Assessing the Economic Impacts of the Earned Income Tax Credit on Five Economically Depressed Counties in Southwest Washington State

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Executive Summary:

Economic Impact of Current EITC IN Five SW Washington Counties:

- $36,200,241 dollars in EITC expenditures from recipients creates 267 jobs, $9,360,085 dollars in labor income and $25,793,443 in total economic output in five southwest Washington counties.
- A public outreach campaign to focus EITC expenditures on the local economy could significantly increase the economic impact of the EITC.
- Refunding the Washington State EITC will eliminate 10% of the tax levied on EITC benefits.

Introduction

Poverty in the United States has risen over the last decade, becoming the most pressing policy issue on the national agenda. Stagnant job growth, declines in real wages, limited government investment in human capital and structural tax changes of the 1980s have culminated in a bleak economic picture for the American working class. The public debate surrounding solutions to the problem of poverty have offered a variety of solutions including: a minimum wage increase, a tax reform of neoliberal tax structures, an expansion of federal tax liability credits, greater government investment, and an expansion of the earned income tax credit (EITC). While all of these policy options have merit, the unique design of the EITC offers the most effective solution to the problem of inequality. The EITC does not disrupt the demand for labor the way that a minimum wage increase would. The benefits of the EITC system are increased labor participation and decreased labor costs for employers. EITC acts as a “backdoor”

subsidy through which the federal government provides a portion of labor income through the tax structure. By incentivizing work, the EITC can lower dependency on public assistance and limit the need for in-kind transfers. Unlike government direct investment, which lacks the efficiencies of market distribution, EITC recipients exercise utility maximization. The redistribution principle utilized in the EITC benefit is cross-subsidization; where by economically robust portions of the United States subsidize the economically struggling population through federal to state transfers. This principle is utilized in Washington State, as King County taxpayers subsidize the public provision for the rest of the state.

To significantly expand the EITC, a targeted test area must be developed where an economic impact analysis of such an expansion assesses the economic benefits. The test area should meet several criteria: prolonged poverty, modeling simplicity, limited study area precedence, and the potential for bipartisan support. The following analysis will demonstrate that the five economically depressed counties of southwest Washington (Grays Harbor, Mason, Lewis, Pacific, and Skamania) clearly meet the requirements of a potential test area, and will assess the economic impact of the current EITC benefit structure.

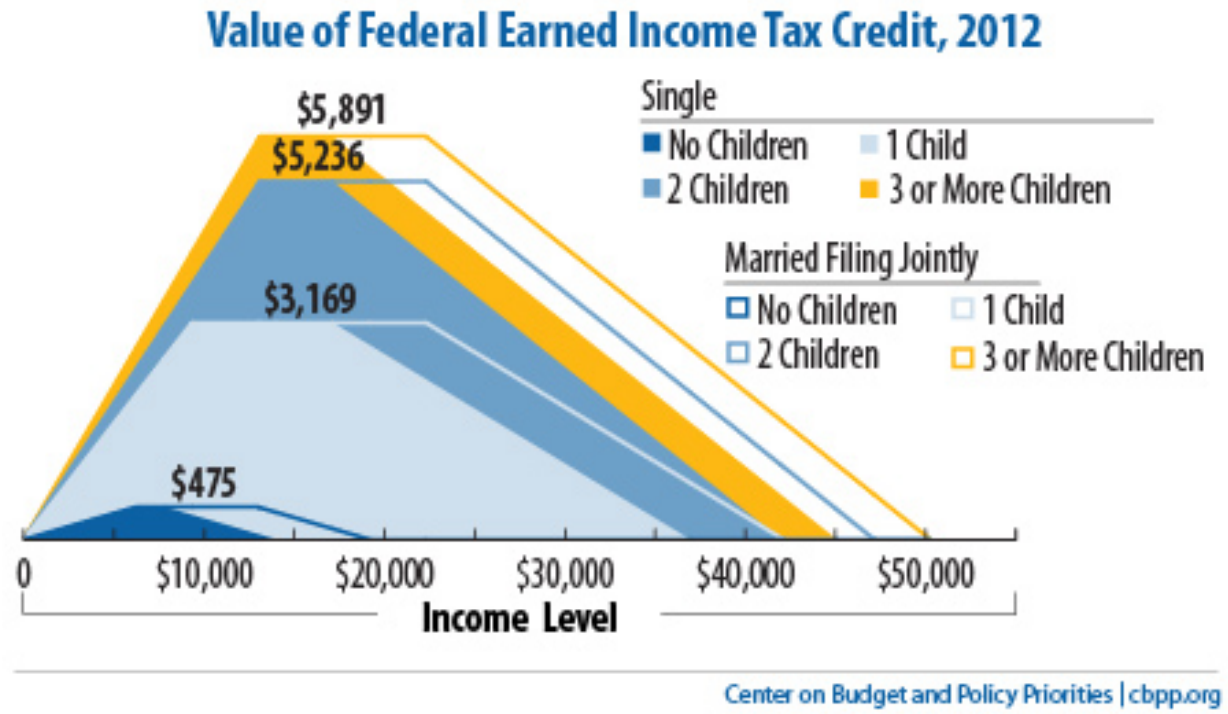
Earned Income Tax Credit Background:

The earned income tax credit is a government tax expenditure originally designed to correct to the regressive structure of payroll taxes, and increase labor participation by welfare recipients. The original EITC was a modest credit with a limited focus on the 6.4% payroll tax burden that falls disproportionately on low-income individuals. However, the Reagan era 1986 Tax Reform Act shifted the focus of the policy to general poverty alleviation by expanding the absolute value of the credit significantly (Brooking Institution, 2014). The shift toward the

utilization of tax expenditures to eliminate poverty represents the effective end of traditional welfare transfer methods created by the 1996 Welfare Reform Act. Between 1986 and 2009, the value of the credit fluctuated with sequential tax reforms. The most significant changes to the EITC occurred under the 2009 American Recovery and Reinvestment Act. The two significant structural changes included a new tier for recipients with three or more children, and a rebalancing of the tax credit towards married couples by increasing the phase-out portion of their benefit (Maag and Carasso, 2014). The changes from the 2009 act are still in effect today and as of 2013, the overall cost of the tax expenditure increased to $56 billion dollars.

The EITC as a tax expenditure has two distinct functions. First, just as all tax credits, the EITC lowers tax liability, typically to zero, for most recipients. This is because most low-income recipients have access to other credit taxes that work in concert with the EITC. Once the tax liability of the recipient is zero the additional portion of EITC is refundable. Only the EITC and the additional child tax credit offer a refundable portion. The EITC structure has three phases: phase in, plateau and phase out (Figure 1), which are designed to incentivize work without disturbing the fundamental tradeoff between work and leisure. Traditional welfare transfers, (due to high reduction rates) incentivize leisure over work. Benefits under the EITC accrue as individuals with children reach incomes that require 2,080 hours of labor a year at the current federal minimum wage.

Figure One: Schematic for EITC Tax Credit



There are eight categories of filers under the EITC: single no children, single one child, single two children, single three children, married no children, married one child, married two children, and married three children. The "child" status under the EITC follows the general dependency rules of the US tax code. There are three different "child" dependent groups that all must reside with the claimant six months of the year, and the claimant must provide half the "child(s)" income support. Between the ages of 0 and 18, a dependent "child" must be related to the claimant by blood, marriage or law. Between 18 and 24, a dependent "child" must be a full-time student. Beyond the age of 24, an individual is claimed as a dependent "child" if that individual is permanently and totally disabled. Each of the eight categories has a specific benefit structure, with the most generous structure assigned to married with three children, and the least generous structure designated to single no children.

During the first phase or phase-in region of the benefit structure, for every dollar of income generated, between 7 cents and 45 cents of benefit is accrued to the recipient, depending on the category (as demonstrated by the rising slope on the graph) (Figure One). This increased benefit phase incentivizes increasing the number of hours worked. During the subsequent plateau phase, the maximum benefit between $475 and $5,891 remains unchanged over a specific income range. Following the plateau phase, the benefit phases out at a rate of 7 cents to 21 cents per dollar of additional income earned until the benefit amount reaches zero. The phase-out portion of the benefit structure creates a disincentive to labor participation through an implicit wage reduction and a higher marginal tax rate. However, since benefit is reduced over the low reduction rate and the long income range, the labor distorting impacts of the credit are limited. The EITC also has two other requirements. Individuals without eligible dependents must be between the ages of 25 and 64, and individuals claiming the EITC are limited to $3,100 dollars a year in investment income.

