there is not a clear consensus on what comprises the IW.

The lack of a widely accepted survey of the size and growth rate of the IW is not for lack of trying. There have been a number of recent attempts to measure the size and characteristics of the IW and other contingent workers. There is a great deal of variation across these studies driven by differences in the scope of the workforce they attempt to describe.

A Congressional Research Service (CRS) analysis of the “gig economy,” for example, focused on workers who use an online platform. The CRS equates “gig” work with work that is found through an online platform, so the study looks at only a small part of the overall IW. The CRS does not provide a precise estimate of the size or characteristics of this workforce.¹ MBO Partners, in its “State of Independence in America” study (“MBO Report” hereafter), uses a broader definition of “independent” workers including temporary workers, freelance workers, small business owners with fewer than four employees, and other groups that do work outside standard employment relationships. Based on their survey, they estimate about 40 million Americans age 21 or over qualify for this group and that their earnings represent over 6% of GDP.² The Government Accountability Office, Staffing Industry Analysts, McKinsey Global Institute, and others have also looked at various definitions of the IW with a wide range of market size estimates.³

There is one point of agreement in at least several studies: regret that the Bureau of Labor Statistics (BLS) discontinued the Contingent Workers Supplement (CWS) after it was last run in 2005. That survey had provided credible and consistent statistically valid estimates of the size of various contingent and alternative work arrangements in the United States. The BLS has announced plans to reinstate the survey in 2017.

One thing that made the BLS survey so valuable was that, by running the same survey at two-year (or, in one case, four-year) intervals, it provided accurate measures of growth in the alternative and contingent work arrangements that it studied. In the absence of the BLS, the two recent surveys that have been most consistent are the MBO Report and the “Freelancing in America” surveys (“FIA survey” hereafter) commissioned in 2014 and 2015 by Freelancers Union and Upwork.
The 2015 MBO Report calculated that their definition of “independent” workers grew by 12% over the five years leading up to the report, though there was essentially no growth in the final year of that period. The 2016 MBO Report found that full-time independent work dropped by 5% in the year leading up to the report. The FIA surveys used a definition of “freelancer” that encompassed 54 million Americans in 2015. This is approximately a 1.3% growth rate from their 2014 estimate, so their estimates are generally consistent with MBO’s suggestion that growth in independent work was quite slow (or non-existent) in 2015.

A recent paper by economists Lawrence Katz and Alan Krueger provides the most credible longer-term estimate of “alternative work arrangement” growth. They bridged the gap between the 2005 CWS and the one the BLS is scheduled to perform in 2017 by running a survey very similar to the CWS as part of the RAND American Life Panel. They made adjustments so that their sample of 3,844 people would be as comparable to the 2005 CWS as possible, allowing estimates of the growth of contingent work from 2005-2010. Katz and Krueger (following the CWS) use a restrictive measure of contingent work because they only ask about work in a single week, and they study a respondent’s “main” job. As a result, if a person holds a job for 30 hours a week and also spends 10 hours a week driving a taxi, working through Upwork, or creating artwork and selling it at crafts fairs, that person would not show up as a contingent worker in the Katz and Krueger sample. Also, a person who did not work in the survey’s reference week, but works in the IW in other weeks, would also not show up as a contingent worker.

Katz and Krueger find that their measure of alternative work grew by about 66% from 2005 to 2015, with almost 16% of main jobs falling into this category by the end of the sample. The “independent contractors” within this group (who are closer to the IW definition used by myself and others) grew by 39% from 2005 to 2015, and their work makes up 9.6% of 2015 “main” jobs. Only about 0.5% of all workers mainly work through online intermediaries. Given there were about 150 million total workers in the United States in 2015, Katz and Krueger’s estimates suggest there are about 24 million contingent workers, with fewer than one million working primarily through an online intermediary. They show that essentially all of the growth in employment between 2005 and 2015 was in contingent work, and a little less than half of employment growth came from independent contractors.

The FIA’s more expansive measure of the IW (removing the focus on “main” job) leads to the conclusion that over 30% of respondents to the 2014 and 2015 FIA surveys are in the IW. Of these, 40% of the IW had found at least one job online. This suggests that the IW consists of about 50 million people, and that as many as 20 million Americans have found work through an online platform at least once. So, depending on one’s definition, the “Online” segment of the IW illustrated in Figure 1 can range from about one million people to as many as 20 million. The “Offline” segment is at least 20 million people, and probably closer to 50 million given that many people who use online platforms also find independent work through word-of-mouth and other offline sources.
There are two noteworthy differences between my definition of the IW and the Katz and Krueger contingent worker sample. Katz and Krueger include many workers whom this study does not, because their sample includes people who work for temporary help agencies and “on-call employees.” This latter group includes workers in retail and other sectors who are W-2 employees of a company, but the workers do not know the exact hours they will work with much notice. An example is Starbucks and other employers that look to match staff to current demands on a nearly real-time basis. Second, Katz and Krueger’s BLS-inspired focus on a respondent’s “main job” during a one-week period excludes a large segment of the IW that supplements their regular income with freelance work, including work found through local agencies, word-of-mouth, online dispatch services like Uber, and online marketplaces like Upwork.⁸

Katz and Krueger’s analysis suggests an annualized growth rate in contingent workers of approximately 5% between 2005 and 2015.⁹ However, they find an annualized growth rate of independent contractors (a group more closely aligned with other definitions of independent work) of just over 3%. MBO’s analysis implies an annualized growth rate of a little over 2% between 2010 and 2015.¹⁰ There is no way to know to what degree the difference between these two estimates is driven by the differences in timeframe, Katz and Krueger’s focus on “main job,” or simple sampling error.

Overall, indications are that the IW, however defined, has grown substantially over the last several years, and virtually every analysis of this market expects growth to continue in years to come as technology-based marketplaces of all kinds – including Commoditized Matching sites like Lyft and DoorDash, as well as Differentiated Matching sites such as HourlyNerd and Upwork – facilitate the choice to join the IW. Given the imprecision of past estimates of growth and the speculative nature of future projections, this study will not attempt to pin down historical growth rates or project future growth. But, I will take it as a given throughout this analysis that independent work relationships have grown substantially in recent years, and that this sector will grow steadily over the next several years at least.

**B. Analysis of FIA Survey of the IW**

I now use the 2014 and 2015 FIA surveys to compare the IW to traditional employees in terms of demographic characteristics and compensation. The FIA surveys were commissioned by the Freelancers Union and Upwork, and conducted by independent market research firm Edelman Intelligence. Upwork provided the raw data from the two surveys, including responses from almost 12,000 members of the US workforce in a wide range of industries.¹¹ FIA materials related to the survey defined a “freelancer” as anyone who works as an independent contractor, moonlights, is a “freelance business owner” (has a small business with one or more employees and considers himself or herself both a freelancer and a business owner), or works through a temporary agency. In an attempt to most closely match the types of workers who have or may someday obtain freelance work through platforms such as Upwork, I define the IW as all these “freelance” workers except those in the temporary worker category.¹² This is because most of these workers have a traditional employment relationship in the sense that a temporary work firm employs them as W-2 workers and allocates them to clients.¹³
Table 1 provides descriptive statistics for the IW and the traditional employees who answered the 2014 and 2015 FIA surveys. After applying sampling weights and excluding temporary workers from the IW group, the survey suggests that 31.7% of American workers qualify as IW. This is about twice as many as Katz and Krueger’s “main job”-based estimate of “alternative work arrangements,” reflecting that much of the IW are supplementing the work they do in their main jobs or do not have a main job.

<table>
<thead>
<tr>
<th></th>
<th>IW</th>
<th>OTHER EMPLOYEES</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Female</td>
<td>41.4%</td>
<td>49.5%</td>
</tr>
<tr>
<td>% Urban</td>
<td>35.5%</td>
<td>31.1%</td>
</tr>
<tr>
<td>% Suburban</td>
<td>44.5%</td>
<td>48.2%</td>
</tr>
<tr>
<td>% Married</td>
<td>38.8%¹⁵</td>
<td>35.1%</td>
</tr>
<tr>
<td>% African-American</td>
<td>11.4%</td>
<td>10.6%</td>
</tr>
<tr>
<td>% Hispanic</td>
<td>16.2%</td>
<td>13.6%</td>
</tr>
<tr>
<td>Age</td>
<td>41.4 (14.7)</td>
<td>43.5 (14.1)</td>
</tr>
<tr>
<td>Years of Education</td>
<td>14.0 (2.5)</td>
<td>13.9 (2.3)</td>
</tr>
<tr>
<td>Hours of Work/Week</td>
<td>31.2 (16.8)</td>
<td>34.7 (13.9)</td>
</tr>
<tr>
<td>Annual Earnings</td>
<td>$50,017</td>
<td>$51,982</td>
</tr>
<tr>
<td>Hourly Earnings</td>
<td>$37.28</td>
<td>$34.52</td>
</tr>
<tr>
<td>Hold a Traditional Job or Own a Business</td>
<td>55.7%</td>
<td>100%</td>
</tr>
<tr>
<td>Freelancing Hours/Week</td>
<td>17.6 (15.9)</td>
<td>N/A</td>
</tr>
<tr>
<td>% Freelance “By Choice”</td>
<td>56.4%</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>3,676</td>
<td>8,299</td>
</tr>
</tbody>
</table>

NOTE: Numbers in parentheses are standard deviations. Data are from the 2014 and 2015 FIA surveys.
The table shows that, relative to workers with traditional jobs, the IW tends to include a higher percentage of males.\textsuperscript{16} Other demographic features, such as living in urban, suburban, or rural areas, being an ethnic minority, age, and educational background, vary somewhat between the IW and other workers. On balance, however, these differences are small. The table suggests that the IW is generally demographically representative of the US workforce, other than being more male-oriented.

