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$15 Minimum Wage in the District of Columbia: A General Equilibrium Analysis of the Economic Impact

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ABSTRACT

This study assesses the economic and fiscal impacts of the Fair Shot Minimum Wage Amendment Act of 2016, which increases the District of Columbia minimum wage to $15 an hour. The study presents findings on the short and long-term employment effects in the District as well as impacts on earnings, consumption, prices, business competitiveness, and tax revenues. While many minimum wage studies have relied on regression-based, partial-equilibrium approaches that focus on specific subsets of the population (e.g. teens, restaurant workers), our study uses a general equilibrium microsimulation model focused on all workers in the city. Using our microsimulation model with city-level restricted tax data and publicly available government data, we predict that over 60,000 District residents will be impacted by this policy; residents will observe an average increase of about 20% in wage income, while about 3.4% of District resident workers will experience job loss. We also find that the city's affected EITC recipients will lose a total of $16.4 million in federal and local EITC payments in 2021 while gaining $56.6 million in additional wages by way of the $15 minimum wage.

1. INTRODUCTION

The Fair Shot Minimum Wage Amendment Act of 2016 raises the hourly minimum wage to $15 for Washington, D.C. workers in 2020. While several states and jurisdictions have enacted legislation to raise their minimum wage above the federal level of $7.25, Washington, D.C. (DC) will be among the first in the nation to set and reach a $15 minimum wage. Momentum for such policy change is increasing nationwide, as four additional states recently approved ballot measures to increase their state minimum wages in November 2016. For DC, this policy change represents a significant increase over a relatively short period. Given that the minimum wage could have a combination of wide ranging impacts on the city's business sector, the regional labor market, and the city government's tax revenues and expenditures—including tax credits for the working poor—the degree to which and how the city's economy will be impacted is unclear.

Accordingly, our goal is to forecast the impact of the Fair Shot Minimum Wage Amendment Act of 2016 (subsequently referred to as $15 MWP) on DC workers, businesses, and the city's finances. To do so, we use the REMI PI+ general equilibrium simulation model, examining both the immediate and longer-term employment effects for the DC metropolitan area, while accounting for employment and consumer flows across DC, Maryland, and Virginia. We also assess the impact of the minimum wage increase on earnings and income, consumption, prices, businesses, and DC tax revenue.

By 2021, we estimate that almost 61,000 DC residents will be impacted by the higher minimum wage. The average resident will gain roughly $5,100 more (20 percent higher) in wages as of 2021, but approximately 2 percent of impacted residents will experience job loss; this job loss estimate increases to about 3.4 percent by 2026. We find that average citywide consumer prices will increase by roughly 0.2 percent and businesses will experience a 2.3

percent average reduction in profits as a result of this policy. Aggregate DC resident earnings will increase by $140 million, and consumption in the city will rise by roughly $72 million in 2021. Figure 1 illustrates, conceptually, some of the major forecasted economic effects and impact areas of the $15 MWP in the District of Columbia. We find that over 63 percent of city residents likely to be affected by the higher minimum wage are earned income tax credit (EITC) recipients, and nearly all will experience reductions in their federal and local EITC payments. Still, the higher minimum wage for these DC resident workers more than offsets EITC reductions. The findings are sensitive to and conditional upon the full range of political, economic, and policy variables that could shift in the future. For example, regional workers residing outside the city who would otherwise commute into DC for higher paying jobs might alter their behavior if other surrounding jurisdictions raise their own minimum wages up to or near the DC $15 minimum wage.

[INSERT FIGURE 1 HERE]

We depart from previous minimum wage studies in several ways. Instead of focusing on specific subsets of the population such as teens, service sector employees, or the less educated, we focus on all workers in the city and surrounding jurisdictions who may be impacted by the DC policy change. We then estimate the policy's short and long term economic impacts on DC workers and businesses and relevant sectors of the city's economy, as well as the regional economy. Our forecast uses a combination of publicly available data from the U.S. Department of Labor and U.S. Census Bureau as well as restricted-use city tax data for the District of Columbia. Finally, the simulation model and the data we use allow us to address commuter effects, wherein the city experiences in-migration from non-residents for work. In 2014, 69 percent of all workers in DC did not live in the city. Here, we find that a $15 minimum wage

amid lower minimum wages in neighboring jurisdictions exacerbates existing commuting incentives such that an even greater share of non-residents from the metro area enter the city's labor force. Consequently, we find that many of the city's lower skilled residents could be crowded out from the city's minimum wage jobs. Low wage resident workers who keep their jobs will benefit from the policy change, particularly those who also receive the EITC. This expected increased competition from non-DC residents for DC's higher-paying minimum wage jobs may lead to a disproportionate number of job losses for DC residents and disproportionate wage gains for non-DC residents.

Whereas partial equilibrium analyses generally treat one (or a few) sector(s) in the economy as operating in isolation from the others, our general equilibrium simulation framework allows for the assessment of numerous economic interactions and feedbacks that can co-occur within and between jurisdictions. Still, the REMI model is not entirely unrelated to partial equilibrium, regression-based approaches, as it relies upon and builds in parameter estimates from these same types of partial equilibrium analyses, albeit in a simultaneous equation modeling framework.

2. BACKGROUND & LITERATURE REVIEW

DC's Minimum Wage History

The Minimum Wage Amendment Act of 2013 (subsequently referred to as $11.50 MWP) was unanimously passed into law on January 15, 2014 by the DC City Council. Taking effect on July 1st, 2014, this law initially increased the minimum wage in DC from $8.25 per hour to $9.50 per hour for all workers. This was followed by subsequent increases of $1 on July 1 each year through 2016, capping at $11.50 per hour in 2016. Beginning July 1, 2017, the District's

minimum wage was to increase annually in proportion to the annual average increase in the metropolitan area's Consumer Price Index.

The Fair Shot Minimum Wage Amendment Act of 2016 ($15 MWP) substantially expanded the previous policy by gradually increasing the hourly minimum wage up to $15 by 2020 (see Table 1). Our analysis focuses on 2021, the first full calendar year after the $15 minimum wage is fully realized.

[INSERT TABLE 1 HERE]

Figure 2 depicts the wage trajectory for the city's most recent minimum wage policies, the $11.50 MWP and the $15 MWP, factoring in an estimated 2.3 percent annual inflation adjustment after full policy implementation is reached for both scenarios. Under the $11.50 MWP, based solely on annual inflation adjustments built into the law, the minimum wage would surpass the $15 threshold by 2028. Hence, the $15 MWP moves forward the $15 minimum wage from 2028 to 2020. In assessing the impacts of the $15 MWP, we use the $11.50 MWP as a baseline for comparative purposes. Our conclusions are relative to how economic variables—employment, prices, business revenues, net income of workers, tax revenues—would fare in the 2016 policy relative to the 2013 policy.

[INSERT FIGURE 2 HERE]

Literature Review

Critics of local minimum wages argue that such policies are poorly targeted at raising incomes among the working poor (Sabia 2014), and in many instances favor some combination of human capital development, refundable Earned Income Tax Credits (EITC), or direct income transfers (e.g. Neumark 2004). They also argue that subgroups with already low employment levels and labor force attachment could be harmed by policies that raise, not lower, hiring and

labor costs (Holzer 2013). On the other hand, some scholars point to evidence that minimum wages raise earnings and, subsequently, overall family incomes, with minimal negative employment effects (e.g. Bernstein and Shierholz 2014). Nationally, there is mixed evidence on the overall economic and employment effects of minimum wages, and most impact studies on minimum wages focus on employment effects. Neoclassical economic theory predicts that minimum wage policies that set wages above the local market equilibrium can result in unemployment in at least two ways. First, higher wages bring new workers into the queue, some of which may fail in their search. Second, firms may have a "demand" or need for additional workers, but their hourly contribution to productivity may be below the mandated minimum wage. Studies finding unemployment consequences include Neumark and Wascher (2007) and Sabia et al. (2012).

