TECHNICAL APPENDIX AND REFERENCES FOR
$15.00 MINIMUM WAGE PETITION

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1. 1968 real value of the minimum wage

The real value of 1968 minimum wage is determined by using the Bureau of Labor Statistics (BLS) Consumer Price Index for All Urban Consumers (CPI-U), All Items.

2. Labor productivity growth

Labor productivity over time is measured by the BLS Labor Productivity and Costs program (LPC). The specific index used here is for the Business Sector. The index value (base year=2009) in 1968 is 43.503 and 105.998 for 2014, indicating a 143 percent increase in productivity (105.998 /43.503).

3. Number of affected workers.

We estimate that about 76 million workers would receive some form of raise from a minimum wage hike of this size. These workers include three groups: (1) workers who currently earn between $7.25—the regular minimum wage today—and $15.00 in 2020 dollars (about $14.00 in today's dollars, assuming a 1.5 percent annual inflation rate); (2) workers who earn more than the proposed minimum wage who would receive "ripple-effect" raises; and (3) tipped workers who currently earn between $2.13—the tipped minimum wage today—and $7.25.

We estimated the figures for the first two groups directly from the 2014 Current Population Survey (CPS) data produced by the Labor Department's Bureau of Labor Statistics. This household survey is the standard source of labor market data for studying the U.S. workforce and forms the basis for the official, national unemployment rate. We specifically use the "outgoing rotation group" data file that has particularly high quality wage data. The data file we used was prepared by the Center for Economic and Policy Research (CEPR). CEPR provides such data files free to the public at their website: www.cepr.net.

The first group includes workers who earn between $7.25 and $14.00 ($15.00 in 2020 dollars). We expect that these workers will receive mandated raises to get them up to $14.00. We estimate that 35.6 percent of the U.S. civilian non-institutionalized workforce earned between $7.25 and $14.00 in 2014.

The second group includes workers who earn more than the new minimum wage but also receive raises when the minimum wage rises to $14.00 in 2014 dollars ($15.00 in 2020 dollars). These "ripple effect" raises are the raises that employers give workers at their own

discretion (i.e., they are not mandated) in order to maintain the same wage hierarchy before and after the minimum wage hike. These raises are also referred to as "spillover" effects.

Estimating the number of workers who would get ripple effect raises is necessarily a more speculative exercise since such raises are not legally required. We estimate the number of workers who would receive ripple effects using the same methodology as that described in our 2015 paper, "A $15 U.S. Minimum Wage: How the Fast-Food Industry Could Adjust Without Shedding Jobs." The basic feature of our approach is to combine empirical estimates of ripple effects from past research on minimum wages and living wages.

We start with the empirical estimates based on past minimum wage hikes. The research on minimum wages has a specific advantage over living wages: we have a substantial body of empirical data with which to measure ripple effects. Specifically, we use the results of Wicks-Lim (2008). That study looks at the impact, from 1983 to 2002, of federal and state-level minimum wage hikes on wages across the full wage distribution. Its basic finding is that ripple effects strongly compress wages at the low end. We apply this study's estimates across the wage distribution. Through this, we assume that the effect of a 107-percent nominal minimum wage hike by 2020 (equal to a 93-percent real minimum wage hike) can be expected to extend up to workers earning about $17.50 per hour (in 2020 dollars, or $16.00 in 2014 dollars), which would be 17 percent above the new mandated minimum wage of $15.00 in 2020.

The increase to a $15.00 minimum wage by 2020, however, is out of the range of past minimum wage hikes. As a result, using the pattern of ripple effects from past minimum wage hikes will likely underestimate the ripple effects due to an increase from $7.25 to $15.00. Therefore, we also use estimates from living wage ordinances implemented at the municipal level. These municipal-level living wage mandates require much larger minimum wage increases than the federal or state-level increases, better approximating the $15.00 minimum wage hike. Living wage studies, however, are case studies which necessarily rely on relatively small data sets to address research questions. This creates difficulties in attempting to isolate wage increases due to the living wage rather than other factors occurring at the same time. As a result, these living wage case studies may overestimate the ripple effects of a $15.00 minimum wage.

One such case study examines the impact of the living wage increase that was implemented over 1998 – 2001 at the San Francisco Airport (Reich et al. 2005). As part of this study, the researchers surveyed covered businesses before and after the wage floor increased from $5.75 to $10.00 per hour—a 74 percent increase. Based on the changes in wage rates reported by these employers, ripple effects from this San Francisco living wage measure appear to have extended to wages about 40 percent above the new $10.00 floor, i.e., to workers earning up to $14.00. If we applied this standard to a minimum wage increase from $7.25 to $15.00 minimum wage, it would suggest that ripple effect raises would extend to workers earning up to $21.00, not $17.50.