Literature Review:

Poverty, Health, Education:

Poverty reduction is the stated goal of the EITC and the academic research has provided a glowing report. According to a report by the Center on Budget and Policy Priorities, which utilized census data, 5.7 million Americans, including 3 million children rose out of poverty by the EITC in 2011(CBPP, 2011). The EITC has done more to lift children out of poverty than any other social program over the last thirty years (Greenstein 2005). Furthermore, the EITC alleviated the housing crisis in the United States (as demonstrated in the percentage of people paying more than half their income in housing expenditures). The EITC directly resulted in a rate

reduction of 15 percent between 1991 and 2001 (Stegman, Davis, Quericain 2003). According to a recent review of the past 30 years in poverty alleviation, only social security has lifted more Americans out of poverty than the EITC (Guzman 2013). The effects of the EITC expand beyond the temporary income effects, as discussed above, to the long-term education and health outcomes of recipient children.

A recent body of research suggests that higher birth weights and lower rates of potentially dangerous behavior in pregnant women (including drinking and smoking) are associated with the EITC rate increases of the 1990s (Haynes, Miller, Simon, 2013). There has been extensive research on the effects of tax credits not just the EITC, on educational outcomes for low-income students. Research has long presented evidence for the association between income and educational attainment; however, recent work has provided direct links for the EITC. Research using local IRS data and school test scores for students grade 3 to 8 in several urban centers showed an association between EITC participation and higher scores in math and reading (Dahl, Lochner 2012). Although these two studies and several others utilized different analysis methods, the similarity for outcomes points to an association between the EITC and positive health, as well as to positive educational indicators.

The length of recipient usage of the EITC varies for each individual. Temporary usage is associated with financial shock and parental decisions about child rearing, whereas long-term use more closely corresponds to economic disadvantage. However, even temporary usage can be associated with long-term benefits for both recipients, and the children of recipients. Two major studies have been conducted in last four years attempting to assess the long-term impacts of EITC (and potentially other tax schemes) on educational attainment, work hours, and income. A

2011 study (Chetty, Friedman, and Rockoff) associated a higher likelihood of college attendance for the children of EITC recipients. Furthermore, higher levels in EITC benefits appeared to generate future earning returns of a larger amount. A 2010 study (Duncan, Ziol-Guest, and Kalil) continues to strengthen the research surrounding the long-term impact of the EITC. The study's findings assert that an income increase of at least 3,000 dollars (in this case a median EITC benefit) in the first five years of life was associated with a 17% increase in income and an increase of 135 hours of worked per year when the child reaches the 25-37 age group.

Labor Participation and Intensity

The EITC is only one of many policy instruments intended to alleviate the financial struggles of the roughly 50 million Americans living in poverty, however it is the only instrument that consistently demonstrates the ability to increase labor-market participation. Several studies conducted from census data and IRS returns collected from the 1990's suggest that the EITC reduced dependence on TANF and SNAP (Grogger 2003), (Mikelson and Lerman 2004). Prefacing these findings with the economic realities of the 1990's in necessary, as the last half of the decade saw near full employment, and the first and only real wage increases since the 1970's. However, the basic findings of these studies are sound. EITC does lift families out of eligibility for traditional welfare transfers by two means: raising real income and increasing labor participation by incentivizing work (V. Joseph Holt, Charles H. Mullin, and John Karl Scholz 2006). The EITC structure, while not a perfect solution, does undermine the traditional failures of any welfare transfer system. These failures, characterized as the Iron Triangle, suggest that it is impossible to achieve the three stated objectives of welfare policy at the same time: increasing labor participation, ending poverty and limiting the cost to government budgets (Gruber, 2010).

TANF and other cash transfers can eliminate poverty but because a benefit is earned without any labor output and because of the program's steep reduction rates, there is a strong disincentive to work. Unlike the traditional welfare systems that existed before the welfare reforms of the late 1990's, the EITC has a reduction rate and benefit scheme that increases labor participation and limit cost. Undoubtedly, at certain income ranges and benefit rates, some individual recipients may choose to limit hours, however on the whole, EITC recipients choose to provide more labor than would be expected in cash transfer systems.

Numerous studies highlight he evidence of this design success. There are two specific labor issues at work here: participation in the labor force, and intensity of work (hours worked). The greatest success of the EITC is in labor force participation for single mothers, which in the EITC scheme saw 3 to 5 % greater participation rates ((Meyer 2001; Meyer and Rosen-Baum 2001). Low-income worker participation rates increased by more than 6%, and were directly attributable to the EITC (Grogger 2003). However, married women did not show a similar participation rate as single women (Eissa and Hoynes 2004; Ellwood 2001). This inconsistency is linked to the fact that the high costs of childcare require a significantly higher compensation rate than most low-income mothers can find in the work force.

The issue of whether EITC recipients provide more work is less clear and there is fundamental contradiction between theory and reality. EITC theory would suggest that during the phase-in and plateau regions of the benefit structure, workers should provide more labor hours because they are receiving a higher wage. Research has not found a significant link between the EITC and increased hours worked (Meyer 2002). The research does not support the contention that the EITC increases hours worked, nor does it support the opposite claim of fewer

hours worked. The reason that EITC recipients do not engage in significantly more hours of work is probably not the result of the EITC structure but rather macroeconomic issues in the labor market, such as limited opportunity. In the third region of the benefit structure or phase-out portion there is also a contradiction between theory and practice. In theory, workers should have an incentive to curtail their working hours as the benefit reductions begin. In practice, this is not the case (Cherry and Sawicky 2000). This contradiction represents one of the greatest architectural successes of this policy. Unlike a traditional cash transfer system, where beneficiaries are well aware of their diminishing transfers or even the disincentives of a graduated tax system, EITC recipients are largely unaware of their disincentive to provide labor (Brooking Institution, 2010). Overall, the research on the relationship between the EITC and work incentives suggests that the EITC leads to significant increases in labor participation for low income recipients, and more importantly has not reduced the number of hours worked.

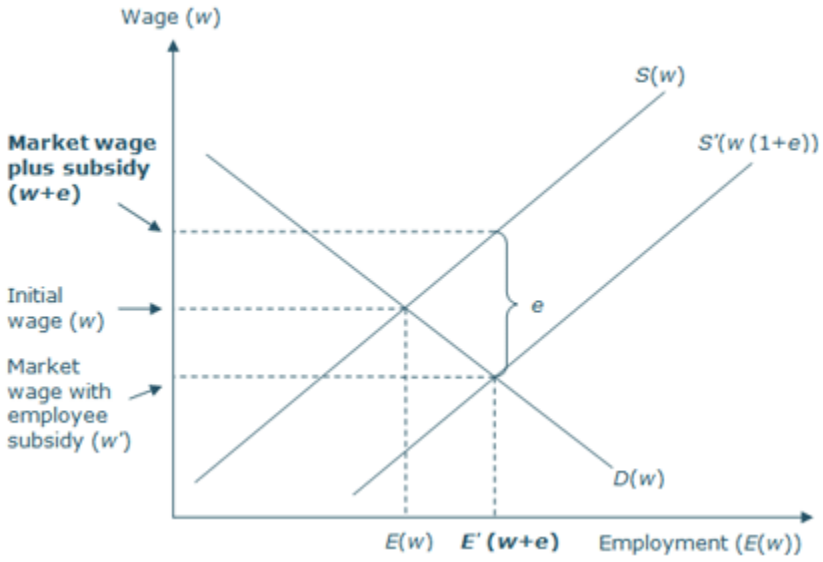
Wage Rates: Employer Benefits

The academic research on the link between wage rates and the EITC is contentious. The theoretical argument is straightforward, and constructed of two separate forces: labor supply and wage acceptance. EITC increases the supply of low wage labor through greater labor participation, thus depressing wage rates. Employers benefit from lower wage rates and a greater supply of labor, in turn workers benefit from protection against the downward force on wages by the minimum wage. EITC subsidizes labor, therefore allowing recipients to accept lower wages for two reasons: one because the worker has access to the benefit, and second because the worker will not have access to the benefit without a job. In practice, it would be difficult for employers

to discriminate between EITC labor and non-EITC labor by such methods as a differentiated wages rate but employer differentiation is not one of the forces at work here.