Other empirical studies (e.g. Card & Kruger 1994; Dube et al. 2010) finding little or no significant negative employment impacts from minimum wages have economic theoretical support as well; efficiency wage theory posits that workers respond positively to higher compensation and raise their own productivity, and that turnover costs are reduced as well. Quantitatively, the employment effects of higher minimum wage studies are measured by their employment elasticities. The employment elasticity, here, is defined as the percentage change in employment for the population under study as a response to a one percentage change in the minimum wage rate. The major studies we evaluated found employment elasticities ranging from -0.20 to +0.10 (-20 percent to +10 percent). Neumark and Wascher (2007) found employment elasticities in the range of -0.1 to -0.2 for teens and -0.15 to -0.2 for the youth population as a whole. Sabia et al (2012) found elasticities of -0.13 for workers with a high school diploma while finding that workers with a bachelor's degree had an employment elasticity of +0.10 with respect

to the minimum wage, whereas Dube et al (2010), Card and Krueger (2000) and Addison et al. (2014) found elasticities near zero for restaurant and fast food workers. It is worth noting that our study is one of a group that use a general equilibrium microsimulation approach to estimate the impact of a higher minimum wage. For example, Reich et al (2015) use the IMPLAN model, similar to REMI, and find minimal employment consequences from higher minimum wages in Los Angeles, CA.

To our knowledge, only a few DC-focused minimum wage studies exist, and they focus on the older $11.50 MWP. For example, partial equilibrium analyses by Nichols and Schwabish (2014) and Acs et al. (2014) modeled DC minimum wage changes in comparison to surrounding counties—similar with respect to demographic characteristics but without the policy change—finding little-to-no evidence of lowered employment. Additionally, ours is among the few studies that compare and assess the impact of the minimum wage on EITC participation and expenditures (Neumark & Wascher 2001). This is especially relevant for DC, which currently provides the nation's largest local supplement to the federal EITC for working residents—40 percent of federal EITC received.

Contextualizing DC

Compared to other major cities increasing their minimum wages, DC will be the first to reach the $15 minimum wage level, and it is also the smallest city both in terms of its geography and population, relative to the respective metropolitan areas. Census data summarized in Figure 3 shows that the DC population is roughly 12 percent of its overall metropolitan area, whereas the other major cities with similar minimum wage increases comprise anywhere from roughly 18 to 42 percent of their metropolitan areas. Also noteworthy, between 2014 and 2020, the expected

cumulative increase in the minimum wage from $8.25 to $15 represents an 82 percent cumulative increase, the largest in the nation. The second closest are Los Angeles and New York City at 67 percent as shown in Figure 4. Still, the DC experience is informative for other metropolitan economies that may include multiple state jurisdictions, or multiple cities within a metropolitan area. Figures 4 and 5 summarize the population and level differences of local minimum wage policies in other major U.S. cities.

[INSERT FIGURE 3 HERE] [INSERT FIGURE 4 HERE]

3. DATA

To begin, we estimate the distribution of minimum wage workers from the Occupational Employment Statistics (OES) survey data of the Bureau of Labor Statistics (BLS) and the U.S. Census Bureau's American Community Survey (ACS). The OES program produces employment and wage estimates (hourly and annual) for over 800 occupations at both the national and metropolitan level. Data used in our study are from the OES May 2014 estimates for DC, when the DC minimum wage was $8.25. Each occupational profile not only contains the mean wage by occupation, but also the wage percentiles, including the 10th, 25th, 50th, 75th, and 90th percentiles.

From the OES data we identify, in each of the 800 occupations, the number of workers in the District who are likely subject to the minimum wage and those that would benefit from raising the minimum wage to $15 an hour. There were about 127,299 jobs in DC in 2014 paying $15 per hour or less, accounting for about 18.8 percent of the District's overall employment base. The OES data includes all part-time and full-time workers who are paid a wage or salary, but does not cover self-employed workers, sole proprietors, household workers, or unpaid family

workers.[1] The distribution of these minimum wage jobs by hourly wage rates, along with their 2-digit *SOC (Standard Occupational Classification) occupations*, is shown in Table 2.

Studies (Lopresti et. al 2015; Dube 2013) have shown that employers typically increase the wages of workers earning slightly above the new minimum wage to reduce wage compression. We, therefore, include jobs with wage rates slightly above the minimum wage to allow for these "spillover effects" of minimum wage increases. We allow for a $3 spillover effect, making our target population District workers who earn under $18 an hour in 2014. This helps account for within-firm wage differentials commensurate with differences in experience or seniority, educational attainment, and productivity. While Table 2 presents the number of workers likely to be affected by the $15 MWP, we also calculated the wage distribution for ninety-five (95) 3-digit SOC occupations and used these estimates in REMI in order to measure the economic impact more precisely. The total number of affected workers is 167, 419, whether via the twenty-two (22) 2-digit SOC occupation table or the ninety-five (95) 3-digit SOC occupation table.

[INSERT TABLE 2 HERE]

Based on the 2014 ACS data, DC residents held roughly 40 percent of jobs where the hourly wage was $18 or below within the city limits in 2014. The remainder were held by non-D.C. residents primarily from the neighboring jurisdictions of Maryland and Virginia. Table 3 provides an aggregate summary of Table 2, showing the number of jobs that fall within specific wage ranges in the District. The majority of low-wage jobs lie within the $8.25 to $11.50 range.

[INSERT TABLE 3 HERE]

[1] http://www.bls.gov/oes/oes_ques.htm#overview

These occupational impacts from Table 2 are then converted to industry impacts using the National Industry-Occupation Employment Matrix. The National Industry-Occupation Employment Matrix is developed by BLS and depicts the occupational employment structure of different industries. For each industry, it provides the percentage of total employment accounted for by each detailed occupation. Using the industry-occupation matrix, we calculate the 2014 wages for every job with an estimated hourly wage of no more than $15 and for every job that between $15 and $18 (spillover) in terms of the seventy-one (71) 3-digit NAICS industries. We then forecast the total private wages & salaries under both the $11.50 MWP (baseline) and the $15 MWP (policy simulation) annually until year 2032. Table 4 shows that the incremental difference in wages and salaries in 2021 (five years after the $15 MWP is enacted) is $493.2 million for all DC workers—residents and non-residents combined—estimated to earn $18 or less in 2014. The net difference in wages and salaries in 2021 is $197.3 million for DC resident workers only. The net difference is about one percent of total wages and salaries earned in the city.

[INSERT TABLE 4 HERE]

4. METHODOLOGY – The REMI Model

REMI PI+[2] is a dynamic general equilibrium model consisting of seven regions, DC and six surrounding metropolitan areas (MSA), and seventy (70) industries (3-digit NAICS codes). The REMI model incorporates aspects of four major modeling approaches: Input-Output, Econometric, Economic Geography, and General Equilibrium. At the core of the model is the Input-Output matrix. Here, the District's industry structure is captured within the model along

[2] http://www.remi.com/resources/documentation

with the District's inter-industry transactions. Changes that affect industry sectors that are highly interconnected to the rest of the D.C. economy – with larger Regional Industrial Multipliers – will often have a greater economic impact than those for industries that are not closely linked to the regional economy. Unlike the standard input-output models which only account for the direct output changes entered into the model, the REMI model also incorporates the displacement effects or augmenting effects on similar businesses in the region.

The REMI model consists of thousands of simultaneous equations that are derived using advanced econometric methods and historic DC MSA data on demographics, employment, and firm activity. This allows for policy response times to be estimated for each submarket, since different adjustment periods will result in different economic outcomes. The geographic component of the model accounts for spatial dimension within the economy, particularly relevant both within DC as well as between DC and neighboring jurisdictions. Concentration of labor and industry, and differential access to transportation and specialized intermediate inputs increase an area's competitiveness and productivity. In a steady state where supply and demand are balanced, a change in labor/business costs ($493.2 million in 2021) operates as the primary input variable of interest in the REMI model. This input (shock) creates disequilibrium in the District's existing economic relationships and, as the economy moves to regain its equilibrium, the model measures the dynamic changes that are taking place to establish the new equilibrium. These dynamics involves changes in employment, income, personal consumption, prices, and trade flows in and out of DC to neighboring states. These dynamic interdependencies are summarized in five major sets of economic measures: (1) Output and Demand, (2) Labor and Capital Demand, (3) Population and Labor Supply, (4) Compensation, Prices, and Costs, and (5) Market Shares (REMI Inc. 2014).

Of these 5 major groups, the Labor and Capital Demand component is paramount to this study. The use of labor relative to other factors is determined by the cost of labor relative to the cost of other factors such as capital and fuel. In the model, the substitution between labor, capital and fuel is based on a Cobb-Douglas production function, a standard microeconomic approach accounting for the interplay of capital (e.g. operating space, computer equipment, work-related tools) and labor (e.g. workers) in driving overall production and revenue. As the cost of labor increases when the District raises the minimum wage, demand for labor, with other factors being constant, is assumed to fall according to standard economic theory. According to REMI, the changes in labor demand are controlled by industry specific labor intensities. The substitutions between capital and labor are derived from empirical studies which consider wages and commuting patterns (Weisbrod, Vary, Treys 2001). Commuting patterns are especially important in DC's case, given that 69 percent of all District workers commute to work from Virginia and Maryland on a daily basis.