This more extensive ripple effect observed in the San Francisco study is consistent with observations from two other studies on living wage ordinances (Fairris et al. 2005, and

Brenner and Luce 2008). At the same time, Reich et al.'s wage survey did not adjust for wage increases that would have occurred in the absence of the newly-adopted living wage mandate and therefore likely reflect, in part, wage increases not caused by the living wage measure. Additionally, many San Francisco Airport workers were unionized at the time that the living wage ordinance was enacted. The collective bargaining process over their working conditions likely enabled these workers to raise their wages in response to the living wage ordinance more than would be normally the case among non-union workers. In other words, the raises observed by Reich et al. likely reflect the influence of more than the adoption of the living wage ordinance alone.

For our purposes, we assume that the ripple effects from a $15.00 minimum wage by 2020 will fall midway between the levels suggested by past estimates of past minimum wage ripple effects and past living wage ripple effects. We average these figures for determining the costs of both mandated and ripple-effect raises from a $15.00 minimum. See the technical appendix to our 2015 paper, "A $15 U.S. Minimum Wage: How the Fast-Food Industry Could Adjust Without Shedding Jobs," for further details on our methodology. We find that ripple effects will likely reach workers earning up to about $19.25 in 2020 dollars, or $17.80 in 2014 dollars.

Finally there is a third group of workers who would get raises from an increase in the "tipped minimum wage." These are workers who traditionally receive a substantial portion of the wages in tips, as documented by Allegretto and Filion (2011). These occupations include: massage therapists, bartenders, waitstaff, gaming services workers, barbers, hairdressers and cosmetologists, and other personal appearance workers. We assume that all tipped workers with wages between $2.13, the current tipped minimum wage, and the current $7.25 regular minimum will get raises from an increase in the regular minimum to $15.00.

We assume that these tipped workers do not receive ripple effect raises for the following two reasons. First, tipped workers receive the majority of their earnings through tips—not their base wage rate—so that the ups and downs of their tips largely determine their actual pay rate. Their base pay rate (the "tipped minimum wage") has been falling relative to the regular rate since 1991 so that today it is equal to less than one-third the regular rate. Up until the 1990s, the tipped minimum wage varied between 50 and 60 percent of the regular rate. Therefore, the base pay rate among tipped workers likely plays a modest role in the workplace dynamics affected by firms' wage hierarchies. Second, among tipped workers there exists a distinct spike around the base pay rate of $2.13, and then a drop off in the number of workers between the tipped minimum wage and the regular minimum rate. This suggests that employers basically pay their tipped workers the tipped minimum with little variation from that. In other words, there are relatively few tipped workers who work at wages above the tipped minimum (and below the regular rate) that would be likely candidates for ripple effect raises.

Based on the CPS, tipped workers not yet accounted for in our estimates above, earning between $2.13 and $7.25, adds another 0.8 percent of the workforce that would get raises.

Thus, the total proportion of workers expected to receive raises from the proposed minimum wage hike equals: 35.6 percent (directly affected workers) plus 15.5 percent (workers receiving ripple effects) plus 0.8 percent (tipped workers receiving raises in the tipped minimum wage), for a total of 51.9 percent.

To get the overall number of affected workers for 2014, we apply this proportion of 51.9 percent to the annual BLS estimate of the employed workforce based on the CPS. In its published "Annual Average" data tables (available at: www.bls.gov/cps), the BLS reported that 146.3 million workers held jobs in 2014 (51.9 percent of 146.3 million workers = 75.9 million workers).

4. Demographic characteristics.

The demographic characteristics for this 51.9 percent of workers are estimated from the 2014 CPS.

The estimated number of years in the labor force is based on a standard labor economics (Mincer 1974) definition of "potential labor force experience": Age – Years of schooling – 6.