The following is the graphical representation of a stylized wage subsidy example. The EITC is a "backdoor" subsidy that accrues once a year to a limited number of individuals in a labor pool. The elasticities for demand and supply of labor are assumed equal. However, this graph presents the theoretical benefits accrued to employers through lower wage rates.

Figure 2: Supply and Demand for Workers with EITC Wage Subsidy



The major contrast in the academic research exists between studies done in the 1990's and work that is more recent. The consensus from the studies conducted throughout the 1990s is that the EITC has no significant effect on wage rates (Eissa and Nichols 2005). This consensus stems from the fact that the EITC recipients in the mid-1990s represented a minority of workers in any wage range, which limited the overall effect on the labor market (Hoffman and Seidman 2003). The academic findings were not accepted without dissent. One study suggested that a

local increase in the EITC in the rage of 10%, whether state or municipal, corresponded with a 6% decline in the wage rate of high school dropouts, and 2% decline in the wage rate of high school graduates (Leigh 2003).

The more recent research suggests that low-wage employees do not capture all of the benefits of the EITC, but that some proportion of the benefit transfers to low wage employers, through wage depression. Four macro-level economic differences that exist between the current economy and the economy of the 1990s are primarily responsible for this difference (Brookings Institution, 2010). The near full employment and real wage increases of the 1990s limited the wage depression effects of the EITC. The increased inequality since the 1990s has concentrated EITC recipients at the bottom of the wage ladder, giving wage acceptance and labor supply larger effects. Finally, limited minimum wage growth has not protected low-wage workers from wage depression, even as the EITC benefit has grown to a $56 billion dollar a year program.

Recent research makes clear that the EITC places downward pressure on wages and benefits for low-wage employees. Under reasonable assumptions of demand elasticities i.e., demand elasticities that low-wage employers face in unemployment rates between 6% and 8%, (these findings do not hold for unemployment rates) a substantial portion of the EITC benefit is captured by employers in the form of lower wages (Rothstein 2009). The theoretical work of Rothstein has been replicated several times in wage rates for high school dropouts (Leigh 2010, Neumark and Wascher 2009). This transfer means that both low-wage employers and low-wage employees benefit from the EITC.

EITC, Federal Tax refunds and the Minimum Wage

The confluence of research on the EITC's preferred structure to tradition transfers, and the transfer of benefits to low wage employers, leads to larger questions about the policy desirability of the EITC over broad-based tax credits or an increase in the minimum wage. There have been a number of significant studies comparing the stimulus effect of annual income tax refunds and the EITC (Barrow and McGranahan 2000, Shapiro 2003, Edwards 2004). A 2003 study compared the relative stimulus effects of the 2001 federal tax refunds with a hypothetical refund structure that endowed only EITC recipients with the entirety of the refunded amount of $40 billion dollars. The actual federal tax refunds created a cumulative stimulus effect of $ 8-9 billion dollars, whereas the hypothetical refund would have produced a cumulative stimulus effect of $ 28 billion dollars (Shapiro 2003). The results of this study illuminate the structural advantages of the EITC. Firstly, recipients of the EITC are overwhelming spenders (Mankiw, 2000) not unlike the recipients of unemployment insurance. Second, EITC recipient spending is concentrated evenly between durable and nondurable goods, which produces broader economic stimulus and dispels the assumption that the EITC refund is used solely to finance durable goods (Edwards, 2004). Finally, the EITC refund is spent largely in the near term, with 70% of the refund utilized in the first month (Barrow, 2000). These factors combine to make the EITC an attractive economic stimulus policy.

The current national conversation about inequality, low-wage poverty, and stagnant real wage growth has created a focus on raising the minimum wage. As discussed earlier, many researchers conducted several studies to understand the symbiotic relationship between the minimum wage and the EITC. However, the last two decades have also seen several studies that

have assessed the comparative advantage of each policy against the other (Burkhauser, 1996, Nuemark 2001). The federal research is limited, as there have not been a large number of minimum wage increases to study. The parameters of the two studies have been threefold: income effect, transition out of poverty, and labor participation by low-income families. For families or individuals with children, the EITC is more effective than a minimum wage increase in all three parameters (Nuemark, 2001). The effects for individuals and married couples without children vary, which would be the assumption, given that the EITC provides benefits to individuals and families with children. These studies also produced other relevant findings, including a larger net benefit for state EITC recipients, and limited effects for individuals above the poverty line (Nuemark, 2001). Clearly, this academic work does not end the larger policy debate between the utilization of the EITC and a higher minimum wage to alleviate poverty, however the issue of labor demand under a higher minimum wage may strengthen the case for the EITC.

Criticism of the EITC

The broader criticism of the earned income tax credit does not cast doubt on the research findings previously stated. Public, political and policy support for the $56 billion dollar a year program is strong and growing. There are two sources of criticism: the error rate and the "biased" structure of the credit mechanism, with the latter source directly linked to a desired expansion of the program. The error rate of the EITC in the late 1980s was relatively high compared to other assistance programs, between 42% and 32% (Holtz 2003). This error rate, along with the billions in illegitimate returns, prompted greater oversight by the IRS. In 2004, the target error rate was 22% to 27% (Zelenak, 2004**).** The reason for the error rate is not limited to

the EITC but is largely endemic in the American tax system. Tax filers have an incentive to claim non-dependents, (individuals that provide for greater than half of their needs) as dependents for preferential tax treatment with deductions and credits, until the non-dependent has a monetary incentive to file independently. Some proponents have argued that this tax avoidance, or fraudulent credit claiming, is actually the byproduct of a "biased" EITC structure as well as the general bias in the tax code toward families with children. Groups proposing changes to the benefit structure and mechanisms of EITC suggest that ending the bias toward individuals with dependents would limit the error rate.

Advocates for the expansion of the EITC suggest that three factors undermine the current effectiveness of the EITC: age restrictions for childless young adults, the limited benefits for childless workers in general, and the limited overall benefit. Youth unemployment in the United State as of July 2013 was a staggering 16.3% and this figure does not include young adults that have forgone work for education on borrowed money (BLS, 2013). If the EITC age restriction were lowered to 18, young adults would receive increased labor earning. The Brown-Durbin/Neal legislation proposed in the senate would increase the maximum benefit for childless individuals to $1400 up from $500 and double the eligible population at a cost of $8.8 billion dollars (Brooking Institution, 2013). There is a growing momentum to significantly increase the total benefits of the program, potentially doubling the total to $108 billion dollars. This kind of increase would require a targeted implementation test, (through economic impact analysis) of the very work undertaken in this project. Targeting an improvised rural population for the first phase of implementation could show proof of concept while garnering bipartisan political support.

EITC and Rural Communities

The specifics of this study focus on the effects of the EITC on rural economics. A rural test area presents four specific advantages: prolonged poverty, modeling simplicity, limited study area precedence, and the potential for bipartisan support. Rural poverty in the United States represents a persistent public policy problem that lacks a feasible solution. More than one in seven rural Americans lives in poverty, a rate higher than urban Americans (DeNavas-Walt, C., Proctor, B.D. & Smith, J.C, 2010). Indices of childhood poverty are even starker; 48 of the 50 counties with the highest child poverty rates are rural (Jensen, 2006). One position may argue that urban poverty lacks proper representation (i.e., is underrepresented) in these statistics due to the effects of economic diversity in urban areas. However, this very aspect of economic diversity has stifled rural poverty alleviation since the 1960s. Not only do rural populations lack access to dynamic employment opportunities, but also a small tax base offers limited public service provision and educational opportunity.

The economic impact modeling of a relatively isolated but interconnected rural economy presents an analysis of the EITC that lacks the potential complications of metro or state level analysis. Those potential complications include metro consumption patterns and wealth transfers. Wealth transfers through the income tax that allow for EITC spending could represent a zero-sum game in metro areas. By contrast, few members of rural communities pay significant amounts of income taxes. There is no reason to suggest that EITC effects stated in this study will be limited in geographic scope and relevance. No economic impact analysis of the effects of the EITC on a rural economy has been conducted before and the study presented here offers a unique perspective on the EITC. However, the methods are similar to other studies of urban and metropolitan areas. Finally, a rural test area for the EITC represents a bipartisan bridge issue. The cash transfer policy that underlies the EITC is consistent with the modern conservative

economic theory as articulated by Milton Freidman and the Chicago School of Economics. Proposing an expansion of the EITC as a rural poverty alleviation method presents a viable avenue for bipartisan support because of wide republican support in rural communities across the country. Approaching the expansion of the EITC as an issue of rural poverty could be an advantageous approach to solving the root of poverty in the United States.