Moving to money earned from wages (traditional employees) or from fees for service (IW), total annual earnings for the two groups are comparable. The IW works about 10% fewer hours, and therefore earns about 8% more per hour worked. Many IW members have to pay Social Security and Medicare taxes of 7.65% more than traditional employees, so there does not appear to be a large difference between the after-tax hourly earnings of the IW and traditional employees.\textsuperscript{17}

More than half of the IW freelances in addition to holding a traditional job or owning a business. Specifically, almost 56% of the IW is made up of employees and business owners. This includes 36% of the IW sample who work for an employer (and are not the business owners) and 19% of the IW sample who report that they own a business and do freelance work.

Two rows near the bottom of the table are limited to independent work. They show that the typical member of the IW does 17.6 hours per week of freelance work (a little more than half of his/her total work, on average).

Also, 56.4% of the FIA survey IW respondents said “Choice” (and the others said “Necessity”) when asked, “Which is closer to the reason you originally started freelancing?” Surveys by MBO Partners and McKinsey Global Institute also found that a majority of the IW freelances by choice. More recent surveys show, if anything, a higher fraction of the IW doing so by choice because, as the job market in the US has improved, those who prefer traditional employment have been able to return to that sector.\textsuperscript{18}

Table 1 provides useful comparisons for the IW and other workers as two large groups, but it masks interesting and important heterogeneity within these groups. To explore the variation within these groups, figures below display histograms and kernel density estimates of hours per week and income for IW and other workers based on the same survey data used in Table 1.\textsuperscript{19}

Figure 2 shows a histogram of earnings reported by IW (dark bars) and traditional employees (light bars). The survey asks for income from a choice of several categories, so there are only six possible responses. The figure shows that the earnings of the IW and traditional employees are fairly similarly distributed, except that a noticeably higher proportion of the IW earns less than $25,000 annually (21% of the IW compared to 16% for traditional employees) and fewer IW workers earn over $100,000 annually (13.6% of the IW compared to 16.4% for traditional employees). As shown in more detail below, these differences at the extremes of the earnings distribution are largely driven by the difference in hours worked.
Figures 3 and 4 display kernel density estimates of usual hours of work per week and hourly earnings, respectively. Figure 3 makes it clear that the IW includes many more part-time workers than the traditional labor force, with a significant proportion of the distribution working fewer than 30 hours (36% of the IW compared to 21% of traditional employees). There are more IW workers at every level of hours worked per week below what would normally be considered full-time work. Figure 4 shows that this difference in hours fully explains the income gap shown in Figure 2, as the reported hourly earnings distributions are quite similar for IW and traditional workers.²⁰

Table 1 and Figures 2-4 together highlight a theme introduced at the outset of this study – the IW is a notably heterogeneous group. There are IW members across the spectrum of skills and earnings, as we would expect given they also vary in education and age along the same lines as the traditional workforce. In terms of hours worked, the IW varies more than traditional employees. Treating the IW as a single, homogeneous group is inappropriate analytically and, as discussed below, when crafting policy.
Figure 3: Usual Hours of Work Per Week

Figure 4: Hourly Earnings and/or Fees

The Independent Workforce in America
II. Characteristics, Size, and Growth of the IW
In order to better understand the factors behind earnings for IW and traditional employees, I conducted a series of regressions where the dependent variable was either the log of a survey respondent’s total annual earnings, or the log of the respondent’s hourly earnings. These regressions, known as “Mincer” regressions, are standard practice in academic labor economics. The dependent variable is typically transformed using the natural logarithm function, because this fits observed patterns in the data better and because it substantially reduces spurious effects of outliers. The details of these regression analyses are in Appendix A. For simplicity, I present the results non-technically here.²¹

There are several conclusions from these regressions. First, the patterns in Figures 3 and 4 hold when controlling for factors such as years of education, gender, and age. Annual earnings are, holding these other factors constant, about 6% lower for IW workers than traditional employees. However, this difference reverses when studying hourly earnings (rather than annual earnings), with IW workers earning a 15% premium by this measure. This premium is statistically different from zero and from the 8% hourly earnings advantage shown in Table 1 above. The fact that IW workers make less annually but more hourly is due to the fact that IW workers work approximately 10% fewer hours each week (on average) than traditional employees (see Table 1 and Figure 3). Katz and Krueger (2016) report results of similar regressions and, despite the differences between their data and the FIA noted above, their results are quite similar to those in this study.

Second, when analyzing the earnings of only the IW, I find that the labor market value of education, age (which is typically used as a proxy for labor-market experience), and other measures of a person’s “human capital” are quite similar to what labor economists find for the labor market as a whole. That is, IW workers’ skills are rewarded in their labor market in numbers that closely reflect how these same skills pay off in the traditional labor market. For example, a year of schooling for IW workers increases hourly earnings by about 7% and total earnings by about 10%. The difference between these two is driven by the fact that people with more earnings also tend to work longer hours, providing a two-tiered effect on their total earnings. These “returns to education” for IW workers are close to those for traditional workers in the survey and to the results of regressions run on broader surveys used by labor economists.²²

Third, there is an important distinction between those who reported their reason for joining the IW was closer to “choice” and those who said the reason was closer to “necessity.” A little over half joined the IW by choice, and this group tends to skew more male and a bit more educated. Otherwise, the “choice” and “necessity” groups are similar demographically and their typical weekly hours are nearly identical. However, holding demographic factors constant, “choice” workers earn about 11% more over the course of a year and 13% more on an hourly basis than “necessity” workers. I then explored this distinction in an analysis that included the whole FIA sample. This showed that, relative to the population as a whole and looking at annual income, the “choice” segment of the IW earns a 7% premium while “necessity” workers experience a 10% “discount.” Relative to the population as a whole and looking at hourly income, the “choice” IW segment earns a 16% premium and the “necessity” group earns 7% more than their “traditional” worker counterparts.
While it would be a mistake to read too much into this one variable, it appears that there is a large (in fact, a majority) group in the IW who have made a rational career choice to use the IW to get better financial returns on their skills (as well as non-pecuniary advantages such as flexibility, as discussed below), while there is another sizeable (but smaller) group who use time in the IW to stay financially afloat while hoping to return to traditional work. This group earn less than they would in traditional jobs, but far more than the alternative of unemployment. The “necessity” group actually earn more than traditional workers hourly, so their losses relative to traditional employment appear to be a matter of not being able to consistently work as many hours as at a traditional job. Though these workers would prefer to have a full-time job, working in the IW provides a valuable alternative safety net.

In summary, as is well known from many recent attempts to analyze independent workers, the exact size of that group varies widely based on the definition used. Also, while currently available data do not allow for precise estimates of the growth in the IW, it is generally accepted that this group is growing and, whatever definition is chosen, has become a sizable share of the American workforce. The FIA survey responses demonstrate that the IW is drawn from a broad and fairly representative (demographically) sample of the workforce, that the US labor market rewards skills in the IW in a manner comparable to the way skill is rewarded in traditional employment, and that there is an important distinction between those who go into the IW by choice and those who go there primarily out of economic necessity. Financially, the IW market is attractive for both groups because it gives those who go there by choice a premium relative to traditional work and, while those who join the IW out of necessity do not earn as much, they earn a sizeable financial premium relative to the alternative of unemployment.
III. The Independent Professionals on the Upwork Platform

To get a better sense of the work done by one segment of the online IW, I now look at transactions between buyers and sellers of services using the Upwork website. Prior studies of the IW have focused on the IW as a whole or specifically on Uber drivers (Hall and Krueger, 2015). But, as noted above, the IW is quite heterogeneous and the Upwork website is used for a wide variety of services and by very different types of IW workers than Uber drivers. Looking at Upwork activity provides a look into a higher-skilled and more diverse (“Differentiated Matching” rather than “Commoditized Matching”) market than Uber, so the findings here complement those of Hall and Krueger (2015). Together, the two analyses provide a good deal of information about two important and large segments of the online IW.

Upwork describes itself as the “the premier platform for top companies to hire and work with the world’s most talented independent professionals.” Freelancers advertise and seek services on the site. In 2015, they earned over a billion dollars from their clients on Upwork. Buyers and sellers of services on Upwork must all be businesses seeking relationships for business purposes. Using Upwork, buyers and sellers of services find each other for projects, enter into service contracts, and pay through a licensed escrow agent.