Scenarios and Assumptions

REMI outputs are influenced by the assumptions we impose on the model. To assess the sensitivity of the model to our assumptions, we produce five forecast scenarios for the $15 MWP, with each having unique underlying assumptions. The study simulates the effects of each scenario under the new minimum wage policy relative the baseline $11.50 MWP. The first scenario represents only the workers earning below $15 an hour and is deemed the "base case." The second scenario factors in spillover effects such that the results include the population from the base case plus workers earning between $15 and $18 an hour. This second scenario assumes no offsetting positive effects to counter higher labor cost and job loss, and is deemed the "worst

case." The third scenario factors in productivity gains. This scenario builds on the second scenario by taking into account increases in worker productivity and reduced labor recruiting and retention costs. These savings account for a roughly 30 percent reduction in the business costs otherwise observed with the wage increase. Several economic studies (Boushey and Jane-Glynn 2012; Cascio 2006; Dube et al. 2007; Howes 2005; Reich et al. 1999) show that raising wages reduces costly employee turnover and increases productivity, and these factors can significantly offset higher payroll costs for businesses.

Our fourth scenario takes the third scenario and also factors in increases to city consumption and is be deemed the "most likely case." The assumption is that minimum wage workers will spend about 93 percent of their additional income on consumption, which in turn increases demand and mitigates some level of job loss (Fisher, Johnson, and Smeeding 2014). Our fifth and final scenario takes all of the assumptions from the fourth scenario but increases the productivity gains from 30 percent to 75 percent, representing an efficiency wage. This fifth scenario is deemed the" best case." Table 5 summarizes these five scenarios.

In our view, we consider Scenario 1 as the worst case because it has the highest labor cost increases with no offsetting economic gains from the policy. We consider Scenario 5 as the optimistically best case. This scenario assumes the minimum wage workers will consume nearly all of their additional income increases, workers raise their own productivity, turnover costs are considerably reduced, with employers harnessing other operational and technological efficiencies. The REMI based increases in net labor costs are minimal, approximately 20 percent of Scenario 1's labor cost. We deem Scenario 4 as the most likely out of the five scenarios because we presume the $15 MWP will affect some workers that earn more than $15 an hour, there will be some productivity and operational/ technological efficiency gains, and that the

city's lowest earning workers have a higher propensity to consume all of their income than the average worker in the city. We do not believe that 75 percent of the additional labor costs will be offset by productivity and operational/technological efficiency gains—nor the consequent null employment effects. Thus, unless stated otherwise, the reported REMI results are based upon Scenario 4.

[INSERT TABLE 5 HERE]

5. REMI RESULTS

Below, we summarize the impact of the $15 minimum wage on unemployment, earnings, prices, and consumption, as well as the fiscal impacts for DC. Our results reflect the year 2021, one year after full implementation of the policy in 2020. In a set of long-term analyses, these effects are assessed for the year 2026. We analyze the minimum wage impact for DC residents earning less than $15 an hour and include those earning less than $18 an hour in our pool of affected workers, which accounts for spillover effects. These two groups – the below $15/hour workers and the $15-$18/hour workers –comprise 60,748 DC residents. These 60,748 residents are impacted the most from minimum wage policy via wage gains or job losses.[3] These residents account for nearly 66,968 jobs. 167,419 total workers are impacted by the policy change when including those who live in the surrounding jurisdictions of Maryland and Virginia while working in DC. Unless otherwise stated, all of the following REMI results are from Scenario 4, the "most likely case." This scenario assumes that affected businesses offset 30 percent of the increase in labor costs via increased productivity and lower turnover costs. This scenario also assumes that low-

[3] It is plausible that firms could retain low wage workers while reducing the size of their higher-skilled, higher-wage workforce. We do not model this possibility.

income workers experiencing wage gains from the minimum wage policy spend about 93 percent of their additional income.

Job Losses and Commuter Effects

Overall, a total of 1,817 jobs are forecasted to be lost by 2021, and 2,489 by 2026 for all DC workers. We find that 1,181 residents (1.94 percent of all DC resident workers) are forecasted to lose their job by 2021. In 2026, this increases to 2,046 (3.37 percent of all DC resident workers) which is equivalent to an employment elasticity for DC residents of -0.09 in 2021, and an employment elasticity of -0.16 in 2026.[4] In this context, the employment elasticity is the percentage change in employment in response to a one percent change in the statutory minimum wage rate via the $15 MWP, compared to the statutory minimum wage rate in the $11.50 MWP regime. We find many of the job losses to be concentrated within the hospitality, retail, and food industries. These industries, collectively, account for 57 percent of total forecasted job losses for all DC workers.

The chief reason DC residents bear a disproportionate share of the job loss burden stems from the "commuter effect." The commuter effect is a situation when two neighboring jurisdictions have different minimum wages and those living sufficiently close to the jurisdiction with a higher minimum wage have incentives to commute into the relatively high wage jurisdiction for employment. Larger differences between minimum wages across neighboring jurisdictions create incentives for workers to commute to the jurisdiction with relatively higher-wage employment opportunities.

[4] We assume a legislated wage change of 19.09 percent for our elasticity calculation. This is the percentage change from the $15 wage in 2020 compared to the previous minimum wage policy in 2020 that grows with inflation (assumed to be 2.3%) which in 2020 would be $12.60.

Commuters have long played an outsize role in the city's labor market. The District of Columbia population was 681,170 in 2016, with a total of 780,400 jobs, and only 364,300 employed residents. Although geographically small, the city is a high wage employment center within a large regional economy. Because of this, if the $15 MWP in 2020 occurs alongside neighboring counties with minimum wages ranging from $7.25 to $11.50, the competition from comparably skilled non-residents for minimum wage jobs in the city is expected to increase significantly.

Using data from the 2014 ACS, we illustrate, in Figure 5, the number of workers in neighboring counties who may be incentivized to commute into D.C. for a $15 wage. For example, in 2014 DC had roughly 11,603 jobs paying an hourly wage of $9.50, but there were almost nine times more workers in the nearby counties of Maryland and Virginia[5] with comparable skills. Thus, 103,677 workers from nearby counties may have incentives to commute into D.C. for work if DC has a meaningfully higher minimum wage than nearby counties. Also, in 2014, DC had 54,045 jobs paying an hourly wage of $12.50. But there were more than 4.5 times more workers in the nearby counties of Maryland and Virginia counties with comparable skills. A sufficiently higher minimum wage in DC might incent some or all of these 248,411 workers from nearby counties in Maryland and Virginia to commute into D.C. for work, assuming no changes to the minimum wage policies in these neighboring jurisdictions.

[INSERT FIGURE 5 HERE]

Historically, since each job in DC is more likely to be held by a Maryland or Virginia resident, $15 MWP is expected to only further exacerbate this phenomenon in 2021.

[5] We include the following counties: Virginia – Alexandria; Arlington; Fairfax ($7.25 minimum wage in all 3 counties); Maryland – Montgomery ($10.75 as of 7/1/2016); Prince George's ($10.75 as of 10/1/2016).

Statistically, this expected crowding out of DC residents from minimum wage jobs in DC via the commuter effect contributes to the disproportionate share of the job losses by DC-resident low wage workers. We did not tabulate results for those already earning above $12.50 (but below $15), as the wage differential may not offset or compensate for the associated commuting and time costs. In effect, we impose the assumption that an additional $2.50 or less in hourly wages would *not* induce a cross-border commute. The increased labor supply for DC minimum wage jobs is not expected to cause an instant replacement of workers, but the increased competition for new $15/hour jobs is likely to reduce the share of employed local residents within the city over time.

Table 6 provides employment elasticities for 2021 and the job loss estimates for selected scenarios. Via the assumptions of Scenario 2 (worst case), REMI yields an employment elasticity of -0.11, similar to Neumark, Sala & Wascher (2014) who find disemployment effects among teens, and Sabia, Burkhauser & Hansen (2012), who find disemployment effects among workers with only a high school diploma. Via the assumptions of Scenario 4, REMI produced an employment elasticity of -0.09, similar to the minimum wage elasticities found by Belman & Wolfson (2014), an aggregation of more than 70 studies. Via the assumptions of Scenario 5 (best case), REMI produced an employment elasticity of practically zero, which is similar to Dube, Lester & Reich (2010) for service workers, Card & Krueger (2000) for fast food workers, and Addison, Blackburn & Cotti (2014) for restaurant and bar sector workers.