The quantitative research on the economic impact of the EITC on rural communities is largely lacking, however academic research into the poverty effects and the psychological impacts of the EITC have been conducted. Overall, documentation on the income effects of the EITC is plentiful, with the EITC representing a major contribution to income in the rural south (Meyer, Rosenbaum, 2001). Low-income families in rural communities also face longer periods of substantial material deprivation than urban counterparts (Meyer, Rosenbaum, 2001). The 1993 expansion of the EITC had a dramatic effect on poverty in rural communities; for female-headed households, a 14% reduction in the poverty rate directly corresponds to the EITC (Lichter & Jensen, 2002). EITC participation among rural families, especially for mothers, has led to lower levels of financial distress and higher respondent-stated levels of personal satisfaction (Green, 2013 Evan, Garthwaite 2013). Both studies point to the overall correlation between income and mental wellbeing, as well as greater integration of mothers into the work force, for the underlying reasons of this effect.

Similar Studies

As stated before, this project is the first economic impact analysis of the EITC on rural communities. However, the Brookings Institution has conducted several studies, using IRS data, of the general income effects of the EITC and the geographic dispersion of EITC recipients

(Brooking Institution 2009, 2010, 2011, 2012). This study will draw heavily on the results of the work done by the Brookings Institution. Four such studies have been conducted in Cuyahoga County, OH, Nashville, San Antonio and Baltimore (Policy Matters Ohio 2012, Nashville Wealth Building Alliance 2005, Texas Perspectives 2003, Jacob France Institute 2004). The San Antonio and Baltimore studies are the most relative because of the similarity of economic analysis. Both studies utilized IRS data aggregated by the Brooking Institution and IMPLAN model of economic impact analysis created by the University of Minnesota. The San Antonio study concluded that; for every dollar of EITC benefit, $1.56 dollars of induced economic impact were created, for every $37,000 in benefits one permanent job was created, and for every $1,000 in EITC benefits, two dollars in local tax revenue were created (Texas Perspectives, 2003). The Baltimore study concluded that from the $131 million in EITC dollars $102 million in economic output, over 1,000 jobs, and over $30 million in wages resulted (Jacob France Institute 2004). In addition, the study asserted that $600,000 in tax revenue was generated from the EITC benefits (Jacob France Institute 2004). Furthermore, this study concluded that without this federal expenditure, these benefits would not have occurred (Jacob France Institute 2004).

The macro-economic level efficacy of the EITC has also been studied. All benefit streams have efficiency losses beyond an error rate, or inefficient resource utilization. Transfers such as the EITC rely on a redistributive tax structure. Extracting tax revenue from a competitive market that does not have market inefficiencies, such as externalities, causes dead weight loss. Tax revenue removes consumer and producer surplus from the market, but does not capture all of the surplus utility, leaving some portion to deadweight loss. Potential market activities that would have occurred in a competitive market are lost. The efficacy of the EITC as a benefit stream depends on the tradeoff between market efficiency loss and benefit gain. Research on this

issue presents a mixed picture (Triest 1993, Browning 1995, Hoffman and Seidman 2003). However, the most recent study suggests the excess tax burden created by the EITC is compensated by lower levels of public assistance use by recipients of the EITC, and overall increases in labor market participation, which decrease labor inputs for employers.

Methodology:

Research Question:

The following study will attempt to answer the following research question:

1. Under the current benefit distribution, what is economic impact of the EITC on five rural counties in Southwest Washington?

Figure 3: Study Region (Underlined in Red):

The study region is the following counties of southwest Washington: Mason, Grays Harbor, Pacific, Lewis and Skamania. This study stems from data collected in 2012. Two overarching criteria determine regional selection: economic congruency and collective economic poverty. All of these five counties have suffered through 30 years of weak economic growth, and limited industry development. The broader shift in the American economy away from resource extraction and manufacturing since 1979 has brought poverty to rural southwest Washington. Once robust resource extraction area, these economies now survive on limited timber sales, export terminals, fisheries and limited tourism revenue. An economic impact study requires continuity between smaller component areas, in this case county wide economic models. The component parts have similar economic conditions including: slow population growth, high dependency on service sector income, limited industry dynamism, lack of metropolitan centers,

and relative isolation. Together these component counties create a regional economy that can be analyzed through an input-output economic model.

All five counties have unemployment rates over 1.5 times the state average, which earned them the official distinction as distressed counties (WSDOT, 2012). The average for the five counties was 10.4% unemployment, 1.6 times the state average in 2012 (Trading Economics, 2012). Unemployment in Grays Harbor County was 11.6% in 2012 (Trading Economics, 2012). The county has been among the most economically depressed over the past three decade. The official unemployment rate only counts individuals currently seeking employment as "unemployed". This figure is unlikely to demonstrate the effective unemployment rate. The labor participation rate, the number of individuals between the ages of 18 and 64 currently employed, for the five counties is 45.7 % (USDOC, 2012). This number is 58 % (USDOC, 2012) of the state average, suggesting that the effective unemployment rate is significantly higher than the official rate.

The per capita and median household income is 73% and 77% of the state average (USDOC, 2012), which demonstrates the limited economic means that households in these five counties possess. An average of 16.1% of individuals fell below the federal poverty line, which is 1.25 times higher than the state average (USDOC, 2012). The percentage of personal income that derives from government transfers stood at 29.6%, or 1.85 times the state average (BEAR, 2012). This high transfer rate demonstrates the lack of dynamic personal income generation and the overall dependency of these counties on traditional welfare transfers. Although these five counties are not as impoverish as other rural regions in the United States, the collective economic

problems of southwest Washington constitute a strong test case for regional economic development through the EITC.

Input-Output Economic Impact Modeling

An input-output economic model determined the current and potential economic impact of the EITC. This type of model is a holistic prototype of the economy that attempts to define what the output or final demand will be for a given input of initial demand. A classic example is the initial demand of the construction of a sports arena, not considering the long-term revenue. The total initial demand for the project is $300 million dollars. For simplification, the city subcontracts each task separate to one contracting company. The direct impact will be the labor income and proprietor income each contractor gained after costs. The indirect impacts would be the effects on suppliers or the linkages in the economy. The input-output model has a matrix that interprets interactions between the contracting company and its suppliers as well as the supplier linkages. These matrices calculate the multiplier effects. For example if the steel contractor spends $30 million on steel, the supplier of that steel must hire more workers to fulfil this order. The multiplier effect maybe one new job in steel for every $200,000 in demand increase, 150 jobs as an indirect effect. Modeling where the indirect employment effects occur requires a structural model of supply chains. Where the jobs originate comes from the regional purchases coefficient for each industry. In the case of steel, that might be 40% because only transportation and the finishing of the steel components occur in the regional economy. The other 60% of the economic activity occurs overseas in iron ore mines and steel mills.

The final level of economic impacts includes not only the direct and indirect stated above, but also induced effects. Induced effects occur when labor income and proprietor income

is utilized in the regional economy. In the sports stadium example, the induced effects occur as contractor employees spend their labor income, and when contracting companies reinvest their earnings. In order to determine the economic impact that labor income has on the economy, input-output models determine the consumption bundles for every income bracket with an allowance for a savings rate. For example, a construction worker making $60,000 would spend 6% of household income on retail grocery consumption, $3,600. The model for proprietor income is similar in methodology. The income utilization profile for each industry is modeled. For example, a privately held industrial plumbing contractor may spend 30% of income on supplies, as the industry model generally requires payment on completion.

Through the utilization of the Bureau of Labor Statistics, the input-output model can forecast the effects of a change in demand. However, the nature of an input-output limits its overall effectiveness as a policy tool. The sport stadium example represents a best case for an input-output model. The initial demand change is clear, each dollar of expenditure for the project can be input in to an affected industry. The demand change is finite, and the time frame is near term. Input-output models are static states and do not possess the dynamic modeling required analyze change over time. For the project at hand the demand change is both singular, in that each year's EITC expenditure may be viewed as an independent event, and a reoccurring event. An input-output model will effectively measure the impact of the current EITC expenditure and a potential expanded expenditure. However, the dynamic supply changes and incentive changes in the regional economy over the long term, created by the demand changes from the EITC, will be beyond the scope of this study.