According to Staffing Industry Analysts, Upwork is the largest “Online Staffing Platform” and is the largest company that facilitates work that is done remotely (as opposed to, for example, TaskRabbit or Uber, which arrange for customers and workers to meet in person). Upwork is the largest online labor marketplace and the largest company that falls into the Online/Differentiated Matching segment.

Most of the work done by sellers on the Upwork platform is skilled programming work and other technical work such as Search Engine Optimization or Graphic Design.

There is already a great deal of information about the Upwork marketplace thanks to several academic papers that use Upwork data. For example, Stanton and Thomas (2016) documented the costs and benefits of using “agencies” on Upwork. Many sellers on the marketplace list their services through any number of agencies that essentially act as references. These agencies perform a valuable service, at least for new Upwork sellers, by helping more efficiently match them to appropriate buyers. Pallais (2014) used Upwork to show the difficulty in getting started in the labor market. She found that, by working with Upwork sellers who are new to the platform and providing them with positive feedback, she jumpstarted their activity on the site.

Horton (2016) analyzed research on Upwork where those who listed a job were shown a list of sellers on Upwork who were likely to be good fits for the project. Horton found that this led to a higher probability that the job would be filled. Essentially, pointing firms looking for people to sellers advertising relevant skills helped reduce the frictions in the proposal and review processes, leading to more matches being made.
Barach (2015) looked at how Upwork buyers used the information provided about Upwork sellers in the form of the rates charged by the sellers for prior work. He showed that, as the skill required by a buyer increased, the buyer was willing to spend more resources to gather information about the sellers’ past record. In assessing lower-skill sellers, buyers used information that was freely available, but were not willing to expend significant resources to be better informed about potential service providers.

The analysis that follows is specific to the Upwork platform, and the results may or may not generalize to other relatively highly skilled members of the IW. The findings are not likely to generalize to Commoditized Matching sites. In particular, the remote nature of Upwork matches – that is, the fact that buyers and sellers of services typically never meet in person – means that Upwork features such as interstate and international trade of services will be irrelevant for other platforms (such as Uber or DoorDash) and other more localized IW arrangements.

On Upwork, “clients” (buyers of services) list projects that they would like completed, and “freelancers” (sellers of services) post profiles describing their skills and their rates. Clients may invite freelancers to apply for projects (the platform highlights potential good fits after a job is posted) and any freelancer can submit a proposal by searching the listings of posted jobs. The matching process is undertaken directly by the freelancer and the client (sometimes also involving the freelancer’s online “agency”). The mechanics of the matching process and the terms of the contract vary, with some prospective matches conducting long discussions online or in a more formal (but distant) interview. Sellers set their own prices and projects can be charged by the hour or at a fixed price. Clients and freelancers rate one another, so that a reputation mechanism helps to minimize exploitation and dishonesty on the site.

The Upwork website contains numerous categories and sub-categories for services.²⁶ The biggest category on Upwork is “Web, Mobile, and Software Development,” which accounts for about half of all charges.

To begin, I look at how work flows from one place to another on Upwork in a way that allows buyers of services to use the “comparative advantage” of sellers. Long-distance services transactions allow lower-skilled workers to sell their services in areas where those services can create more value, and they allow higher-skilled workers to sell their services in areas where skill may be harder to find. Table 2 suggests this is an important dynamic on Upwork by showing statistics for transactions into, out of, and within the United States, as well as transactions where neither party is in the United States.

The raw variables behind Table 2 – assignments on Upwork, Total Fees on Upwork (“Gross Service Value” or GSV), and Hourly GSV – are confidential Upwork information, so the table displays the proportionate value of each of these figures across combinations of US and foreign buyers and sellers on Upwork. The base group is US freelancers selling to US clients (so the values for all variables for this group are one), and other groups are shown as a proportion of this group.
So, for example, the 0.368 figure in the top right corner of the table means that, for every assignment done by a US seller for a US buyer, there are 0.368 assignments done by a US seller for a foreign buyer. Similarly, the 0.473 figure in the bottom left corner of the table indicates that the average hourly rate for foreign sellers doing work for US buyers is 0.473 (47.3%) as high as the average hourly rate for US sellers doing work for US buyers.

### TABLE 2: UPWORK WORLDWIDE ACTIVITY

<table>
<thead>
<tr>
<th>SELLERS</th>
<th>BUYERS</th>
<th>US</th>
<th>FOREIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td></td>
<td>1.000</td>
<td>0.368</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.000</td>
<td>0.201</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.000</td>
<td>0.970</td>
</tr>
<tr>
<td>FOREIGN</td>
<td></td>
<td>2.861</td>
<td>2.655</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.655</td>
<td>2.374</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.473</td>
<td>0.492</td>
</tr>
<tr>
<td># OF ASSIGNMENTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GSV ($000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HOURLY GSV (HOURLY JOBS ONLY)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table highlights how sites like Upwork create tradeable labor services that allow for better utilization of comparative advantage within countries. Work sold by foreign freelancers is, on average, about half as expensive (specifically, looking at the bottom row in the table, 47.3% for US buyers and 49.2% for foreign buyers) as work done by Americans. This distinguishes many Differentiated Matching sites like Upwork and HourlyNerd from most Commoditized Matching sites (such as Uber and DoorDash), where all trade is local and work cannot be moved to a geographic region where it can be more efficiently produced.
Based on the bottom number in each group (the figures highlighted in green), the table shows that the hourly rates earned by American freelancers are substantially higher than foreign freelancers, regardless of where the buyer is located. This suggests, not surprisingly, that American buyers are outsourcing relatively low-skill jobs that can be efficiently done at low cost elsewhere, and foreign buyers use American freelancers for work that requires higher levels of skill (and, as a result, provides higher compensation). There are global benefits from this trade of services, as foreign sellers receive incomes they cannot receive at home and American buyers purchase lower-skill services from a country where they can be created cost effectively.

The United States reaps more than its proportional share of the world’s income on Upwork. The US receives a total of about 25% of the revenues on the Upwork platform (combining payments to American Upwork sellers and to Upwork), which is greater than the US’s roughly 16% share of the global economy. American freelancers, moreover, command a higher hourly rate – charging more than twice as much as the average seller in another country.

Figure 5 shows that these differences in average rates for Americans and other Upwork sellers are the result of very different underlying distributions of labor prices for the two groups. Again, for confidentiality reasons, the numbers are not displayed. There are Americans and people from other countries at most possible rates above a certain point – there are very few Americans below about $10/hour. In general, the American distribution is tilted to the right – they charge much more on Upwork than sellers from other countries.

Figure 5: Distribution of Upwork Sellers’ Hourly Fees

Note: Figure includes Upwork Sellers that did at least 100 hours of work on hourly contracts in 2015. For confidentiality reasons, hourly fees are not displayed.
Table 3 emphasizes the cost savings that can be gained through long-distance services trade. All figures in this table are relative to the top left group – any Freelancer providing services to a US client where the buyer and seller are at least 50 miles away from each other. Again illustrating with an example, the figure 1.566 in the second row of the top right grouping on the table indicates that for every thousand dollars of revenue (GSV) purchased by US clients from freelancers who are more than 50 miles away, $1,566 of revenue is purchased by any client on Upwork from freelancers who are more than 50 miles away.

First note that the vast majority of Upwork commerce involves buyers and sellers that are more than 50 miles apart. The 50-mile criterion mirrors the IRS rule that allows workers to deduct moves if they switch to a job that is at least 50 miles further to travel, indicating that 50 miles is a reasonable distance to go to do face-to-face work. The bottom grouping in the left column of Table 3 shows that, for US buyers, the number of assignments and the revenue are only about 1% and 2%, respectively, as large for sellers and buyers within 50 miles as for those more than 50 miles apart. Put another way, American buyers and sellers on Upwork are more than 50 miles apart for 98% of transactions and 99% of dollar volume. This figure is 98% (transactions) and 99% (dollar volume) for services bought by Americans. Those few transactions where the buyer and seller are fewer than 50 miles apart tend to be relatively high-priced work.

**TABLE 3: DISTANCE ON UPWORK PLATFORM**

<table>
<thead>
<tr>
<th>CLIENTS</th>
<th>US CLIENTS</th>
<th>ALL CLIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANY FREELANCER &gt; 50 MILES AWAY</td>
<td>1.000</td>
<td>1.792</td>
</tr>
<tr>
<td></td>
<td>1.000</td>
<td>1.566</td>
</tr>
<tr>
<td></td>
<td>1.000</td>
<td>0.990</td>
</tr>
<tr>
<td>US FREELANCER &gt; 50 MILES AWAY</td>
<td>0.251</td>
<td>0.078</td>
</tr>
<tr>
<td></td>
<td>0.197</td>
<td>0.062</td>
</tr>
<tr>
<td></td>
<td>1.874</td>
<td>1.852</td>
</tr>
<tr>
<td>ANY FREELANCER &lt;= 50 MILES AWAY</td>
<td>0.011</td>
<td># OF ASSIGNMENTS</td>
</tr>
<tr>
<td></td>
<td>0.022</td>
<td>GSV ($000)</td>
</tr>
<tr>
<td></td>
<td>2.317</td>
<td>HOURLY GSV (HOURLY JOBS ONLY)</td>
</tr>
</tbody>
</table>
To gain further insight into the degree to which an online platform like Upwork can generate additional supplier options, I now consider the relative size of the supply of software developers in two American cities. First, I consider a large American city and its surrounding metropolitan area, which I refer to as “The City.” The City, which is one of the 10 largest in the United States, is not named so that Upwork can maintain the confidentiality of how many sellers it has overall and in any given market.