[INSERT TABLE 6 HERE]

Earnings and Price Effects

We next estimate the earnings impact of a $15 minimum wage. For District workers—residents and non-residents alike—the net increase in affected workers' annual earnings, accounting for

job losses and expected slower wage increases for non-minimum wage workers at businesses with minimum wage jobs, will be $394 million in 2021 and $386 million in 2026. DC residents will gain net earnings of $139 and $108 million in 2021 and 2026, respectively, a smaller and declining share of the total compared to non-DC residents.

Higher minimum wages raise labor costs. While these may be offset by higher productivity among employees, lower turnover rates, or capital-labor substitution, affected businesses will likely have to increase the prices for goods and services to finance the higher wage bill for the same (or fewer) number of jobs. Though such price changes are both firm and sector-specific, we use the REMI model to estimate aggregate prices after the $15 minimum wage is implemented relative to the $11.50 baseline policy. For DC, the $15 minimum wage is associated with an additional 0.202 percent increase in prices by 2021 and a 0.177 percent increase by 2026. More specifically, for the purchased meals and beverages category, industries thought to be directly affected by the policy, the price impact of the $15 minimum wage is 1.53 percent higher prices in 2021 (relative to the baseline) and 1.42 percent higher prices by 2026. For accommodations, the rates are 0.509 percent and 0.43 percent in 2021 and 2026 respectively and for personal care and clothing services, 0.597 percent and 0.562 percent by 2021 and 2026 respectively. Thus, while prices are forecasted to rise, they are well below typical inflation growth rates at the regional level.

Consumption, GDP, and Fiscal Effects

Many low-to-moderate income residents benefitting from higher minimum wages are expected to have high marginal propensities to consume, and are thus less likely to save wage gains (Fisher et al. 2015). However, because the increase in minimum wage affects about 17

percent of the city's working residents, the remaining 83 percent of residents absorb higher prices for goods and services without any predicted impact from the policy change. We find that consumption levels increase by roughly $72 million in 2021 as minimum wage earners spend more on higher priced goods; in addition, the remaining unaffected city residents spend more as a result of previously described higher prices. Higher estimated prices for DC-based goods and services accordingly lower the relative price of competitor goods and services in nearby jurisdictions, and while consumption in DC is expected to increase, the city's real GDP is expected to fall by $66 million (-0.06 percent) in 2021 and by $140 million (-0.11 percent) in 2026. This result largely stems from a significantly higher level of metro area imports into DC— city residents purchasing goods and services from surrounding jurisdictions— and lowered outgoing sales (lowered DC exports) of DC-based goods and services to the surrounding metropolitan area. Specifically, District of Columbia residents will increase their imports, or purchases of, retail goods and services, food services and health care services from outside DC. Non-DC residents will lower their consumption of food services, accommodation services and retail goods and services in DC. Table 7 outlines the various components of GDP and their estimated changes. Most notably, net exports out of DC are estimated to fall by about 1 percent over time.

[INSERT TABLE 7 HERE]

Our REMI-based estimates of the effect of the higher minimum wage on sales tax, personal income tax, and corporates taxes are summarized in Table 8, below. Both sales and income tax collections in the District are expected to increase while business taxes are forecasted to drop by $6.7 million in 2021 and $5.4 million in 2026. The net effect on these three taxes results is a revenue increase of $5.4 million in 2021 and an increase of $3.3 million in 2026.

[INSERT TABLE 8 HERE]

6. COMPARING REMI TO AN ALTERNATIVE APPROACH

Corporate and Unincorporated Franchise Taxes

In 2021, the REMI model estimates that the $15 MWP will ultimately lower total profits for directly impacted businesses such that the city will likely receive $10 million less in corporate and unincorporated franchise tax revenue. To help assess the plausibility of this REMI-based tax revenue effect, we examine the official tax revenue forecasts for the District of Columbia produced by the city's Office of Revenue and Analysis (ORA). REMI estimates that 2021 business profits in the city will be reduced by 2.34 percent. In ORA's December 2016 business tax revenue forecasting model, total corporate and unincorporated franchise tax revenue in 2021 is estimated to be $348.0 million and $154.0 million, respectively. When we incorporate the 2.34 percent reduction in total city wide profits into ORA's business tax revenue forecasts and apportion the lower estimated profits to the share of city businesses that are expected to be directly-impacted corporate and unincorporated business tax filers, we find that total corporate and unincorporated franchise tax revenue in 2021 will be $346.4 million and $151.1 million, respectively. When the ORA model, relying on historical city tax data and key economic variables, accounts for REMI's 2.34 average reduction in total city wide profits, the net impact for corporate and unincorporated franchise tax revenue in 2021 will be $-4.5 million (Table 9).

[INSERT TABLE 9 HERE]

The ORA forecasted net revenue impact for 2021 is $5.5 million (55 percent) less than REMI's estimate. This difference may stem from how directly-impacted multi-state corporate and unincorporated businesses in the city that also have locations outside of the District of Columbia respond to this policy. Business taxes paid to a jurisdiction by multi–state businesses

are primarily based on national operating income, and their tax liabilities may not be strongly correlated to the expenses in a given jurisdiction. Hence, it may be that REMI over-weighted the extent to which directly-impacted, multi–state businesses lowered their national net operating income apportioned to the District of Columbia solely due to the city's $15 MWP. Multi–state corporations and unincorporated businesses often engage in sophisticated tax planning that involves shifting their tax bases to more favorable taxed jurisdictions and exploiting differences among respective state formula apportionment systems (Garbarino, 2011). The ORA estimated impact, and not the REMI estimated impact, is more likely to account for this tax planning/business response dynamic. And while this may be one of the reasons why the ORA estimated impact is lower, another reason may be that the effective tax rates used in the REMI model are higher than the actual effective tax rates for corporate and unincorporated business tax filers.

Sales Taxes

In 2021, the REMI model estimates that personal consumption in the city will increase by 0.40 percent, and this will contribute to the $15 MWP increasing sales tax revenue by $6.1 million. To help assess the plausibility of this REMI produced tax revenue effect, we again examine the official tax revenue forecasts for the District of Columbia produced by ORA. In ORA's December 2016 forecasts, ORA estimates, via sales tax revenue forecasting models, that total sales tax revenue in 2021 will be $1.578 billion. When we incorporate the 0.40 percent consumption increase into the ORA sales tax model, which is based on historical city tax data and key economic variables, we find that sales tax revenue in 2021 will be $1.583 billion, a $4.5 million increase (Table 9).

The ORA forecasted net impact for 2021 is $4.5 million, 26 percent less than REMI's estimate of $6.1. This difference may stem from the interaction of the city's sales tax policy and the nature of the forecasted additional consumption. In the District of Columbia, non-prepared foods and other groceries, housing rental fees, child care, medicines and medical supplies and equipment as well as medical services are exempt from sales taxes. And for the minimum wage population under examination, these costs are assumed to account for a higher share of household expenditures than for many higher income residents and households. The ORA estimated impacts (which uses historical sales tax collection data and accounts for the city's particular sales tax policy) and not the REMI estimated impacts are more likely to account for this dynamic of increased consumption of tax exempt goods and services. This, in addition to the higher effective tax rates used in the REMI model, may drive the observed differences.

Individual Income Taxes

In 2021, the REMI model estimates that the $15 MWP will increase wages and salaries in the city for 60,748 city residents by $185.6 million and increase subsequent individual income tax receipts by $5.9 million. REMI finds that businesses with minimum wage jobs will also adjust, in part, to this higher labor cost structure by slowing trend income growth for their higher income workers and management staff. When this broader effect is considered, the $15 MWP will increase total net wages and salaries by only $139.6 million. To help assess the plausibility of the REMI estimated impacts for the 60,748 city residents, we use ORA's Individual Income Tax & EITC Micro Simulation Model (IEM) which relies on administrative individual income tax return data for each resident income tax filer in the District of Columbia.

The model is based on micro level individual income tax return data for each resident income tax filer in the District of Columbia for year 2013. The data are aged according to

historical trends and economic conditions between 2014 and 2016. 2016 is the starting point for this policy simulation given that it was the year in which the $15 minimum wage law was enacted into law. The IEM compares the incomes, earned income tax credit payments, and income tax liabilities of directly affected working residents in year 2021, the first full year after the $15 minimum wage is practically and legislatively in effect.