Implan Model:

The IMPLAN model served as the basis for the analysis developed in this study. IMPLAN contains data and parameter matrices for: employment, value-add (which includes: employee compensation, property income, other property income, indirect business taxes), output, final demand, inter-institutional transfers and national structure (MIG, 2004). Each matrix develops from a variety of national business and employment surveys conducted by federal and local governments. The individual data points are placed into two separate types of matrices: one series of matrices models the general economy and the other models final demand which includes all "institutions" utilizing components created in the economy. The general economy matrices include: use, make, absorption, by product, market share, margin, deflation, and regional production coefficient. The final demand matrices include 13 "institutions": Household Personal Consumption Expenditures, Federal Government Military Purchases, Federal Government Non-Military Investment, State and Local, Government Non-Education Purchases, State and Local Government Education Purchases, State and Local Government Non-Education Investment, Inventory Purchases, Capital, Foreign Exports, State and Local Government Sales, Federal Government Sales, Inventory Sales. Once the initial direct impact of a change in the economy reaches one of these institutions, the "ripple effect" has ended.

Upon assembling the data points into the linkages matrices, a descriptive model of the economy results. Thee descriptive model has a limited ability to analyze demand change or broader changes in the economy such as EITC benefits. Modeling economic changes requires a predictive model based on multiplier effects that determine the economic impact. This analysis employ a SAM multiplier, (Social Accounts Matrix Multiplier) which contains both a type I and

a type II multiplier. The overall SAM multiplier creates the direct, indirect and induced impacts discussed in the overview.

Utilizing the type I multiplier determined the direct and indirect effects of the additional spending by EITC recipients. In order to model the direct response and indirect response by an industry, the type I multiplier utilizes this function throughout the business matrices:[1] The type I multiplier measures only demand changes in relation to the direct and indirect responses of industries. The value-added effects that result from a change in final demand, including employee compensation, proprietor income, and property income cannot be delineated with type I only.

The type II multipliers include a series of ratios that relate increases in output, to increases in income and employment, based on business matric data. For example, from the

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1 In order to model the direct response and indirect response by an industry the type I multiplier utilizes this function throughout the business matrices:

$X = (I - A)^{-1} * Y$

Where

X= total industry output
I= individual company
A= the individual production function
Y= final demand

In other words, a change in the economic can be understood as:

$\Delta X = (I - A)^{-1} * \Delta Y$

Change in Total Industry Output = (I - A)-1 * Change in Final Demand

business matric, a ratio between millions of dollars of output and employment can be determined. Using this ratio the employment multiplier for each industry is established.

The SAM multiplier includes both type I and type II multiples as well as induced effects of spending by institutions including households and local government. In order to accurately model the induced effects the SAM multiplier includes data about household consumption from the Bureau of Labor Statistics Consumer Expenditure Survey. The SAM multiplier accounts for social security taxes, income taxes, local and state taxes and savings. The SAM multiplier modifies the potentially overstated induced effects.

Assumptions and Criticism:

The predictive modeling of the IMPLAN system through multiplier effects is based on two sets of assumptions: one set is related to the static nature of the model, and the other set is related to the regional purchases coefficient. There are five static model assumptions that limit the dynamic nature of the model: constant returns to scale, no supply constraint, fixed commodity input, homogeneous sector output, and industry constant production technology. All production output in the model is linear; therefore an increase in outputs requires a proportionate increase in inputs. Supply chains in the model are assumed perfect; therefore, supply of all materials is effectively limitless. The commodity mix utilized by each industry independent of price effects, and firms cannot substitute inputs. The output mix created by each industry does not change in response to changes in demand. In the model, no technological advantages occur for any single firm and production technology is constant. Together, these static nature assumptions produce a short-term economic impact forecast that lacks the dynamic modeling needed to analyze impacts to demand change over long periods of time.

An important criticism of indirect survey input-output models involves the regional purchases coefficient for industries. The coefficient is created through national survey data from the Bureau of Economic Analysis and Department of Labor Statistics. The national data is aggregated down to the county level using industry profiles from local survey data. The regional purchase coefficient represents the amount of industrial commodity demand that is met by local suppliers. The coefficient has a margin of error that can produce significant overestimation of local economic impact (Treyz and Stevens 1985). For example, the regional purchases coefficient for the telecommunications industry in the five-county economy is 30%, meaning that only 30% of the economic activity attributed to an increase in demand impacts the local economy. The other 70% affect the economy beyond the five-county area. The 30% coefficient is not based on local surveys of telecommunications companies, but rather on national averages. This could be an overestimate or an underestimate. Potentially, there could be regional telecommunications providers, locally contracted by a national provider, which would shift the coefficient higher than 30%. The opposite is also true. A regional provider located outside the five-county area could provide the services with little impact on the five-county area, lowering the coefficient. Overall, the IMPLAN provides the best method for modeling regional purchases coefficients, short of local area surveys.

Process of the Study:

The starting point in this process is data from the Brookings Institution IRS. The data contain the amount of EITC expenditure for each county, altogether $36 million dollars. Before the modeling can begin, a geographic consumption model must be generated. Some portion of the $36 million dollars does not reach the local economy. The two sources of leakage are online

purchases, and consumption outside the physical confines of the five-county economy. Discussed later in the parameters section, the assumed geographic consumption coefficient is .75, based on relative isolation, lack of broadband Internet, and limited use of online retail. Therefore, before the modeling begins the EITC expenditure contracts to $27 million.

In order to model the $27 million with the IMPLAN model, the consumption was broken down by individual industry. The national consumer expenditure survey creates consumer bundles across the seven relevant income brackets. The data were then weighted by the relative frequency of each income bracket from the IRS data. The final list had 43 industry demand changes across the consumer bundle. The IMPLAN model utilized these industry demand changes as inputs. The IMPLAN model analyzed the effects of the demand changes based on the industry matrix producing the direct, indirect and, induced impacts for each demand change. The 43 different demand changes were arrogated to display the impact of the $27 million in EITC expenditure on the local economy.

Parameters of the Study:

For the purposes of this study:

Direct Effects: are the impacts on industries that directly result from increased initial demand created by EITC expenditures in the five-county study area of southwest Washington State.

Indirect Effects: are the changes in inter-industry purchases that indirectly result from EITC expenditures in the five-county study area of southwest Washington State.

Induced Effects: are the impacts of increase household income that result from EITC expenditures, as employment and labor income are increased.

Direct Inputs IMPLAN Model:

Figure 3: EITC Distribution by County

County	Total Returns(2012)	Total EITC Returns(2012)	Percent EITC (2012)	Total EITC money (2012)
Mason	23,605	3,805	16.12%	$7,894,010
Grays Harbor	26,331	5,280	20.05%	$11,133,601
Lewis	29,839	5,905	19.79%	$12,792,931
Pacific	8,307	1,378	16.59%	$2,814,189
Skamania	4,587	766	16.70%	$1,565,510
Average			18.09%	
Total	92,669	17,134		**$36,200,241**

Figure 4: EITC Income Distribution

0-$4,999	$5,000-$9,999	$10,000-$14,999	$15,000-$19,999	$20,000-$29,999	$30,000-$39,999	$40,000-$50,000	Total
2,176	2,977	3,368	2,290	3,289	2,290	743	17,134

Brookings Institution EITC Interactive (2012)

The initial demand change in the IMPLAN model for EITC expenditures came from the Brooking Institution EITC Interactive database (Table 1 and 2). Together, the tables represent the EITC benefits by county and the overall income distribution of the recipients, (as noted earlier, the data year of the study is 2012). The disaggregated IRS data come from the SPEC or

Stakeholder, Partnerships, Education, and Communication database. This aggregated data has one distribution issue of note. The Brooking Institution aggregated the data to the zip code level, which could produce minor geographic incongruities as zip code boundaries and county boundaries overlap (Brookings Institution, 2012). This distribution error should have a limited effect on the overall demand change.