The City has a large supply of qualified software developers that companies can draw from. However, even in a large metropolitan area, access to Upwork programmers can expand the available pool of programmers dramatically. According to BLS statistics for May of 2015, there were a total of tens of thousands of software developers in The City metropolitan area.²⁷ For every 100 programmers who live in The City metropolitan area, there is less than one active programmer on Upwork within 50 miles of the center of The City. So, if Upwork were like an offline staffing platform that matched local buyers and sellers, it would not provide a great deal of additional choice to companies that need programmers. But, because Upwork helps buyers draw from programmers around the US (and around the world), it expands their options substantially. For every 10 programmers who live in The City metropolitan area, there is approximately one active programmer on Upwork who lives in the US and 12 active Upwork programmers across the world.

These figures suggest that Upwork more than doubles the number of American software developers available to companies that need programmers in The City. Note, however, that there are two reasons why this is a substantial understatement of the effect of Upwork and similar sites on the overall pool of available programmers in The City. First of all, Upwork is just one online platform available to companies that need software developers in The City. Second, while the figures above are based on the number of programmers who worked on projects they arranged through the Upwork marketplace in 2015, there are many more programmers available through Upwork that can be tapped by Upwork buyers, but who did not find a good match during 2015.²⁸

While this availability of a broader labor pool is of value in The City, it is probably more valuable to businesses in more remote areas with small pools of skilled workers. Consider “The Town” – a small city with fewer than 200,000 people in the surrounding area. The Town contains a university, so there is a healthy market for engineers, but it is still a relatively small area. Again using BLS data, for every software engineer in The Town’s area, there are approximately 10 active Upwork software developers based in the US and more than 100 Upwork software developers in total. Upwork and similar platforms give businesses (especially small businesses) in The Town a huge increase in available software developer resources.

In addition to making the market bigger (or, in economic terms, making the market “thicker”), Upwork and similar sites allow firms to quickly bring on labor. The average time from a client listing a project on Upwork to the time it was filled in 2015 was three days, and the median was 15 hours (13 hours for Web Development).²⁹ The average time to fill a job in the traditional employment sector is typically measured in weeks – one ongoing survey shows typical average fill times of 15 days (when unemployment is high) to 30 days (when the labor market is tighter).³⁰
While there are numerous reasons the time to fill a job differs substantially for traditional employment and the IW, the difference does highlight the flexibility and responsiveness available through the use of an online labor marketplace and the IW.

This analysis has focused on the way Upwork benefits buyers of services by making the labor market thicker – that is, by expanding their options. But, the exact same logic applies to the sellers on Upwork. Consider a software developer who loses a job, or is simply looking to make a little extra money in her spare time, in The Town or The City. While there would be a limited set of companies that the engineer could hope to work for within a short drive of her home, listing on Upwork and other Differentiated Matching platforms for engineering talent would give her access to hundreds of thousands of clients around the world. She could expect to find work much more quickly through this means than waiting to find a traditional job or looking for clients through strictly local offline resources.

### TABLE 4: UPWORK WEBSITE STATISTICS

<table>
<thead>
<tr>
<th></th>
<th>TOTAL</th>
<th>WEB/MOBILE, &amp; S/W DEV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hourly Rate (Upwork Average = 1)</strong></td>
<td>1.000</td>
<td>1.543</td>
</tr>
<tr>
<td>American Seller</td>
<td>1.809</td>
<td>2.753</td>
</tr>
<tr>
<td>Foreign Seller</td>
<td>0.927</td>
<td>1.494</td>
</tr>
<tr>
<td><strong>GSV (Upwork Total = 100)</strong></td>
<td>100%</td>
<td>48.02%</td>
</tr>
<tr>
<td>American Buyer</td>
<td>64.38%</td>
<td>62.12%</td>
</tr>
<tr>
<td>American Seller</td>
<td>16.63%</td>
<td>7.18%</td>
</tr>
<tr>
<td><strong>Transactions with American Buyers and American Sellers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Distance</td>
<td>1,091</td>
<td>1,142</td>
</tr>
<tr>
<td>Relative Income of Buyer Area</td>
<td>1.359</td>
<td>1.339</td>
</tr>
<tr>
<td>Relative Income of Seller Area</td>
<td>1.149</td>
<td>1.213</td>
</tr>
<tr>
<td>Relative Education of Buyer Area</td>
<td>1.722</td>
<td>1.694</td>
</tr>
<tr>
<td>Relative Education of Seller Area</td>
<td>1.360</td>
<td>1.449</td>
</tr>
<tr>
<td>Relative Urbanicity of Buyer Area</td>
<td>1.180</td>
<td>1.177</td>
</tr>
<tr>
<td>Relative Urbanicity of Seller Area</td>
<td>1.085</td>
<td>1.112</td>
</tr>
<tr>
<td>Relative Minorities in Buyer Area</td>
<td>0.809</td>
<td>0.802</td>
</tr>
<tr>
<td>Relative Minorities in Seller Area</td>
<td>0.840</td>
<td>0.810</td>
</tr>
</tbody>
</table>

NOTES: Distances, income, education, urbanicity, minorities weighted by GSV.
Table 4 shows average earnings and costs on the Upwork platform, and also illustrates how money moves from relatively affluent American areas to more middle-class regions. Figures are provided for work contracted through the Upwork platform as a whole, and for the largest service category - Web, Mobile, and Software Development.

The first few rows of Table 4 show hourly earnings. The exact hourly rates on Upwork are confidential, so the figures are all relative to the average for all hourly work done through Upwork in 2015, which is normalized to be equal to one. Note that there is substantial variation between the US and other countries, as well as across different types of work. Americans are able to charge about twice as much in most categories. This premium is probably a function of the fact that Americans are doing more skill-intensive assignments within each category and that it is easier (at least for American clients) to communicate with them due to language and time-zone overlap. While an American earning, for example, $40/hour and someone in India earning $15/hour may both be doing forms of web development, the American must be providing more value through more skill or better communication. If not, the buyer would not be willing to pay the large financial premium.

In order to look at how Upwork leads to service and dollar flows through the US, the bottom portion of the table focuses on transactions between US buyers and US sellers. The fact that Upwork makes doing work from a distance easier is immediately obvious, given that the average distance between buyers and sellers is over 1,000 miles. Buyers and sellers on Upwork are taking advantage of technology to move labor service very long distances in a way that could not be done just a few years ago.

The rest of the table analyzes how Upwork redistributes money within the US and shows that, in general, the platform moves income from high income areas to less affluent areas.

I matched each American buyer and seller of services to characteristics of the population in the zip code used on the Upwork platform. To do this, I used data from the American Community Survey made publicly available by the Census Bureau. For each zip code, I have the median income, whether or not it is urban, the fraction of adult residents who are college graduates, and the proportion of the zip code that is minority (which I define to include African-American, Native American, Native Hawaiian, Multi-racial, or “Other”).

Weighting each transaction by the total dollars spent, I calculated the average of each of these zip code-level variables separately for buyers and sellers and then divided this average by the population-weighted average for the entire United States. For example, the figure 1.359 for “Relative Income of Area” in the “Total” column was calculated as follows: Looking at all transactions on Upwork in 2015 with American buyers and weighting each transaction by the amount spent, the Census Bureau average of the zip code-level annual median incomes in the buyers’ zip codes was $77,815. The average for the US population was $57,246, which leads to the ratio 1.359. This indicates that the typical dollar spent on Upwork by an American comes from a zip code where the median income is 35.9% higher than the average for the entire American population.
In both columns of the table (and when looking at other categories of work), there is a clear pattern where Upwork buyers come from areas that have much higher than average incomes, dramatically larger populations of college graduates, are more urban, and where minorities are underrepresented. That is, Upwork buyers come from, on average, affluent communities. Perhaps indicating labor markets are tight in these areas and that businesses in these areas tend to be technologically savvy, they find Upwork an attractive place to look for labor that is, on average, thousands of miles away.

The areas where Upwork sellers operate are quite different, however. Upwork sellers’ zip codes also tend to be more affluent and educated, but by much less than the buyers’ zip codes. While buyers are located in areas that are 36% richer and have 72% more college graduates than an average American area, sellers are located in areas that are 15% richer and have 36% more college graduates. On average, Upwork facilitates matches between buyers in more affluent areas than the sellers they transact with. Thus, for transactions within the United States, Upwork redistributes income from highly affluent areas to less affluent (though not, on average, very low income) areas.
IV. Costs and Benefits of the IW

A. Gains from Trade and Thicker Markets

Labor markets are similar to other markets, in that the laws of supply and demand apply. Buyers (primarily companies, non-profit agencies, and governments) “demand” labor services and workers “supply” these services. As with other markets, quantity exchanged and prices (wages and fees for labor services in this market) are market outcomes resulting from demand and supply, but also are affected by policy decisions such as tax rates, minimum wages, and employment protection clauses (such as anti-discrimination laws). But, relative to other markets such as stock markets, markets for commodities such as steel and aluminum, and markets for consumer products, there is one key difference in the labor market: no two “products” are the same. Workers are imperfect substitutes for each other. Economists say that this is a market of “differentiated goods.”