At the outset, there were over 350,000 District of Columbia resident tax filers that were subject to the District of Columbia Individual Income Tax in 2013. The IEM applied the following restrictions to the data used for this exercise. Individual income tax filers for this analysis were limited to 12-month residents with annual wage earnings between $3,000 and $32,000. It was assumed that filers with earnings less than $3,000 had extremely low annual income primarily because of the very few number of hours worked during the year and not because of low hourly wages. At the other end of the spectrum, the maximum annual wage income amount considered in this analysis for 2016 is $32,000, which is the estimated annual income for full time workers working at an average hourly wage rate of $18. While it is expected that nearly all workers at hourly wages between $11.50 and $15 in 2016 will see the largest increases in their annual earnings from the $15 MWP, this policy is also expected to cause a significant number of workers earning between $15 and $18 in 2016 to experience nontrivial increases in their annual earnings. This is referred to as the spillover effect, in that these workers, already above the $15 MWP, experience an increase in their annual wage income so that affected businesses can minimize wage compression.[6]

Under this criteria, there are 93,462 relevant tax filing records for working District residents. Based on the 2013 American Community Survey, thirty-five percent of District

[6] Firms may avoid compression by maintaining a wage differential between workers within a firm related to their higher skills, productivity and/or seniority level.

residents earning up to $32,000 in that year worked outside of the city. Thus, 60,748 (65 percent of the 93,462) of the 93,462 tax records are randomly selected to represent tax-filing District residents working in the city between 2016 and 2020 who are impacted by the $15 MWP.[7]

While REMI results are based on an Input-Output matrix that uses BLS Occupational Employment Statistics (OES), ORA's IEM is based on individual income tax data for each resident tax filer. With respect to REMI's total number of workers directly benefiting from the MWP and the estimated number of job losses, the administrative data are aged again according to historical trends, forecasted economic conditions over 2017-2021, and the statutory implementation schedule for the $15 minimum wage law for years 2016 to 2020. As of 2021, REMI estimates that 1,181 city residents will lose their job because of this policy. The IEM takes a random 1,181 tax filers from the established larger pool of 60,748 resident filers and considers this subgroup of 1,181 city residents as the residents that will lose their job because of this policy. Subsequently, the IEM produces a total net change in nominal wages and salaries for city residents that is 3.6 percent higher than the REMI estimate, but an individual income tax revenue impact that is, compared to REMI, 41 percent lower (Table 9).

Similar to the business and sales tax estimated impacts, the higher REMI estimate for the net increase in individual income tax revenue may stem from an appreciably higher embedded effective income tax rate within the model. In 2016, the top city individual income tax rate was 8.95% and the citywide effective individual income tax rate was 5.2 percent. But the IEM, which meticulously accounts for the city's progressive income tax rate structure, indicates that, for working residents directly affected by the city $15 MWP, the effective tax rate for these 60,748

[7] Because District of Columbia tax records do not indicate tax filers' place of work, the 60,748 tax filers are randomly selected from the larger pool of tax records to represent tax-filing District residents that work in the city between 2016 and 2021 for this analysis.

tax filers was on average 2.4 percent for the study period (Table 10). The IEM's much lower actual effective tax rate is likely the cause for the REMI income tax revenue impact being 69 percent higher than the IEM estimate, given that the REMI net increase in total wages is 2.6 percent lower.

[INSERT TABLE 10 HERE]

Earned Income Tax Credit

In addition to wage, salary, and District of Columbia income tax liability data, the IEM and the underlying IIT data also provide information on tax filers' participation in the federal Earned Income Tax Credit and the supplemental DC Earned Income Tax Credit program. Of the roughly 60,000 EITC recipients in the city in 2013, 63 percent are estimated to be directly impacted by the $15 MWP. The DC EITC is equal to 40 percent of the federal EITC for all District residents that receive the federal EITC. The federal EITC credit amount is specified on the city's individual income tax form for applicable tax filers. This analysis also adjusts the 2015 Internal Revenue Service Earned Income Tax Credit schedule for inflation so that the appropriate 2021 tax credit amount can be estimated for each eligible tax filer in this study with respect to income level, family size and marriage status for the years under investigation. Thus, we examine the relationship between the $15 MWP and the Earned Income Tax Credit program for city residents directly impacted by the $15 minimum wage policy.

Table 13 shows the net effect of the $15 minimum wage policy on the federal EITC and DC EITC for the 37,781 District EITC recipients who are directly impacted by the $15 MWP. The table shows that these residents are estimated to receive an additional $56.6 million in higher wages at the expense of losing $16.3 in federal and local EITC credits.

[INSERT TABLE 11 HERE]

Additionally, we are able to determine whether tax filers lie in the (1) phase-in; (2) maximum credit or (3) phase-out range of the federal program in 2021 both with and without the $15 MWP. Figure 6 depicts the phase-in, maximum credit and phase-out ranges of the federal program. For example, for a head-of-household filer with two dependents, the 2015 EITC credit phases in at 40 cents per dollar earned up until $13,870 of earnings (the phase-in range), plateaus at $5,548 to $18,110 of earnings (the max credit range), and phases out at a rate of 21.06 cents for every dollar earned until $44,454 (the phase out range).

[INSERT FIGURE 6 HERE]

In Table 14, we show that increased wages for impacted DC resident workers cause fewer of them (6,521) to remain in the phase-in and the max credit ranges while more residents (2,031) are expected to be located in the phase-out range. There are also 4,490 fewer tax filers forecasted to participate in the EITC program under the $15 MWP. The IEM produces this result for two reasons. First, the minimum wage increase pushes 3,673 childless EITC filers out of eligibility via higher earnings (via Figure 6, the most income a childless EITC filer can earn is approximately $15,000). Second, of the 1,181 residents that are estimated to become jobless by 2021, 817 of them are estimated to be EITC recipients.

[INSERT TABLE 12 HERE]

REMI aims to simulate economic effects and interactions, but it does not fully account for the District of Columbia's tax structure and policies. It appears that REMI uses appreciably higher effective tax rates for all taxes considered in this study. The IEM closely approximates REMI's net income impact but provides slightly more accurate tax revenue impacts. (Table 13).

[INSERT TABLE 13 HERE]

7. CONCLUSION

The District of Columbia's $15 MWP imposes a major structural change to the city's business sector and the regional economy's labor market. Using data from the Bureau of Labor Statistics, U.S. Census Bureau, and city income taxes, our general equilibrium microsimulation predicts that the increase in the District of Columbia's minimum wage will produce significant income gains for low-wage workers and disemployment for a small share of these same workers. Of the nearly $400 million in additional earnings for DC minimum wage workers, over 70 percent of the wage gains will accrue to Maryland and Virginia residents working in low-wage DC jobs, yet 82 percent of the city's estimated job losses will be absorbed by low wage DC residents. Higher labor costs will likely place upward pressure on consumer prices, which in turn will likely lower the sales of affected goods and services. In response, DC residents may buy more goods and services from Maryland and Virginia (imports) and non-DC resident consumers (commuters, tourists, etc.) will purchase fewer goods and services from DC businesses (exports). With respect to the $15 MWP, impacted DC export industries are food services, accommodation services and retail goods and services. The most impacted imports by industry are retail goods and services, food services, and healthcare services. Overall, the minimum wage increase is predicted to generate a nearly 1 percent decline in city net exports in 2026, roughly -$200 million. We also find that sixty-three percent of the 60,000 EITC recipients living in the city will lose a total of $16.4 million in federal and local EITC payments in 2021 while gaining $56.6 million in additional labor income by way of the $15 MWP. This suggests that the $15 MWP will shift some responsibility for income support for the working poor from the public sector to the private sector. The forecasted study impacts and mechanisms, including the main stakeholders, are summarized in Figure 1.

DC has long served as the primary driver of economic activity for the greater metropolitan region, and our forecasted results reflect the reality that labor markets and economic development are regional. Interestingly, our findings are similar to DC-focused studies by Nichols and Schwabish (2014) and Acs et al. (2014) that adopt a partial equilibrium, regression-based framework. Our effort to forecast future behavioral responses to higher minimum wages is distinct from these and many other analyses in the minimum wage domain, which instead look retrospectively at policy changes. Studies like ours, using REMI PI+ or similar forecasting models, are relied upon by decision-makers at the local, state, and federal level to assess the potential benefits and consequences of policy changes before they go into effect.

While previous studies tend to examine modest increases to the minimum wage, DC is on track to nearly double its minimum wage over a seven-year period. Over this time it is plausible that neighboring jurisdictional policies, as well as those of the federal government, could change with respect to labor market policies or public policy more generally, further altering firm, worker, and consumer incentives. This doubling of the DC minimum wage will also take place as the city enacts the Universal Paid Leave Amendment Act of 2016, which will in turn raise business costs. Assessments of local minimum wage impacts should carefully acknowledge such potentially confounding factors by considering how worker and firm-level responses could vary in relation to the combination of such factors.