Table 3**: Low Income Consumption Bundle**

Weighted Low Income Consumption Bundle	
Housing	38.43%
Food	16.91%
Transportation	16.77%
Health Care	7.88%
Entertainment	4.90%
Apparel and Services	3.45%
Personal Insurance and Pensions	3.33%
Cash Contributions	2.86%
Education	2.57%
Miscellaneous	1.58%
Personal Services	1.27%

The direct demand totals from the Brookings Institution EITC interactive were entered into the IMPLAN model, through industry demand change. The data above came from the 2012 Consumer Expenditure Survey conducted by the United States Census (Table 3). The data for consumption was bracketed for seven income groups. In order to create an accurate model of EITC expenditure, each consumption average was weighted based on the number of EITC recipients in each income bracket (the IMPLAN system models economic impacts through industry demand change). The consumption bundle for EITC recipients was broken down by 43 different industries. The weighted averages were entered into the IMPLAN model for each

industry, for example $ 2,115,128 in gasoline and oil expenditures were entered into the IMPLAN industry category "retail service stations." This weighted average of EITC expenditures produced the direct effects for the IMPLAN analysis. One important note is that the Census data was nationally collected and there could be incongruities on a local level. Local area surveys of EITC recipient consumer bundles would be a preferable method for determining EITC expenditure.

Geographic Consumption Coefficient:

The geographic consumption coefficient is the portion of the EITC expenditure that never reaches the local economy and therefore is not entered into IMPLAN model. Unlike the regional purchases coefficient, which is created by the IMPLAN model using national data, the geographic consumption coefficient was created specifically for this study. There is no standard method for creating a geographic consumption coefficient. Without local area survey data, assumptions must suffice. For example, the Baltimore study calculated a geographic consumption coefficient of .66 based on the large number of competing consumption opportunities in the D.C./ Baltimore metropolitan area and the wide utilization of Internet retail (Jacob France Institute 2004). The regional economy for this model contains a five county area that is contiguous. However, there were two areas of expenditure leakage: online sales and purchases outside the region. For example, a family receiving a $3,000 dollar credit is likely to spend some portion of that credit outside the five-county economy. For this analysis, a geographic consumption coefficient of .75 was chosen, meaning that 25% of consumption occurred outside of the regional economy and therefore was not included in the analysis.

Again, a geographic consumption coefficient without a local area survey contains a high degree of uncertainty. The selection of this coefficient was based on two parameters, relative geographic isolation and limited use of Internet retail. The following tables show both the unincorporated populations as well as the population densities for each county.

Table 4: Unincorporated Population

Population			
	Incorporated	Unincorporated	Total
Mason	9,870	51,580	61,450
Grays Harbor	44,540	28,610	73,150
Pacific	6,855	14,115	20,970
Lewis	31,015	45,285	76,300
Skamania	2,520	8,755	11,275
Total	94,800	148,345	243,145
Percentage unincorporated:		61%	

Table 5: Population Density

Population Density	Per Square Mile
Mason	64
Grays Harbor	38
Pacific	22
Lewis	32
Skamania	7
Average	32

Washington State Office of Financial Management 2012

As table 4 demonstrates, 61% of the population in this economy lives beyond the borders of incorporated municipalities. The high number of unincorporated residents suggests relative isolation. In addition, the regional population density is 32 individuals per square mile, well beyond the population density definition of rural areas (100 individuals per square mile) (Table 5). Together these two components, unincorporated populations and population density, display

the relative isolation of this regional economy. Unlike a metro study area, in which consumers can travel a short distance to spend money outside the study area, this five-county study area is isolated. The isolation of populations in these five counties suggests that individuals are unlikely to travel regularly beyond the boundaries of this study area to make purchases.

Table 6: Broadband Interest Access

Broadband Access	Population	Population Without Access	Percentage Without Access
Mason	61,450	6,933	11.28%
Grays Harbor	73,150	12,751	17.43%
Pacific	20,970	3,990	19.03%
Lewis	76,300	14,047	18.41%
Skamania	11,275	2,972	26.36%
Total	243,145	40,693	

Total Percentage Without Access	16.74%

Federal Communications Commission: Eighth Broadband Progress Report 2013

One in six individuals in this region do not have broadband Internet access. Beyond the issue of physical capacity, adoption in American rural communities lags due to high cost and general rural reluctance. According to the Federal Communications Commission, 100 million Americans (mostly rural citizens) have chosen to forgo broadband access (FCC, 2013). Although it is not clear how many individuals in southwest Washington chose not to access broadband, it is assumed that the percentage with access is greater than the actual usage number. Two other factors limit online purchases: elderly populations and the general consumption bundle. The percentage of individuals over the age of 65 in the five counties is 19.7%, compared to the state average of 13 % (OFM, 2013). Elderly individuals are typically less likely to utilize the Internet than the general population. The consumption bundle for EITC recipients suggests that only a limited amount of consumption could leak out of the regional economy through online sales. In

the model, 80% of expenditure is on staples: housing, food, transportation, and healthcare. This leaves a limited amount of consumption for online purchases.

The analysis presented above suggests that the two sources of leakage from the local economy, online sales and physical purchases beyond the boundaries of the study area, represent only 25% of the total consumer expenditure. The relative isolation of the regional economy represented by the limited population density and large unincorporated populations suggests that individuals are unlikely to travel regularly beyond the study area to make purchases. Clearly, some expenditure does leak through physical purchases outside the regional economy. The other source of leakage, online sales, is limited by several factors. Broadband Internet is limited and adoption is far from universal, suggesting online retail subsumes a lesser proportion of purchases in the study area than the proportion in a metro study area. Populations in these five counties average nearly 20% over the age of 65. There are strong data linking limited Internet use and populations over 65 years of age. The final factor is that low-income individuals spend 80% of their income on staple products that are not easily purchased online. Together, the relative isolation and limited use of online retail by the EITC recipient population in these five counties suggest that a geographic consumption coefficient of .75 is an accurate estimation.

Results:

Current Benefit Structure:

Impact Type	Employment	Labor Income	Output
Direct Effect	211	$7,490,201	$19,153,951
Indirect Effect	24	$808,480	$2,777,527
Induced Effect	32	$1,061,404	$3,861,964
Total Effect	267	$9,360,085	$25,793,442

Under the current distribution, $36,200,241 dollars in EITC expenditures from recipients creates 267 jobs, $9,360,085 dollars in labor income and $25,793,443 in total economic output. The direct output is $19,004,515 only 52% of the original expenditure. There are three reasons for the diminished direct output: geographic consumption, regional purchases coefficient, and gross retail margin. As stated earlier, the assumed 25% of EITC benefits are utilized outside of the regional economy. Beyond the reduction due to consumption leakage, these five counties are not economically self-sufficient. Most of the industries affected by the demand change had a limited economic footprint in the regional economy. For example, the telecommunications industry experienced a million dollar direct demand increase, however only 30% of that economic activity occurred in the regional economy. Increased demand for industry output required supply purchases, outside of the region. The third reason is gross retail margin. While local retail establishments increase employment significantly, a majority of the economic output is transferred to the larger corporate structures and foreign suppliers.

Employment Impacts:

Most Affected Industries	Employment	Labor Income	Output
Retail Food and Beverage	39	$1,269,172	$2,652,801
Service Stations	22	$887,306	$1,922,466
Restaurants and Bars	22	$452,352	$1,330,560
Finance and Insurance	17	$590,268	$1,977,207
Real Estate and Rental	16	$230,939	$2,743,614
Education services	15	$653,846	$804,934
Personal Care and Household Services	13	$467,091	$767,534
Automotive Establishments	11	$468,376	$959,778
Local Transit	8	$438,391	$250,214
Community services	7	$262,733	$404,159

The areas of largest job creation match the consumption bundles for low-income individuals. Food services, (both retail and restaurants) top the chart with rental companies, financial services providers, and educational institutions close behind. Beyond the obvious connection between demand and job creation, there is a clear difference between demand change and job output. The demand change for personal care and household services was a small fraction, 1.25% of EITC expenditure and yet it produced 13 jobs, a ratio of $34,615 dollars per job. Whereas retail food and beverage represented 10% of EITC expenditure, but contributed 39 jobs, a ratio of $92,307 dollars per job. The dramatic difference between job outputs directly corresponds to the localized impact of the non-retail service industry. Demand for hairstylists, pet groomers and repair people created strong indirect and induced effects. The larger takeaway here is that EITC receipts would have a significantly larger impact on the local economy if recipients purchased goods and services.

The overall ratio of EITC expenditure to job creation was $135,000 per job, and industries with the highest regional purchases coefficients had lower ratios. Without a comparable job-creation ratio, this number seems to suggest an inefficient method for job creation. However, when compared to the American Recovery and Reinvestment Act, as well as the Washington State Department of Transportation ratios, the EITC numbers are comparable at least, or more efficient. Depending on the job savings created by the ARRA, between 6.4 million and 3 million jobs, the ratios are $129, 843 per job and $277,000 per job (CBO, 2013). According to the transportation project figures, infrastructure projects in the State of Washington create a job for every $202,091 dollars of investment (WSDOT, 2014). Clearly, job creation is only one rubric by which to measure both the ARRA and transportation expenditures. However, as a job-creating tool, the EITC provides significantly more efficient results, by comparison.