Though some of these features apply in other markets, the differentiation in the labor market leads to two important features of this market. First, because no two jobs are the same and no two workers are the same, there can be substantial value in “search” – expending time and resources looking for a potentially more valuable worker (either one who is more productive at the same compensation or one who demands less compensation for the same level of productivity) or a better work situation (one that generates more earnings or has other features that make it more attractive to a worker). The costs of search by firms that need labor services and people who want to work can be quite substantial, and “frictions” that impede finding the right job or worker can be an important drag on the economy and a primary contributor to the existence of unemployment.³¹

Second, the differentiation in the labor market makes “thick” labor markets valuable. That is, it is generally better to have 1000 firms and 1000 workers pairing off into working relationships than to have 10 firms and 10 workers pairing off. The “best” match is likely to be better when the groups are bigger because, given 1000 options, a given person is likely to find a job that fits her interests quite closely and a firm is likely to find a worker who fits its needs.³² McKinsey Global Institute highlights that “online talent platforms” provide value because they “connect individuals with work opportunities.” They estimate that these platforms will increase world GDP by two percent per year by 2025.³³

An online platform such as Upwork, therefore, creates value in the labor market by reducing search costs and making the market thicker. The reduction in search costs can be seen immediately from the tables and graphs above, which show that most Upwork buyers and sellers are far apart geographically, and could not possibly connect with one another if they had to do so in person. But, through Upwork and similar sites, the search process is quite simple.

The market-thickening advantages are also obvious from the tables and graphs above. American firms can get simple tasks done at more affordable rates than if they could only use workers in the local area, while an IW programmer or graphic designer in, for example, a Denver suburb, can get offers from companies all over the world that are likely to include some that will compensate at a higher rate than the local buyers of these services.
Thus, Upwork and similar sites allow sellers of labor services across the globe to better utilize their “comparative advantage,” creating increasing value in trade of labor services to parallel the wide benefits from the much longer history of global trade of manufactured and agricultural goods.

B. Efficient Use of Labor – Idle Time

Platforms that allow the IW to sell their services also make the economy more efficient by utilizing these workers’ labor more efficiently. If a worker is in the IW, she can spread her time across a set of buyers worldwide, whereas a traditional employee generally works for a single local employer. This means that, when a single firm cannot keep the individual worker busy at all times, she can either work for another firm or use that time in some other valuable way, such as taking care of family responsibilities or simply enjoying a leisure activity.

This “idle time” value of the IW is most important for small businesses. We can get some sense of this from a survey Upwork conducted of its buyers in 2014. Given a somewhat low response rate to this survey, and the fact that we do not know how many assignments each respondent bought on Upwork or how much money they spent, I will not do any formal analysis using this survey. But, several facts and trends show up very clearly in the responses.

Most importantly, as it relates to the efficiency of buying services from workers through an online platform, most buyers that use Upwork to find contractors are small businesses. More than 80% of Upwork users who were surveyed work at firms with 10 or fewer employees. With very few exceptions, a company of that size cannot hire a full-time (or even regular part-time) employee to design its website, to do graphic design, or to do Search Engine Optimization. If such firms had to hire employees to do these tasks, those employees would sit idle for large periods of time or be forced to do other tasks where they would not be as productive. Alternatively, without the IW, many small businesses would simply not be able to access workers with certain specialized skills, and some tasks could not get done at all.

C. Flexibility

Perhaps the biggest benefit to the IW is the flexibility that independent work provides. The IW set their own hours, both in terms of overall quantity and the specific times they work. This allows them to balance work, family, and leisure activities better than traditional employees. Instead of choosing between a job that requires some number of hours of work each day or week, and no job at all, the IW can work one hour one day, seven hours the next, three the day after, and so forth.

While it’s hard to put a dollar value on this flexibility, there is ample evidence that there is considerable value in flexibility for the IW. One indication of this is the fact that the fraction of the 2015 FIA survey respondents who are in the IW is significantly higher (34%) for those with children than those without (30.6%). This difference is even higher for women (30.8% vs. 26.5%), which is not surprising because women typically have more child care responsibilities.
In that survey, respondents were asked: “Please indicate the degree to which each of the following is a reason why you freelance? Please use a scale from 1 to 5, where 1 means it is ‘not at all a reason’ and 5 means it is ‘a major reason’ why you freelance.” Sixty-eight percent of IW respondents chose 4 or 5 for the response “To have flexibility in my schedule (i.e. what days or times I work).” This was the second most highly rated reason for freelancing, trailing only “To earn extra money.” Over half of the IW also chose 4 or 5 for the option “To be able to spend more time with friends, family, and my personal life.”

The survey also asked: “Which is a bigger reason why you freelance?” and provided two choices: “The flexibility it provides (schedule flexibility, location flexibility, time with family, etc.)” and “The work opportunities it provides (type of projects, interesting work, ability to work with multiple clients, etc.).” Sixty-five percent of IW respondents (and over 69% of women) chose the first option (flexibility).

Other surveys also find flexibility to be an important driver of the choice to join the IW. For example, MBO Partners reports, based on their survey, that 71% of “independent” women and 61% of independent men say that “flexibility is more important than making the most money.” The two reasons cited most frequently for independent work were “the ability to control my own schedule (63%)” and “more flexibility (59%).”³⁴ A report by McKinsey Global Institute highlights the value of more flexible work arrangements, especially for mothers, as an important part of the value created by online platforms.³⁵ Another McKinsey Global Institute report notes that the IW have high satisfaction for reasons that can be considered related to “flexibility,” but not in terms of hours worked, including work engagement, creativity, and being one’s own boss.³⁶ An analysis of Uber drivers concludes, “A variety of questions made it clear that Uber’s driver-partners value the flexibility that the Uber platform permits, and many are drawn to Uber in large part because of this flexibility.”³⁷

D. Risk and Volatility of Earnings

From the workers’ perspective, there is one clear downside of self-employment, which is volatility of earnings. The IW naturally accepts volatility in return for the flexibility highlighted in the previous section – earnings will naturally rise and fall from week to week as they choose to work more or less. However, if a member of the IW cannot count on work being available whenever she is ready to work, then she suffers relative to working a full-time job with a guaranteed paycheck.

Members of one large segment of the IW are relatively insulated from risk in income because they hold a regular job in addition to their independent work. More than half of the IW respondents in the 2014 and 2015 FIA surveys reported holding a regular job or owning a business. Many others have spouses or partners with full-time jobs (and perhaps higher incomes). These workers face less risk than a member of the IW who is the primary income source in a household and does not have a traditional job.
Nonetheless, variability of income is clearly an issue for a significant share of the IW. The 2015 FIA asked respondents to “Please indicate how concerning each of the following issues are to you as a freelancer.” Thirty-nine percent of IW respondents chose “Very concerning” and 37% chose “Somewhat concerning” in response to “Unpredictable income.” Thirty-one percent chose “Very concerning” and thirty-seven percent chose “Somewhat concerning” in response to “Difficulty finding more clients or projects.”

Press coverage has highlighted this issue. For example, one article quotes a lawyer who works on a contract basis, “When I’m done with this job, it could be a month, two months... It was a stress point for me. My family depends on me.”³⁸

Putting a dollar figure on the volatility of earnings is difficult given the lack of accurate estimates of unwanted week-to-week income variation. This is unfortunate, given that economists have tools to estimate how much people would be willing to pay to get rid of risk in their incomes. As an example, consider an IW software programmer (the job the person does is irrelevant, so this example can apply to any independent worker) who would like to work an average of 20 hours per week, and generates work through an online platform. In any given week, the engineer may prefer to work some number other than 20 hours. Also, she may not be able to work the number of hours she wants to in any given week if she does not receive enough offers for projects, and she may feel she has to work more than she would ideally like to in order to satisfy a particular client or to take advantage of an especially good opportunity.

Assume that this programmer charges $30 per hour doing work she finds on Upwork or a similar platform. In an average 20-hour workweek, the programmer will have gross earnings of $600. Assume that there is a standard deviation of $150 per week in her earnings. This means that she earns between $450 and $750 in two-thirds of the weeks, and she earns between $300 and $900 in 95% of weeks.

Over the course of a year (a 50-week year allows for vacation and keeps the numbers round), if demand from one week to the next is independent, her average weekly earnings will be considerably more predictable than her earnings in any given week. Specifically, while her expected earnings per week for the year will be $600, there is a two-thirds chance her average weekly earnings will fall between $579 and $621 and there is a 95% chance her average weekly earnings will fall between $558 and $642. Putting this in annual figures, the best guess of the programmer’s annual income is $30,000. There is a two-thirds chance that her income will fall between about $29,000 and $31,000 and a 95% chance that her income will fall between about $28,000 and $32,000.