5. Evidence of employment effects from the professional literature.

Debate among economists around the question of whether minimum wages negatively affect employment peaked during the mid-1990s. Thus, in 1995, David Card and Alan Krueger published their now classic book, *Myth and Measurement: The New Economics of the Minimum Wage*, on the topic.   The research on which they reported in *Myth and Measurement* consistently found that minimum wage increases did not lower employment by any discernible amount and, if anything, appeared to slightly raise employment. These findings sparked a well-known debate between Card and Krueger and two other economists--David Neumark and William Wascher—who challenged the Card/Krueger findings. Neumark and Wascher's own findings (e.g. Neumark and Wascher 2000) on the minimum wage-employment question, however, find either no significant employment effects or only small negative effects. Economist Richard Freeman of Harvard University summarized the state of the debate in the aftermath of this exchange as follows: "The debate is over whether modest minimum wage increases have "no" employment, modest positive effects, or small negative effects. It is *not* about whether or not there are large negative effects (1995, p. 833; emphasis in original)."

This debate has resurfaced more recently with a series of studies that find no employment effects from minimum wage increases (e.g., Dube, Lester, and Reich 2010 and Allegretto, Dube, and Reich 2011). These studies take advantage of the rich set of labor market data resulting from the growing number of states that adopt varying state minimum wage levels that, in turn, allow more rigorous statistical tests of the link between changes in minimum wage rates and employment. In particular, these recent studies use innovative econometric techniques that more carefully account for the many other changes that may be occurring in the low-wage labor market simultaneously with minimum wage changes, allowing them to more cleanly identify how minimum wages impact employment. Moreover, Dube and his

colleagues are able to show how their empirical tests find no employment effect on the same data from which older techniques--such as those used by Neumark and Wascher (2007)-- would produce evidence of a negative effect.

The debate continues, however, into 2013 with two more publications, one on each side of the debate: Neumark, Salas, and Wascher (May 2013) negatively critiquing the newer research strategies, showing evidence of negative employment effects for teenagers within the range of past findings. In response, a June 2013 paper by Allegretto, Dube, Reich and Zipperer vigorously defend the techniques used in Dube, Lester and Reich (2010) and Allegretto, Dube and Reich (2011), and reaffirm those results. In our view, this recent set of papers can basically be described as extensions of the same debate that Freeman characterized well with his summary statement nearly two decades ago. In other words, the debate continues to be over whether minimum wage increases have modest or no effects, "*not* about whether or not there are large negative effects."

6. Estimate of the increase in business costs for fast food restaurants due to a $15.00
    minimum wage

To estimate cost figures for a minimum wage hike up to $15.00 per hour for fast food employers, we need to answer the following three questions for the fast food industry: 1) How many workers would get raises from the increased minimum wage? 2) How big would these raises be? and 3) What is the overall impact on the wage bill?

We address these questions in our 2015 paper using 2013 CPS data. As we note in that paper, we are able to produce cost estimates for other minimum wage levels (see page 7 of Pollin and Wicks-Lim, 2015). For this document, we use our estimates based on that same methodology for the increase in fast food business costs due to a $14.00 minimum wage in 2014 dollars, equal to a $15.00 nominal minimum wage by 2020.[1]

The basic features of this methodology is to identify affected workers in this industry using the same publicly available labor market data published by the U.S. Labor Department described above (section 3), with the exception of tipped workers (fast food workers do not typically receive tips). We obtain more detailed information about the fast food industry using Labor Department data for the "Limited Service Eating Places" industry (we use the terms "limited service eating places" and "fast food" industry interchangeably). Additionally, for information about the wage structure of limited service eating places, we use the Occupational Employment Statistics (OES) and the Quarterly Census of Employment and Wages (QCEW). As we note in the text and technical appendix of Pollin and Wicks-Lim (2015), we include in our cost figure mandated raises and ripple-effect raises. We also

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[1] Note that our 2015 paper estimates are based on 2013 CPS data. As a result, our cost estimates for this document may be overestimated slightly. This is because over 2013 and 2014, wages have increased. Consequently, the number of workers in the lowest wage categories, who also receive the largest raises, should be smaller in 2014 compared to 2013. Additionally, the raises employers are required to give these workers should likewise be smaller since workers earned higher wages in 2014 compared to 2013.

incorporate the rise in payroll taxes which employers will be mandated to pay to all workers receiving raises.

For a detailed discussion of how we developed our business cost increase estimates see the technical appendix of Pollin and Wicks-Lim (2015). Note again that a $15.00 nominal minimum wage in 2020 is equal to about a $14.00 minimum wage in 2014 dollars. As a result, the cost figure for the $15.00 nominal minimum wage by 2020 is less than the cost figure for a $15.00 minimum wage in 2014 dollars, the focus of the Pollin and Wicks-Lim (2015) paper. The cost increase figures are: 11.1 percent of total fast food sales versus 14.2 percent of total fast food sales, respectively.

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