Fiscal Impact:

State and Local Taxes:

Unemployment Insurance	$29,314
Sales and Use Taxes/ B&O Taxes	$2,235,769
Licensing Fees and Other Taxes	$32,260
Total	$2,297,343

Federal Taxes:

Payroll Taxes	$1,024,063
Personal Income Taxes	$592,567
Excise and Import Taxes	$277,831
Corporate Income Tax	$330,677
Total	$2,225,138

The fiscal picture does not include the property tax effects on the local economy, which could be more significant, as 13.5% of property taxes go to cities, and a smaller portion of sales revenue (OFM, 2014). The incomplete fiscal picture suggests that the federal government, and state, take a similar $2.2 million dollars in revenue. Washington State's portion, even without property taxes, is significant displaying the regressive nature of the tax structure. Low-income purchasing power contracts by at least 9 % (sales tax rate vary among the five counties). The diminished effect of Federal EITC suggests that by offering an EITC credit at 10% of the federal benefit, the state of Washington could restore the total effect of the credit.

Limitations:

Consumer Bundle

The initial regional input-output analysis was based on the assumption that the national low-income expenditure survey conducted by the census bureau, both accurately depicts consumption in these five counties, and that EITC expenditures fall within the same pattern. The potential for regional variation does exist. The consumer bundle for individuals making less than $50,000 dollars annually in Southwest Washington could be statistically different from the national aggregate. For example, the national survey finds that low-income individuals spend 38.43% of their income on housing needs. A region specific survey may find a lower percentage spent on housing needs. Conducting a regional consumer survey would correct this data limitation.

The second limitation associated with the consumer bundle concerns the relationship between "normal consumption" and EITC consumption. The assumption that EITC consumption and normal consumption fall in the same range limits this analysis. This methodological assumption is utilized in the four other studies of the impact of the EITC on local economies (Policy Matters Ohio 2012, Nashville Wealth Building Alliance 2005, Texas Perspectives 2003, Jacob France Institute 2004). Other research on the EITC presents a potentially complicated consumption response to EITC benefits. The work of Mammen and Lawrence, while reaffirming the "spender" assumption about EITC

recipients and demonstrating that low-income individuals cannot meet monthly financial requirements, suggests that the lump-sum nature of the EITC restructures the consumption bundle (Mammen and Lawrence 2006). The results are as follows; 44.2% paying bills and loans, 23.8% improve access to transportation, 20.4% purchase consumer non-durables, 18.4% establishing savings and build assets, 10.9% purchase durables, 10.9% enjoy benefits of windfall income, 3.4% increase human capital (Mammen and Lawrence, 2006). The central issue is that the survey questionnaire did not structure the data in a general consumption profile. The EITC expenditures utilized to "pay bills and loans" lack categorization that would allow input-output modeling. Were the "bills" telephone bills or overdue rent payments? Were the "loans" payday lender obligations or car loan payments? The ambiguity created by Mammen and Lawrence's assessment of EITC expenditures renders the findings ineffectual in economic modeling. However, this study, and other work by the Brookings Institution, does cast doubt on the ability of standard consumption models to accurately depict the impact of the EITC on local economies.

The Brookings Institution considers EITC expenditure to fall outside normal consumption patterns through a construct called the "EITC moment", (Brookings Institution, 2012) however there is limited academic research on the "EITC moment". Without a consumption profile for the "EITC moment", input-output modeling is not possible. The implications of the "EITC moment" on this analysis could undermine the assessment of the EITC on the regional economy from two factors: jobs output and saving profile. If EITC expenditures were to follow a different consumption pattern, then the jobs impact would differ from the impacts stated in this study. For instance, if the

work of Mammen and Lawrence were to hold true, then the jobs output for retail food and beverage would shift to other sectors, including finance and auto sales. These industries could possess a higher or lower employment multiplier effect; therefore, the absolute effect of job creation cannot be determined.

As suggested by Edin and Lein, as well as by Mammen and Lawrence, (Edin and Lein 1997, Mammen and Lawrence 2006), the current model assumes a near-zero saving rate. Low-income individuals do not have enough income to cover annual expenses and therefore cannot save money. Debt acquisition, both personal and institutional alleviates the deficit in income (Edin and Lein 1997). A potential "EITC moment" consumption profile would include a savings rate above zero. If the savings rate were significant, then the amount of economic output stated in this analysis would be overstated. Two countervailing forces limit the potentially disruptive effects of a saving rate. First, low-income populations tend to be under-banked. According to the FDIC, 29.3 percent of households do not have a savings account (FDIC, 2013) therefore it is unlikely that potential consumption could seep out of the local economy through the purchase of financial instruments such as bonds, CD's or IRA accounts. Second, instead of representing consumption leakage, an increased savings rate would represent consumption smoothing. Unless EITC funds consisted partly of savings deposits on a year over year basis, the "temporal" saving rate would simply mean that recipients are saving money for consumption later in the year.

Although a lump sum or "EITC moment" consumption profile does question the consumption profile presented in this analysis, the doubts do not significantly undermine the overall economic impact stated in this analysis. The analysis of Mammen and

Lawrence, instead of weakening the current analysis, points to the EITC benefit as a consumption-smoothing tool. As stated, low-income individuals end the financial year at a deficit, which generally leads to long-term debt. Income does not cover the expenses incurred in a year. However, the EITC presents a way to end the debt cycle. In the financial year EITC recipients with the knowledge of the coming credit, consume what is necessary without concerns of accumulating debt. At years end, they utilize their EITC to pay off debts, which clears the way for the next year's consumption. The consumer bundle remains the same, except that EITC benefits allow for smooth consumption through the year.

Geographic Consumption:

The geographic consumption profile represented in this study does not come from survey data, but rather on assessment of the factors that lead to consumption leakage outside the regional economy. For the indirect and induced effects stated in this analysis, the IMPLAN model provides regional purchases coefficients for each industry. The direct effects based on direct demand changes from EITC expenditures utilize a 75% geographic consumption model. Direct demand immediately shrank by 25%, to account for consumption leakage. This 25% reduction represents EITC expenditures that occur outside the geographic boundaries of the regional economy, either through physical purchases or through online retail. The assumption of 25% is based on relative isolation, lack of broadband Internet access, and the fact that large portions of consumption by EITC recipients are not purchased through online purchases.

Incomplete Fiscal Picture:

The fiscal impact presented in this study is incomplete because the impact of property taxes on local government lacks assessibility. Property tax revenue represents a significant portion of revenue for local service provision. A significant number of local taxing authorities outside the state utilize property tax revenue including: cities, counties, schools, parks, fire districts, emergency services and libraries. Undoubtedly, EITC expenditures have an impact on local area service provision that lacks determinability by applying the IMPLAN model.

Future Research:

Future research consists of two categories: future research for the current distribution, and future research for an expanded EITC. A comprehensive survey of EITC recipients and a study of tax property revenue, alleviate all three limitations of the analysis of the current distribution of the benefit. A comprehensive survey of EITC recipients would create a consumer profile for both expenditures and the leakages of consumption outside the regional economic. The survey would need to produce an IMPLAN-compatible breakdown of direct demand from EITC recipients. The property tax assessment would determine the relationship between direct demand from consumption and property tax revenues. This study would have implications for government budgeting beyond the EITC.

Conclusions:

The current distribution of the EITC has a minor, but significant effect on the five counties modeled in this analysis. The impacts assessed would not have existed without the EITC. Beyond the impacts of the EITC, the analysis determined that a greater emphasis on local

expenditure could significantly increase the impact of the EITC. Locally owned and supplied businesses have a dynamic impact on economic growth and job creation. Multiplier effects for personal services and food establishments produce economic impacts far greater than retail and financial services. A public outreach campaign designed to convince EITC recipients to utilize benefits in the local economy could create a significant increase in the economic impact of the EITC. The regressive nature of Washington's tax structure creates a benefit tax of nearly 10%. In 2008, Washington State created a State EITC benefit worth 6% of the federal amount, with a plan to increase that amount to 10% of the federal by 2012. This measure was never funded. Funding the state EITC could eliminate the benefit tax on EITC recipients caused by a regressive tax structure.