These annualized figures show that members of the IW do not face a great deal of risk over a longer term (in this case, a year) as long as two conditions hold. First, they have to be willing and able to save some money during the good weeks so that they can meet their needs during the slower periods. This requires some discipline but, for a relatively sophisticated professional, should not be a big problem.
Second and more importantly, the figures produced above assume independence from week to week – if the programmer has a good week, that does not provide any information about how good the following week will be. During times when macroeconomic trends are strong, this may not be a reasonable assumption. Around 2009, IW workers surely felt some longer-term economic challenges as demand for their services dried up for longer periods (though many traditional employees suffered during this time, as well).

During these times, however, the risk faced by the IW that their incomes will decrease may or may not be more problematic than the fact that traditional employees are at higher risk of losing all their income as the propensity of job loss increases and the difficulty of finding a new full-time traditional job grows.
V. Policy Considerations

As the IW and the related “gig economy” have grown, both in size and in the attention they have drawn, there have been calls to revisit employment policies and assess how to regulate the market for the IW. This discussion is still in a relatively nascent state and is playing itself out among policymakers and in federal, state, and local legislatures, as well as courts.

This section considers the implications for policymaking on the state of the IW, as captured in this study and other work. I consider what policy should attempt to do and what it should explicitly avoid doing so as to generate economic benefits as the IW continues to grow.

Policymakers, to start, should be mindful of the following facts and findings:

• The IW is a diverse group, covering almost all possible levels of skill and pay in the American economy.

• Though fully independent work has grown over time, a large share of the IW holds a regular job and does independent work in addition.

• Most analysts expect the IW to continue to grow in coming years, unless significant changes in policy erect obstacles to independent work.

• Most members of the IW work independently by choice. As a group, these workers make more in the IW than comparable workers who are employees of companies and other organizations.

• Some members of the IW would prefer to have traditional jobs as employees, but these workers make about as much as they would if they were employees. They make considerably more than they would make if they were not working at all, so independent work provides an alternative safety net for these workers.

• Some IW members operate through Commoditized Matching systems where an intermediary dictates the terms of work, the exact tasks done, and the pay. Other members of the IW find work in Differentiated Matching settings where the platform merely provides a venue for buyers and sellers of labor services to connect and negotiate independent and specialized agreements on a project-by-project basis.

• The IW and the firms that buy their services both benefit from the flexibility of work arrangements that can quickly increase or decrease in time commitment. This enables the workers to put their skills to use where they are most valuable, minimizes idle time, and allows small businesses to access specialized skills when they are not big enough to justify hiring a full-time or ongoing worker with those skills.

• A small number of services are transacted through sites like Upwork, UpCounsel, and HourlyNerd that match buyers and sellers of services that may be very far apart, expanding the potential opportunities substantially for both sides of the market.
There is a natural tendency to want to institute policy changes that define the roles of the IW just as policy prescribes certain rules for employees in traditional jobs. To the extent that the rise of different elements of the IW creates loopholes in employment rules or allows firms to exploit people who work for them, new policy will clearly be welcome and necessary. But, policymakers should focus on policies that enhance the value and benefits of the IW without hurting the flexibility these workers seek or making the IW too expensive for firms to use relative to other options (including the option of not hiring anyone at all and, as a result, passing up a profitable use of labor inputs).

In the rest of this section, I consider several key policy goals and how policy can be crafted to meet those goals without impeding the benefits a more flexible workforce can offer. As the more recent policy discussions and the growth expectations of the IW in the future both focus on the online IW (even though it is still a small part of the IW), I will focus much of this analysis on online labor market platforms.

The policy goals that I consider are avoiding exploitation of workers, helping workers access non-cash benefits, and providing clarity on the classifications of workers.

A. Avoiding Exploitation of Workers

One criticism leveled at the trend towards independent work is that companies are simply trying to avoid paying mandated benefits and avoid workers negotiating collectively. If that is the goal when buying services from members of the IW and if it is working, then policies should certainly be put in place to combat such exploitation.

To date, however, there appears to be no compelling evidence that labor market platforms have developed monopsony power (that is, a platform was so dominant in the labor market that it was immune to competition). Indeed, as discussed in detail below and as shown in the analysis above, the fluidity of these labor market platforms allows significant competition, so it’s unclear how the market would be made more efficient by some form of mandated organizing rights for independent workers.

In their proposal for a third classification of workers (“independent workers” to go with the current classifications of employees and independent contractors), former Acting Secretary of Labor Seth Harris and Princeton Economist Alan Krueger advocate for IW collective bargaining rights: “Collective action could address imbalances in bargaining power between individual independent workers and intermediaries and thereby give independent workers some ability to influence their compensation and benefits while providing them an opportunity to gain a voice in their relationships with intermediaries.” I do not see much evidence of imbalances in bargaining power in online IW platforms right now, but would agree that, should they arise, collective bargaining or some other means of addressing them would be appropriate. However, waiting to gain some insight into how bargaining power issues play out is valuable because bargaining power imbalances, if they do arise, would surely vary considerably from site to site.
A key consideration when thinking about organizing rights is the variety in the skill levels and types of jobs done by the IW. On the one hand, one could imagine a Commoditized Matching platform such as Uber or DoorDash gaining a dominant position from which it could exert market power over drivers or “Dashers.” Some analysts already worry about Uber, in particular, dominating its market. Uber consolidated with its largest competitor in China, giving them a dominant position in the market. Meanwhile, here in the US, Lyft has been unsuccessfully trying to sell itself, posing the concern that Uber will solidify its market leadership position.³⁹ Even if Uber becomes dominant in the online rideshare market, however, traditional taxi companies and online delivery platforms are likely to provide healthy competition (at least in dense markets).

On the other hand, the competition issues are very different on Differentiated Matching sites like Upwork or HourlyNerd. On these and similar sites, sellers and buyers can “circumvent” or “disintermediate” (that is, they can start transacting directly without using the matching site), sellers advertise many different types of services and determine their own pricing, purchases are larger, and the screening between buyers and sellers is more intense. It is hard to imagine a Differentiated Matching platform exploiting sellers of services, and it is also hard to imagine that the sellers on such a site would have sufficiently similar interests that it would make sense for them to bargain as a group. Designing a collective bargaining law that applies to all online labor platforms (a “one-size-fits-all” policy) is likely to prove too simplistic.

In addition to the fact that there is not yet a clear need to extend collective bargaining rights to the IW, another concern with creating new policy on this issue is that it would likely have unintended consequences that would lead to negative effects for online labor platform buyers, sellers, and customers.

To see this, refer to Figure 1 and consider workers in the Commoditized Matching category where the intermediary sets the price at which services will be sold. Uber and DoorDash are good examples. What would happen if Uber drivers and DoorDash “Dashers” could collectively bargain with their respective sites?

The effects of collective bargaining rights on these workers and sites would depend on the competitive dynamics of each platform. Uber drivers might well collectively bargain for greater compensation of some form (a larger share of the fees Uber charges, an hourly minimum, etc.), and this would likely be passed along to Uber’s customers through higher fares. Lyft drivers might also collectively bargain with Lyft. But, an alternative and plausible scenario would be for Lyft to successfully convince its drivers that the drivers should continue their current arrangement and take some of Uber’s market share after the higher compensation to drivers increases their prices. Or, if both Lyft and Uber raised their prices, another company could enter and capture market share if they, through a range of incentives, could keep their drivers from organizing.

Things would likely play out very differently on Differentiated Matching sites such as Upwork, HourlyNerd, and UpCounsel. Collective bargaining would probably have minimal benefit on these platforms given that very few buyers of services would work with a large group of sellers from a site at any time.
If a law were crafted so that sellers of services could collectively bargain directly with the sites, one would expect workers to rationally choose not to do so given how different their skill levels are. The types of workers on these sites (computer programmers, graphic designers, lawyers, and management consultants) rarely form unions in other contexts, so it is unlikely they would choose to do so through an online platform. If a large group of the IW did collectively bargain with one of these sites, the site could readily stop accepting sellers of services from the domains in which collective bargaining was allowed. Given the remote nature of their business, buyers of labor services on these sites would not be willing to compensate unionized workers more (or deal with any other rules or obstructions that a union might try to impose) when they could easily substitute workers from other states or countries.

Overall, collective bargaining might increase the amount of money earned by some people using a small subset of labor market platforms. But, policymakers and elected officials should understand that these benefits would come at the cost of price increases on these sites, and would likely be temporary as other sites found ways to avoid collective bargaining and undercut the unionized platforms, while also making the jurisdiction that allows for collective bargaining a less attractive place to do business for those platforms that are used by sellers of labor from around the country or around the world.

B. Mandated Benefits

Traditional employees of companies are legally entitled to certain benefits that are not required for independent contractors. These include the employer contributing half of the worker’s Social Security and Medicare taxes, workers’ compensation insurance, and unemployment insurance. For most traditional employees who work full-time, the Affordable Care Act (ACA) also requires firms with 50 or more full-time equivalent employees to offer and contribute to health insurance options.

Should members of the IW be entitled to these same contributions to their benefits? And how would such mandates impact income opportunities for IW participants?