Ultimately, generalizations on the "overall" impacts of the $15 MWP will depend in large part on the importance of—or weight given to—worker incomes vis-à-vis firm-level profits. With such caveats in mind, our estimates suggest that most workers' incomes will be improved significantly, firm profits will fall slightly, and job loss will be relatively small. These findings

may be unique to DC, or may be generalizable to U.S. cities that possess similar highly educated, high-income employment and tax bases with relatively high demand for services.

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Figure 1. The Economic Incidence and Impact of a $15 Minimum Wage in DC

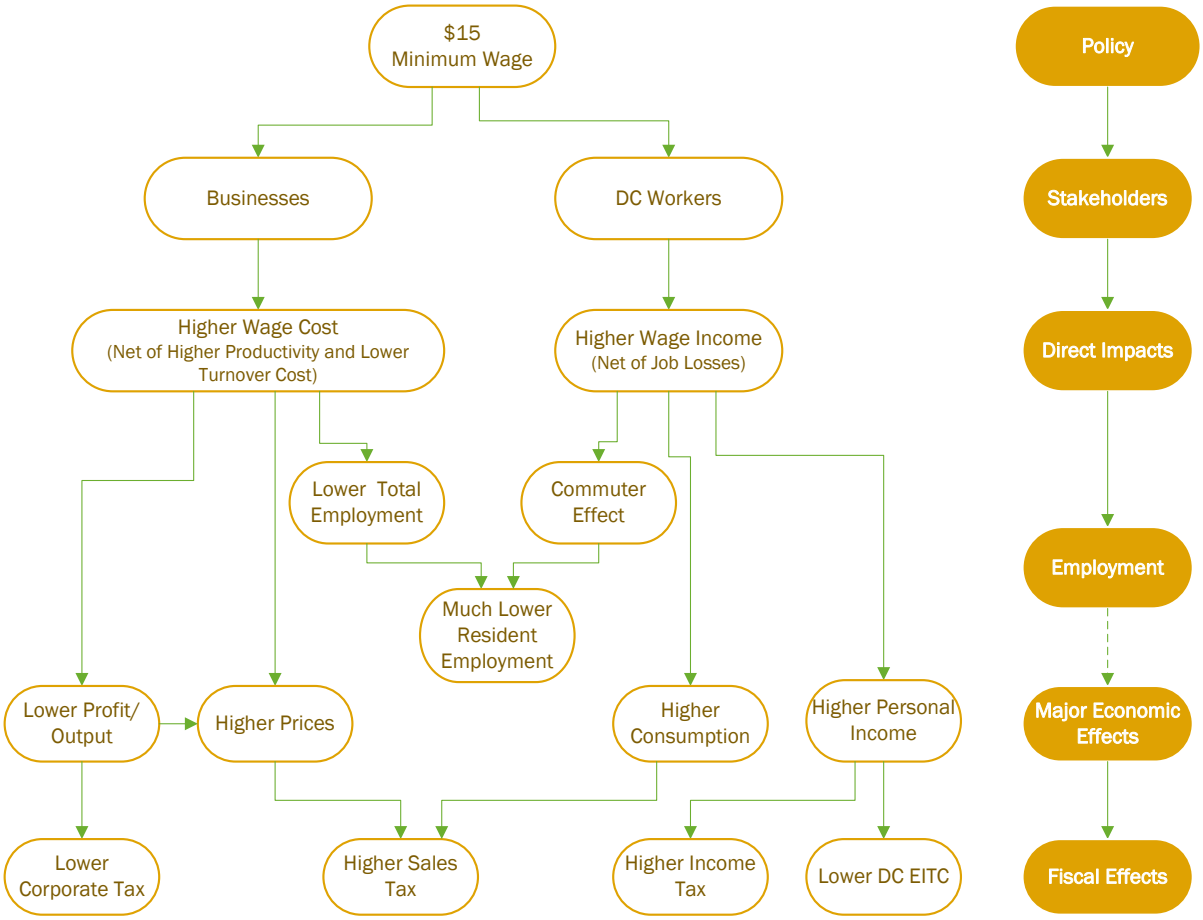


Figure 2. Comparing New versus Previous Minimum Wage Policy in DC

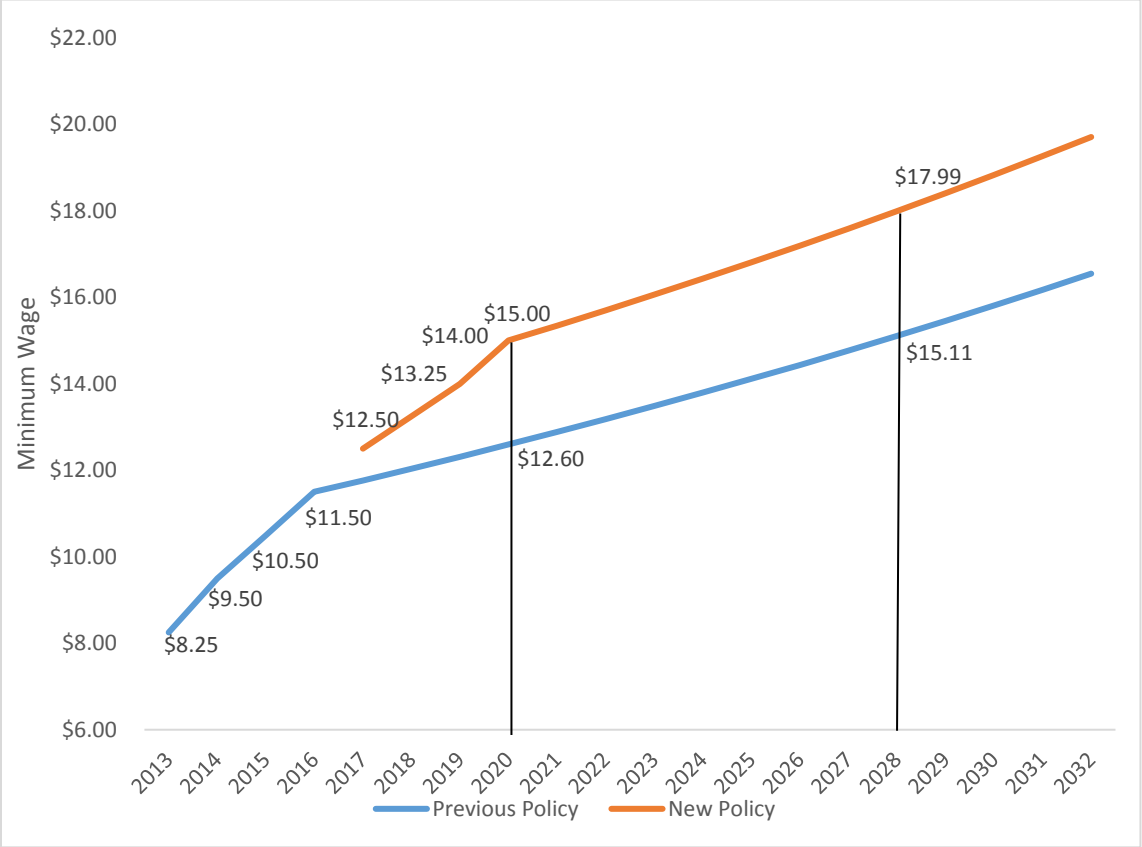


Figure 3. Population Size across Select Minimum Wage Reform Cities in the U.S.