One key consideration here is the ease of starting an independent work agreement. For both buyers and sellers of labor services, the ability to start and end work contracts quickly makes the use of the IW more attractive. Firms can quickly fill project needs and providers of services can quickly begin doing work and getting paid. Many of these relationships are short-lived. More than a tenth of Uber drivers stop driving within a month of starting, and more than half stop within a year.⁴⁰ A typical hourly contract on Upwork in 2015 involves fewer than 60 hours of work.

If the buyer of labor services in these settings had to arrange to pay Social Security taxes, unemployment insurance, etc., that would substantially increase the administrative hassle and fixed costs of undertaking a project and undermine the flexibility provided by the IW. That would make buyers less likely to bring on this type of work, limiting US businesses’ options for project-based work and hurting the ability of at least some IW members to find flexible work arrangements.
A second consideration is the fact that, given many members of the IW also hold traditional jobs, it would often be redundant to mandate these benefits for their independent work. For example, a person who holds a job paying an income greater than the highest income for Social Security taxes would have to file for a rebate if he also had Social Security tax withheld for IW earnings. For these workers, having each company that bought their services independently make contributions to their mandated benefits, or requiring them to establish systems that continually verify employee exemptions, would lead to substantial complication and end-of-year reconciliation that would drive up the costs of working in the IW. It would also present privacy issues, as IW members might have to let buyers of their labor services know what they were making elsewhere.

A final issue is the split of pay between firms and workers. If the mandated benefits of traditional employees make the IW relatively cheap to employ, then traditional employment may be unfairly disadvantaged and the IW may grow simply to shift costs from firms to workers. As I discuss in the next section, especially for liquid labor market platforms, the differences in the benefits provided will generally be “priced” into the wages so that traditional employment will not be overly expensive relative to buying services from the IW.

C. Portability of Benefits

As noted above, the IW provides two critical advantages to many workers: it provides flexibility to work when people want to, and it provides an alternative safety net for people who cannot find the traditional job they are looking for. Both of these motivations suggest it is important to allow workers to move in and out of the IW relatively freely, to enable them to move between IW assignments at low cost, and to help people in the IW build some of the safety net that is provided by traditional employment benefits and/or government assistance for unemployed or underemployed workers.

There has been a recent move towards policies that encourage “portable benefits” – benefits that follow a person from one job or work arrangement to another. Many such benefits already exist in the public and private markets, in fact. These include Social Security, portable health care under the ACA, “Simplified Employee Pension” (SEP-IRA) tax-deferred retirement plans, and disability plans (such as the voluntary “Disability Elective Insurance Coverage” plan in California).

Many people and groups have advocated for the expansion of portable benefits. For example, a group including union leaders, executives from online labor market platforms such as Lyft and Handy, and thought leaders from a wide range of think tanks recently argued that “society and the economy are served best when workers have both stability and flexibility.” They went on to argue that, “We need a portable vehicle for worker protections and benefits.”

The exact way to provide portability of benefits requires some experimentation, but the policy goal should always focus on enhancing the flexibility and the safety net for workers. Current policy sometimes works against this goal. Harris and Krueger (2015) advocate for allowing platforms to help independent workers jointly capture the benefits of pooling purchases of various types of insurance (including unemployment insurance), tax and retirement planning, and other services.
They argue that current labor law makes buyers of labor services afraid to help with this pooling: “Currently, however, intermediaries are loath to take advantage of pooling efficiencies because offering benefits to workers would raise the risk that their work relationships would be adjudged employment by a court or administrative agency.”

If fear of courts and agencies is leading companies to hold back from offering pooled services to workers, these fears are blocking the opportunity for efficient procurement by workers. This can (and should) be fixed by reforming existing federal (and, when relevant, local) statutes to give firms the right to help independent contractors pool purchases of goods and services without affecting their employment status so that buyers of labor services can enable the IW to attain portable benefits.

D. Classifying Workers

A broad policy issue that the growth of the IW raises is whether to define more of the IW as employees, rather than as independent contractors. A related policy issue is whether to create a third classification of worker, as suggested by (among others) Harris and Krueger. I believe the data and economic logic suggest that there is no obvious need to expand the definition of “employee,” and that it is too early to jump into creating a third class of worker.

The possible expansion of employee status to more of the IW came into the public eye recently when drivers filed class action lawsuits against Uber and Lyft, claiming that the companies treated them as independent contractors when they should have taken them on as employees.

Lyft reached an agreement to settle its suit (which was filed by California drivers) in May 2016. Uber and the named plaintiffs in two of its suits (one in Massachusetts and one in California) reached a settlement in April 2016, which was rejected by a federal judge in August 2016. The cases are still pending.¹² Both companies agreed to pay damages to the drivers and to make changes to some business practices going forward, though both companies’ settlements provide that drivers will continue to be independent contractors. The matter is not completely resolved, as the Lyft settlement is not yet final, the Uber cases are pending, and the companies still face similar actions in other jurisdictions.

What would have happened had the drivers been granted employee status at these firms? How might the future possibility of parts of the IW being declared employees affect labor market platforms? At least three factors will impact the consideration of these questions.

First, labor market platforms that enable Differentiated Matching are at low risk of being forced to classify those who find work on their platforms as employees. Sites such as Upwork, UpCounsel, and HourlyNerd are used by highly skilled professionals who have chosen to work independently. Many are in foreign countries or far away from any office of the site where they list their services. They typically have other sources of income (possibly even a full-time job). They are fully in control of the way they do their work and the prices they charge. The standard tests to determine whether a person is an employee or an independent contractor would clearly fall on the independent contractor side of the divide. This said, the line is more “gray” in the case of Commoditized Matching sites like Uber, Lyft, and DoorDash.⁴³
Many of these workers would be determined to have significant control over their own hours and the way they do their job. They also use these sites as just one of multiple sources of income and often work for multiple labor market platforms simultaneously. As a result, they would likely be found to be independent contractors.

Second, if taking on workers as employees would actually make the platforms materially less profitable, the platforms would find ways to avoid forming employment relationships with users who sell services on their sites. Uber and other sites would alter how drivers are compensated and give drivers more control over the way they do their jobs so that they would fall more clearly into the independent contractor category. These sites might also limit the number of hours people could work through them, so that they would be more likely to have alternative employment. As noted above, Differentiated Matching sites such as Upwork would probably not be affected. But, if there was some credible threat to the independent contractor status of people who sell services on Differentiated Matching sites, these markets would focus on sellers who reside (and work) in states where users of their sites would not be considered employees or they would exclusively support foreign sellers.

Perhaps most importantly, I think the employee/independent contractor question is less important than some analysts have suggested because, at least in the “medium term” (over a period of several months to about a year), the workers who use labor market platforms will not be materially better or worse off regardless of which way they are categorized.

Labor market platforms such as Uber, TaskRabbit, Upwork, and HourlyNerd are vibrant and thick labor markets with substantial competition on both the buyer and the seller sides. Uber drivers can easily join the platform and can also quickly leave it. Upwork sellers can and do join the site, come and go, and leave the site at a high rate. Workers on these sites have other opportunities including offline freelancing clients and exploring full-time job options. In such a setting, the laws of supply and demand generally lead (potentially after some period of adjustment) to an efficient outcome where people find work through a site if the compensation there is better than their alternative, and they are able to find work if they offer quality services at the going rate.

Under this relatively liquid market situation, if a platform suddenly had to pay, for example, the “employer” share of the worker’s social security tax, the worker would surely benefit in the short-run as she would save 6.2% of her gross earnings from the site. However, in order to remain competitive, the site would very shortly raise its service fee by 6.2% of the gross value collected from buyers. The seller might be tempted to switch to other sites or to try to sell her services directly to customers. But, the other sites would also raise service fees and, by selling directly, she would be responsible for the 6.2% she was trying to save.

In traditional labor markets, where there are more “frictions” due to costs of searching for jobs and employees, costs of physically moving to take a new job, and where firms and employees make specific investments in each other, it is often the case that the employee/independent contractor divide can affect the way a firm and worker split the surplus created by a job.
That is, it is common for workers to earn less in total compensation (including wages and the value of benefits) when they are independent contractors than when they are employees, though the differences are typically quite small. But the high turnover, the ease of transition, and the active competition in many labor market platforms mean that, at least over some period of time, sellers who use those sites will make about the same whether they are employees or independent contractors. This prediction is consistent with the regression results in Section II, which showed that people who choose to be independent contractors suffer no financial penalty.

Overall, given the nature of work on labor market platforms, and the ability of those who run these platforms to tailor their business models to the regulatory climate, I do not think being classified as employees or independent contractors has a material effect on the total compensation earned by workers on these platforms. To the extent that this classification does matter, it would lead the platforms to make suboptimal changes to their business models that do not benefit the workers involved.
VI. Conclusion

The independent workforce represents a growing and diverse part of the American workforce. In this paper, I have provided evidence to suggest that skills of the IW are rewarded in line with how their skills would be rewarded in traditional employment, and that the IW do not suffer a significant financial penalty for working alone. In addition, I used data from the Upwork platform to show that independent professionals can provide a broad range of services over a large geographic area in a way that “thickens” labor markets and allows skills to be efficiently allocated to clients that need these specialized skills. This platform also, on balance, enables firms in high-income areas to use the services of workers in lower income areas, allowing workers to access opportunities in areas with more resources and allowing firms to access workers in less competitive labor markets.