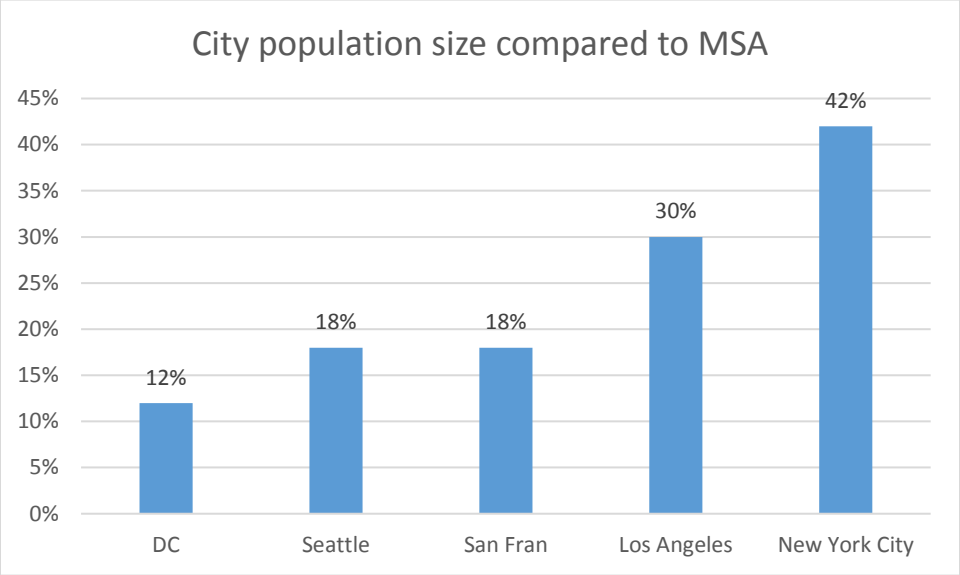


Figure 4. Minimum Wage Increases across Select Minimum Wage Reform Cities in the U.S.

Figure 5. Regional Impacts of the DC $15 MWP

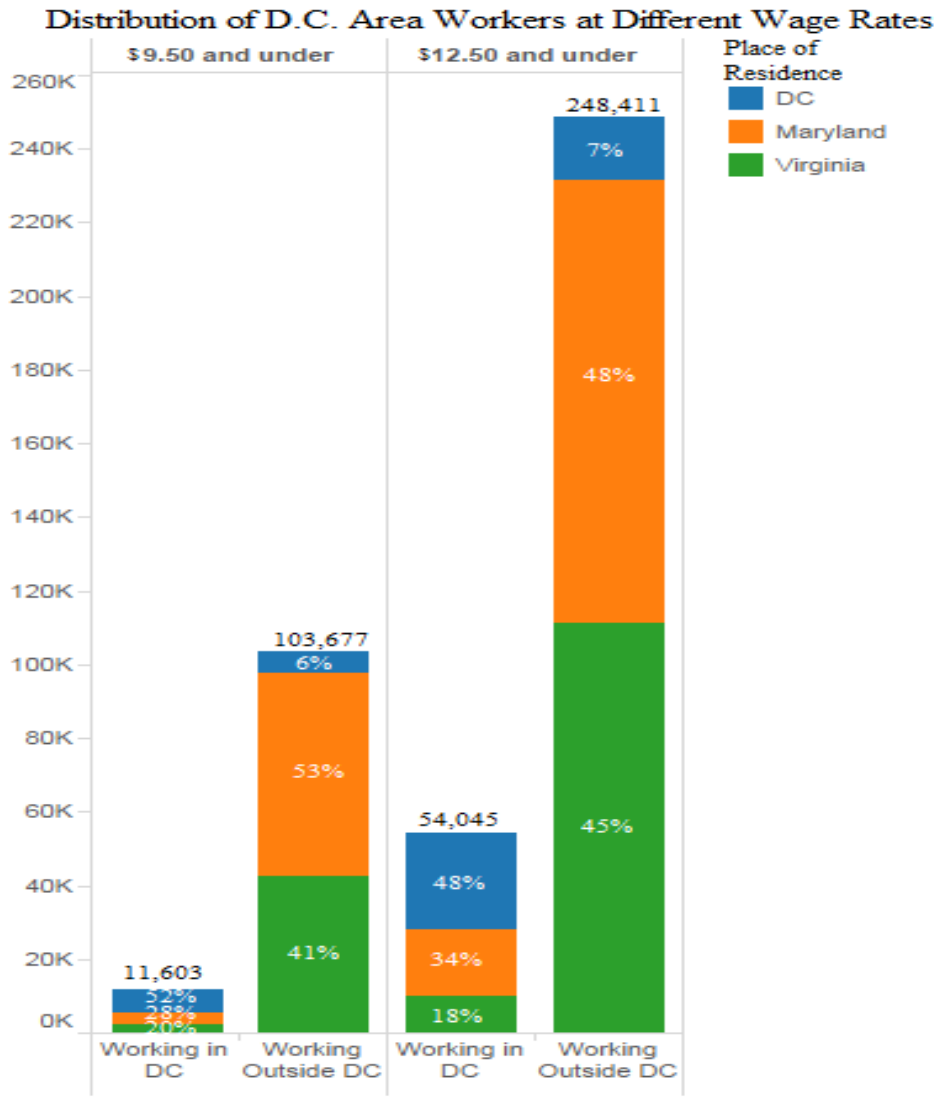
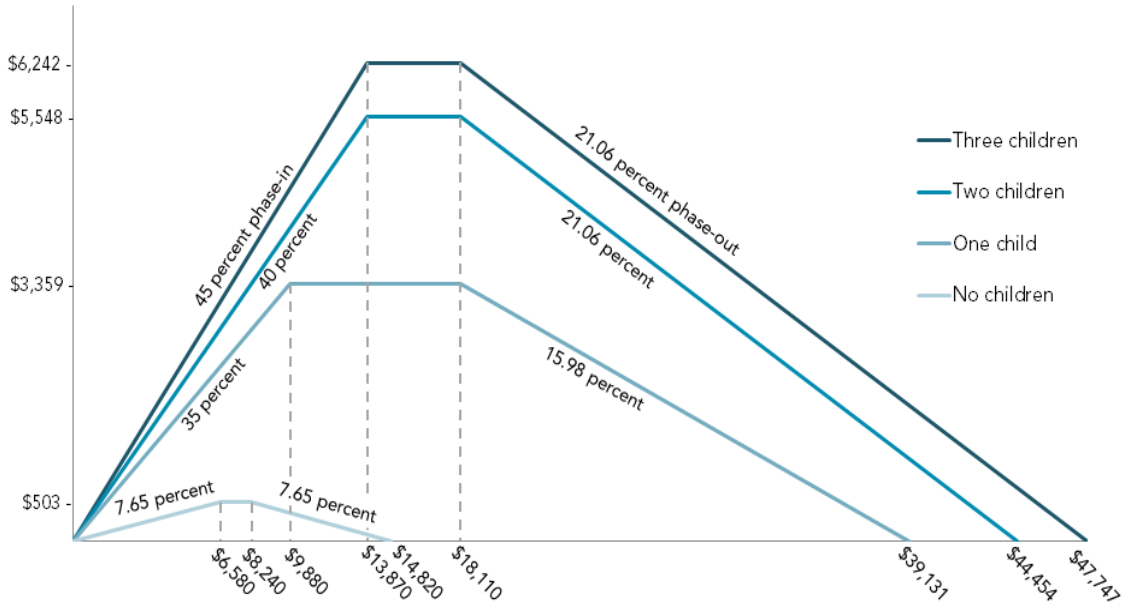


Figure 6. Federal EITC Schedule, 2015

(Parameters correspond to single/head-of-household tax filers)



Source: Tax Policy Center

Table 1. Implementation Schedule for the DC $15 MWP, 2014-2020

Date	Federal Minimum Wage	$11.50 MWP	$15.00 MWP	Estimated Annual Salary for the Effective DC Minimum Wage Policy*
Prior to July 1st, 2014	$7.25	$8.25	-	$14,586
July 1st, 2014	$7.25	$9.50	-	$16,796
July 1st, 2015	$7.25	$10.50	-	$18,564
July 1st, 2016	$7.25	$11.50	-	$20,332
July 1st, 2017	$7.25**	$11.76***	$12.50	$22,401
July 1st, 2018	$7.25**	$12.04***	$13.25	$24,451
July 1st, 2019	$7.25**	$12.31***	$14.00	$26,520
July 1st, 2020	$7.25**	$12.31***	$15.00	$26,520

* Based on 34 hours worked per week
** Assumption
*** Based on an estimated annual inflation increase of 2.3%