These patterns in the data are consistent with the IW creating value in the American economy by making labor markets thicker, allowing more efficient allocation of labor resources, and allowing workers the flexibility that many of them value. These benefits are partially offset by the volatility in earnings that the IW face, though the IW can also use non-traditional work to smooth their earnings when they face a loss in the traditional employment sector.

The growth of the IW has brought about numerous calls for policy changes. Policymakers should be cautious, as they progress, that they reinforce the benefits of independent work to both firms and workers rather than stifling this vibrant part of the economy.
End Notes


2. MBO Partners (2016).


5. MBO Partners (2016). The MBO estimate of the freelancer population is smaller than the FIA estimate because MBO apparently takes a somewhat more restrictive view of whether workers who do small amounts of independent work count as members of the IW. Note that, by my definition of the IW, there are only 50 million Americans based on the FIA surveys because, unlike the press materials provided with the release of the FIA surveys, I do not include people who work through temporary help agencies.

6. The difference between MBO’s estimate of no growth in 2015 and the FIA survey’s 1.3% growth estimate easily falls within the range of random error given differences in methodology, definitions, and within-year timing.


8. These differences account for the vast majority, if not the entirety, of the difference between the magnitude of independent work suggested by the FIA surveys I will use below, and the survey done by Katz and Krueger (and previous BLS surveys). Mishel (2015) points out that these seemingly stark differences in magnitude can lead to overly dramatic claims about the role of the IW, but this can be avoided by keeping in mind when an estimate is focused on independent work as a primary source of income, versus when an estimate aims to capture all workers who participate in the IW.

9. Their work “implies that the number of workers employed in alternative arrangement increased... from 14.2 million in February 2005 to 23.6 million in November 2015,” which suggests a 4.84% annualized growth rate.

10. The MBO report states, “In the last five years, the number of independent workers in the US has risen a solid 12%.”


12. As a result of eliminating temporary workers from the IW definition, the size of the IW in the analysis to follow is slightly smaller than the size in the FIA figures referred to in the prior section.

13. Note that the general ideas described below hold when using alternative definitions of the IW. For example, including all of the FIA “freelancers,” limiting the IW to college graduates who are “freelancers,” or limiting the IW to those who have used an online platform to find work lead to the same conclusions.
14. Note that the annual income variable in the surveys is categorical. I apply the category midpoint to each person and I assign an income of $200,000 to those earning over $150,000. The education variable asks about highest level of education, so I apply standard years of education to these levels (for example, 12 for a high school graduate). Ages are in 10-year intervals, so I apply the midpoint age.

15. Marital status was only asked on the 2015 survey, so the sample is smaller.

16. Katz and Krueger’s (2016) sample shows women are over-represented in their “alternative work arrangement” group. This difference is mainly driven by two factors. First, they include people working through temporary agencies, which tend to include more females. Second, they focus only on a respondent’s “main job.” Men are more likely to hold a traditional full-time job that would take them out of the Katz and Krueger contingent group.

17. The true tax rate (marginal or average) of the IW relative to traditional workers varies. IW members who do not earn at least $118,000 in traditional work have to pay 6.2% in Social Security. Regardless of income, they pay 1.45% in Medicare taxes. The “employer” share of Social Security taxes can be deducted against Self-Employment income, however, lowering that form of tax. On balance, IW incomes are generally taxed anywhere from no differently relative to employment income, to 7.65% higher. However, these figures are subject to state and local taxes and tax consequences of working through a corporation or LLC.


19. A kernel density estimate is similar to a histogram, but is used for continuous variables (such as hours of work per week or hourly earnings), whereas a histogram is typically employed for variables with discrete outcomes (such as educational achievement).

20. Note that the distributions of hourly earnings for the two groups are quite similar, except for the two “humps” in the traditional workforce. These humps are a result of the facts that many employees report working exactly 40 hours and that there are only six income levels to choose from.

21. Though I do not discuss these regressions here, I also ran several regressions ignoring IW status to ensure that the sample generates patterns similar to broader samples gathered by organizations such as the Census Bureau and used in many academic studies. The results here were reassuring, as the “returns” to education and other factors are quite close to those in widely used and accepted samples.

22. For more details on economists’ study of the value of education, see Card (1999).

23. Upwork was formed by the corporate merger of oDesk and Elance in 2014. The platforms began merging in 2015. All analysis includes all activity on both platforms during 2015.

25. Stanton and Thomas (2016) did their analysis using data from oDesk transactions in 2008 and 2009 (several years before oDesk combined with Elance to form Upwork). Agency arrangements at that time tended to be co-located groups. For information on current Upwork agency rules and information, see https://support.upwork.com/hc/en-us/articles/211062598-About-Agencies.

26. As of this writing, Upwork has about 100 platform-defined “categories” and more than 3,500 freelancer-defined “skills.”

27. There were a total of millions of employees in The City metropolitan area.

28. The estimates of engineers available through Upwork used here are very conservative because they are based on active engineers – those who found work through the site in 2015. There are many more programmers registered on the platform who would be available if the right opportunity came along.

29. This figure is, obviously, contingent on the job being filled. Upwork’s fill rate is confidential for competitive reasons. 97% of listings on Upwork receive at least one seller proposal.

30. See http://dhihiringindicators.com/

31. Dale Mortensen and Christopher Pissarides won the Nobel Memorial Prize in Economics in 2010 for their analysis of search costs in labor markets. For an non-technical treatment of the economics of search in labor markets (and in the market for romantic partners, which, in many ways, operates quite similarly), see Chapter 1 of Oyer (2014).

32. Alvin Roth won the Nobel Memorial Prize in Economics in 2012 for his pioneering work on making markets (including many labor markets) thicker. For non-technical background on the value of making markets thicker, see Chapter 6 of Oyer (2014).


34. MBO Partners (2016), pages 6 and 10.


42. Vincent (2016) and Bensinger and Weber (2016).

43. In fact, the court order approving the Lyft lawsuit settlement stated, “Lyft’s obligations to its drivers are genuinely unclear... there is no straight answer to the question whether those drivers must be classified as employees or independent contractors.”

44. See, for example, Gruber (1994) and Olson (2002), who found that employees “pay” the overwhelming share of health benefits through lower wages.

45. See Harris and Krueger (2015), Chapter 6, for a similar argument.
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## APPENDIX A

### Earnings Regression Results

<table>
<thead>
<tr>
<th>Sample</th>
<th>(1) ALL SURVEYED WORKERS</th>
<th>(2) ALL SURVEYED WORKERS</th>
<th>(3) IW ONLY</th>
<th>(4) IW ONLY</th>
<th>(5) ALL SURVEYED WORKERS</th>
<th>(6) ALL SURVEYED WORKERS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variable</strong></td>
<td>Natural Log of Annual Earnings</td>
<td>Natural Log of Annual Earnings</td>
<td>Natural Log of Annual Earnings</td>
<td>Natural Log of Annual Earnings</td>
<td>Natural Log of Annual Earnings</td>
<td>Natural Log of Annual Earnings</td>
</tr>
<tr>
<td>Independent Workforce</td>
<td>-0.0568</td>
<td>0.1543</td>
<td>0.0734</td>
<td>0.1561</td>
<td>(0.0144)</td>
<td>(0.0172)</td>
</tr>
<tr>
<td>IW “By Choice”</td>
<td>-0.1543</td>
<td>0.0707</td>
<td>(0.0186)</td>
<td>(0.0222)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of Education</td>
<td>0.1146</td>
<td>0.0761</td>
<td>0.1059</td>
<td>0.0700</td>
<td>0.1143</td>
<td>0.0754</td>
</tr>
<tr>
<td>Female</td>
<td>0.0761</td>
<td>0.0761</td>
<td>0.0761</td>
<td>0.0761</td>
<td>(0.0029)</td>
<td>(0.0034)</td>
</tr>
<tr>
<td>African-American</td>
<td>0.0761</td>
<td>0.0761</td>
<td>0.0761</td>
<td>0.0761</td>
<td>(0.0050)</td>
<td>(0.0064)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.0761</td>
<td>0.0761</td>
<td>0.0761</td>
<td>0.0761</td>
<td>(0.0064)</td>
<td>(0.0080)</td>
</tr>
<tr>
<td>Urban</td>
<td>0.1419</td>
<td>-0.1508</td>
<td>-0.1347</td>
<td>-0.2655</td>
<td>-0.1434</td>
<td>-0.1545</td>
</tr>
<tr>
<td>Suburban</td>
<td>0.0761</td>
<td>0.0761</td>
<td>0.0761</td>
<td>0.0761</td>
<td>(0.0134)</td>
<td>(0.0161)</td>
</tr>
<tr>
<td><strong>Notes:</strong> Standard errors in parentheses; Sample size smaller for hourly analysis because some people did not respond to question about hours worked per week. Based on the 2014 and 2015 FIA surveys with sampling weights applied. Coefficients shaded in yellow (green) are statistically different from zero with greater than 99% (95%) confidence.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>