Table 2. Workers Impacted by the DC $15 MWP, by Occupation

2-digit SOC Occupation	$8.25 Minimum Wage	$8.25 - $11.5	$11.5 - $12.5	$12.5 - $13.5	$13.5- $15	$15- $18	Total
Food Preparation and Serving Related Occupation	4,040	32,076	4,062	2,588	2,394	3,268	48,428
Office and Administrative Support	2,303	3,874	2,008	2,480	4,588	11,440	26,692
Building and Grounds Cleaning	800	3,773	2,092	2,381	3,642	5,365	18,054
Sales and Related	1,875	8,842	2,552	1,669	1,399	1,385	17,721
Personal Care and Service	674	4,234	1,534	1,090	1,107	1,523	10,161
Protective Service	556	1,179	675	848	1,617	4,030	8,904
Healthcare Support	339	2,673	1,300	1,167	1,368	1,899	8,746
Transportation and Material	390	3,151	306	350	600	1,422	6,219
Community and Social Services	320	400	265	360	714	1,653	3,713
Education, Training, and Library	535	311	219	270	485	1,654	3,474
Construction and Extraction	126	265	181	230	470	1,363	2,635
Arts, Design, Entertainment, Sports, and Media	921	40	67	78	181	936	2,222
Business and Financial	808	-	-	1	34	901	1,745
Healthcare Practitioners and Technical	463	158	85	104	195	670	1,676
Legal	1,118	-	-	-	-	237	1,355
Life, Physical, and Social Science	217	166	99	127	244	727	1,580
Installation, Maintenance, and Repair	149	77	119	145	277	746	1,514
Production	207	300	119	110	144	292	1,171
Management	390	-	-	-	-	235	624
Computer and Mathematical	219	-	-	49	89	294	650
Architecture and Engineering	42	-	3	3	6	81	135
Farming, Fishing, and Forestry	-	-	-	-	-	-	-
Total	**16,492**	**61,518**	**15,686**	**14,049**	**19,554**	**40,120**	**167,419**

Table 3. Employment Impact of the DC $15 MWP

	All DC Jobs	Jobs Held by Residents
Up to $8.25 minimum wage	16,492	6,597
$8.26-$11.50	61,518	24,607
$11.51-$12.50	15,686	6,274
$12.51-$13.50	14.049	5.620
$13.51-$15.00	19,554	7,822
Sub Total (Direct Impact)	*127,298*	*50,920*
+ $15-$18 (Spillover)	40,120	16,048
Total (With Spillover Effects)	**167,419**	**66,968**

Table 4. Estimated Impact of the DC $15 MWP on Wages and Salaries in 2021

(in millions)		
	All DC Employees	DC Residents
Total Private Wages & Salaries ($11.50 MWP- baseline)	$53,056.0	$21,222.0
Estimated Change in Wages & Salaries (includes spillover)	$493.2	$197.3
Total Private Wages & Salaries ($15 MWP - policy simulation)	$53,549.0	$21,419.0
Change in Wages & Salaries as a Percentage	0.93%	0.93%

Table 5. Summary of the DC $15 MWP Simulation Model: Cases and Underlying Assumptions

Scenario	Description	Assumption(s)
#1	Base Case (Minimal Workers Effected, No Offsetting Gains)	Only workers earning less than $15 an hour in 2014 will benefit
#2 (Worst Case)	Base + Spillover (No Offsetting Gains)	Scenario 1 plus workers earning $15-$18 in 2014 will also benefit
# 3	Base + Spillover + Productivity	Scenario 2 plus businesses offset 30% of the increase in costs due to increased productivity
# 4 (Most Likely Case)	Base + Spillover + Productivity + Consumption	Scenario 3 plus wage gainers will spend all of their additional income on consumption
# 5 (Best Case)	Base + Spillover + Consumption + Efficiency Wage	Scenario 4 plus offset 75% of the increase in costs due to increased productivity and other efficiencies

Table 6. DC $15 MWP Employment Elasticities

Scenario	REMI Elasticities (2021)	DC Residents (2021)	All Workers (2021)	DC Residents (2026)	All Workers (2026)
#2: Worst Case	-0.11	-1,848	-3,033	-3,033	-3,956
#4: Most Likely Case	-0.09	1,181	1,817	2,046	2,489
#5: Best Case	0.00	-120	+20	-394	-191

Table 7. GDP-Related Impacts of the DC $15 MWP

	2021	2026	2032
Consumption ($36bn)	$72 (0.19% increase)	$49 (0.12% increase)	$37 (0.09% increase)
Investment ($17bn)	$-3 (-0.02% decline)	$-24 (-0.17% decline)	$-35 (-0.20% decline)
Government Expenditures ($47bn)	$-10 (-0.01% decline)	$-21 (-0.04% decline)	$-25 (-0.05% decline)
Net Exports ($18bn)	$-126 (-0.70% decline)	$-144 (-0.77% decline)	$-141 (-0.67% decline)
Net Real Change in GDP	$-66 (-0.06% decline)	$-140 (-0.11% decline)	$-163 (-0.12% decline)

Table 8. Tax Revenue Impacts of the DC $15 MWP

Tax Type	2021	2026
Sales Tax	$6.0 million	$4.4 million
DC Individual Income Tax	$6.1 million	$4.3 million
Corporate Franchise and Unincorporated Business Tax	($6.7) million	($5.4) million
Total Impact	**$5.4**	**$3.3**

Table 9. The Net Effects of the DC $15 MWP on Tax Revenue (in millions) as Computed by REMI and ORA Models, 2021

Revenue / Measure	REMI Estimate	ORA Model Estimate
Corporate and Unincorporated Franchise Taxes	-$10.0	-$4.5
Sales Taxes	$6.1	$4.5
Nominal Wages & Salaries	$185.6	$192.2
Individual Income Taxes	$6.1	$3.6

Table 10. Estimated Impact of the DC $15 MWP on Full-Time Wage Gainers, 2021

	Former Policy	Effective Tax Rate	Current Policy	Amount Diff.	% Diff.
Non-EITC Filers	22,967		26,381		
Total WS	$568,506,153 .0		$722,950,734 .0	$154,444,581.0	27.2%
Mean WS	$24,753.0		$27,340 .0	$2,587 .0	10.5%
Total DC IIT	$16,901,820.0	3.0%	$20,403,513.0	$3,501,693 .0	20.7%
Mean DC IIT	$736.0	3.0%	$772.0	$36.0	4.9%
EITC Filers	25,589		25,658		
Total WS	$514,212,297 .0		$595,052,406 .0	$80,840,109.0	15.7%
Mean WS	$20,095.0		$23,192.0	$3,097 .0	15.4%
Total DC IIT	$9,088,325.0	1.8%	$9,853,212.0	$764,887 .0	8.4%
Mean DC IIT	$355 .0	1.8%	$384 .0	$29.0	8.2%
Total EITC	$111,198,665 .0		$102,977,704 .0	$(8,220,961.0)	-7.4%
Mean EITC	$4,346.0		$4,014.0	$(332.0)	-7.6%
Grand Totals					
Filers	48,556		52,039	3,483	7.2%
Total WS	$1,082,718,450.0	2.4%	$1,318,003,140.0	$235,284,690 .0	21.7%
Total IIT	$25,990,145 .0		$30,256,725 .0	$4,266,580.0	16.4%
Total EITC	$111,198,665.0		$102,977,704.0	$(8,220,961.0)	-7.4%
Federal	$64,940,020 .0		$60,138,979 .0	$(4,801,041.0)	-7.4%
DC	$46,258,645.0		$42,838,725.0	$(3,419,920.0)	-7.4%

Table 11. Estimated Impact of the DC $15 MWP on EITC Recipients, 2021

Amount of Wage Income Increase	$56,639,377.0
Amount of Add'l IIT Revenue Gained by DC Govt.	$502,130.0
Amount of Federal EITC Decrease	($10,448,385.0)
Amount of DC EITC Decrease	($5,952,187.0)
Total Impact of Above Items	**$38,737,711.0**
# Impacted Filers	**37,781**

Table 12. The Effect of the DC $15 MWP on Compositional Changes within the Federal EITC Program, by Program Phase, 2021

	$11.50 MWP	$15.00 MWP	Difference
Phase In	9,983	5,540	-4,443
Maximum Credit	7,153	5,075	-2,078
Phase Out	20,645	22,676	2,031
Total	**37,781**	**33,291**	**-4,490**

Table 13. Estimated Total Net Impact of the DC $15 MWP, 2021

	Full-Time Workers	Part-Time Workers	Job Losers	Total
Wage & Salaries DC residents will gain	$235,284,690.0	$(26,147,153.0)	$(16,895,481.0)	$192,242,056.0
Amt of IIT, DC Govt will gain	$4,266,580.0	$(262,756.0)	$(362,637.0)	$3,641,187.0
Decrease Federal EITC to residents	$(4,801,041.0)	$(4,608,271.0)	$(1,039,073.0)	$(10,448,385.0)
Decrease in DC EITC to residents	$(3,419,920.0)	$(1,792,105.0)	$(740,162.0)	$(5,952,187.0)
Total Impact of Above Items	**$231,330,309.0**	**$(32,810,285.0)**	**$(19,037,353.0)**	**$179,482,671.0**
# Impacted Filers	**51,932**	**7,635**	**1,181**	**60,748**