This study has concluded that the five counties of southwest Washington represent a strong test area for a potentially expanded EITC benefit structure. The expanded or regional development EITC should accomplish four objectives: produce a living wage for recipients, end federally defined poverty for even part-time workers, provide surplus capital for investment in human development, and support local area economic development. Adjusting the benefit structure for each of the eight groups of recipients achieves these objectives. For each group, the benefit will phase in until the minimum wage and phase out after the living wage. In order to determine the fiscal impact of this expanded EITC structure, a complete tax profile of the five-county area is required. The expanded structure will add new beneficiaries, but limit the nominal value of the credit due to increased tax liability. IRS data for filing status, number of dependents, income, credits and general tax liability will allow for a program accounting of beneficiaries and increased cost. By completing a thorough fiscal impact and economic impact analysis, policymakers can weigh the relative benefits of the expansion against both budgetary concerns

and other welfare transfer systems. The current EITC has become the most effective general population poverty alleviation tool at the disposal of policymakers, and a regional development EITC represents the unrealized potential of this policy mechanism.

Citations

Barrow, Lisa and Leslie McGranahan. "The Earned Income Tax Credit and Durable Goods Purchases". *Federal Reserve Bank of Chicago*. 2000

Berube, Alan. "Using the Earned Income Tax Credit to Stimulate Local Economies." *Brooking Institution.* 2005

Browning, Edgar. "The Effects of the Earned Income Tax Credit on Income and Welfare." *National Tax Journal* Vol. 48, No. 1 (March, 1995), pp. 23-43

Bureau of Economic Analysis and Research. Government Transfers by County. 2012

Bureau of Labor Statistics: United States Department of Labor. "Youth Unemployment Rate". July 2013

Burkhauser, Richard V. "Public Policies for the Working Poor: The Earned Income Tax Credit versus Minimum Wage Legislation" *Institute for Research on Poverty*. 1996

Congressional Budget Office: "Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output Through December 2012" 2012

DeNavas-Walt, C., Proctor, B.D. & Smith, J.C. "Income, Poverty and Health Care Insurance coverage in the United States." *US Census Bureau*. 2010

Dahl, Gordan and Lance Lochner, "The Impact Of Family Income On Child Achievement: Evidence From The Earned Income Tax Credit," *American Economic Review* 2012

"Earned Income Tax Credit Parameters, 1975-2009" **Brookings Institution**, 2014

"Earned Income Tax Credit Promotes Work, Encourages Children's Success at School, Research Finds" *Center on Budget and Policy Priorities*. 2013

Edin and Lein. Post-Welfare Poverty and Policy Persists in Rural America. New Haven: *Yale Univ. Press*. 1997

Edwards, Ryan. "Macroeconomic Implications of the Earned Income Tax Credit". *National Tax Journal* Vol. 57, No. 1 (March, 2004), pp. 45-65

Eissa, Nada, and Hilary Williams Hoynes. "Taxes and the Labor Market Participation of Married Couples: The Earned Income Tax Credit." *Journal of Public Economics.* 2004

Eissa, Nada, and Austin Nichols. "Tax-Transfer Policy and Labor Market Outcomes." Paper prepared for 2005 AEA/NEA Joint Session, "Skills, Policy and Labor Market Outcomes Across Demographic Groups" 2005

Ellwood, David T. "The Impact of the Earned Income Tax Credit and Social Policy Reforms on Work, Marriage, and Living Arrangements." In B. Meyer and D. Holtz-Eakin, eds., Making Work Pay: The Earned Income Tax Credit and Its Impact on America's Families. New York: *Russell Sage Foundation*. 2001

Evans, William N. and Craig L. Garthwaite. "Giving Mom a Break: The Impact of Higher EITC Payments on Maternal Health". *National Bureau of Economic Research*. 2010.

Federal Communications Commission. "Eighth Broadband Progress Report" 2013

Federal Deposit Insurance Corporation. "National Survey of Unbanked and Underbanked Households" 2013

Cherry, Robert, and Max B. Sawicky. "Giving Tax Credit Where Credit Is Due." Washington: *Economic Policy Institute*. 2000

Chetty,Raj, John N. Friedman, and Jonah Rockoff, "New Evidence on the Long-Term Impacts of Tax Credits," *Statistics of Income Paper Series*, November 2011

Green, Autumn. Patchwork : Poor Women's Stories of Resewing the Shredded Safety Net. Affilia: *Journal of Women and Social Work*. 2013

Greenstien, Robert. "The Earned Income tax credit: Boosting Employment, Aiding the Working Poor." *Center on Budget and Policy Priorities* 2005

Grogger, Jeffery. Welfare transitions in the 1990s: The economy, welfare policy, and the EITC. *Journal of Policy Analysis and Management* 2001
Gruber, Johnathan. Public Finance and Public Policy. *Worth Publishers* 2011.

Hoffman, Saul D., and Laurence S. Seidman. Helping Working Families: The Earned Income Tax Credit. Kalamazoo, MI: W.E. *Upjohn Institute for Employment Research* 2003

Holt, Steve: "The Earned Income Tax Credit at Age 30: What We Know". *Brookings Institution*, 2006

Hotz, V. Joseph, Charles H. Mullin, and John Karl Scholz. . "Trends in EITC Take-Up and Receipt for California's Welfare Population, 1992–1999.". *Institute for Research on Poverty*, University of Wisconsin, Madison 2003

Hoynes, Hilary W. , Douglas L. Miller, and David Simon, "The EITC: Linking Income to Real Health Outcomes," *University of California Davis Center for Poverty Research*, Policy Brief, 2013.

Hoynes, Hilary W. , Douglas L. Miller, and David Simon, "Income, The Earned Income Tax Credit, and Infant Health," *NBER* Paper No. 18206, July 2012

Jensen, L. New immigrant settlements in rural America: Problems, prospects, and policies. *The Carsey institute at the Scholars Repository*. 2006

Jacob France Institute, "The Importance of the Earned Income Tax Credit and Its Economic Effects in Baltimore City" (University of Baltimore, 2005)

Leigh, Andrew. "Who Benefits from the Earned Income Tax Credit? Incidence Among Recipients, Coworkers and Firms." *University of Chicago*. 2003

Lichter, Daniel and Leif Jensen. "Rural America in Transition: Poverty and Welfare at the turn of the 21th century". *Upjohn Institute for Employment Research*.

Maag, Elaine and Adam Carasso. "Taxation and the Family: What is the Earned Income Tax Credit?" *Tax policy Center*, 2014

Mammen, Sheila and Frances Lawrence. "The Earned Income Tax Credit and Rural Families: Differences between Participants and Non-Participants". *University of Massachusetts Amherst: Department of Resource Economics*. 2006

Mankiw, N. Gregory. "The Savers-Spenders Theory of Fiscal Policy". *American Economic Review*, 2000, v90(2,May), 120-125

Marr, Chuck and Chye-Ching Huang and Arloc Sherman. "Earned Income Tax Credit Promotes Work, Encourages Children's Success at School, Research Finds" *CBPP* 2014

Meyer, Bruce D. 2001. "Taxes, Welfare, and Work by Single Mothers." NBER Reporter Online.

Cambridge, MA: *National Bureau of Economic Research* December 2005

Meyer, Bruce and Dan Rosenbaum. "Welfare, the Earned Income Tax Credit, and the Labor Supply of Single Mothers." *Quarterly Journal of Economics*. 2001

MIG, INC. Implan Pro User Guide. 2004

Mikelson, Kelly S., and Robert I. Lerman. "Relationship Between the EITC and Food Stamp Program Participation Among Households with Children." Washington: U.S. Department of Agriculture, *Economic Research Service*. 2004

Neumark, David. Using the EITC to Help Poor Families: New Evidence and a Comparison with the Minimum Wage. *National Bureau of Economic Research*, 2001

Neumark, David, and William Wascher. 2000. "Using the EITC to Help Poor Families: New Evidence and a Comparison with the Minimum Wage." Working Paper 7599. Cambridge, MA: *National Bureau of Economic Research*

Nashville Wealth Building Alliance. " The Economic Impact of the Earned Income Tax Credit on the Greater Nashville Area". 2005

Policy Matters Ohio. "Cuyahoga County EITC Coalition Evaluation". Asset Building 2012

Rothstein, Jesse. "Is the EITC as Good as an NIT? Conditional Cash Transfers and Tax Incidence". *American Economic Journal: Economic Policy*. 2009

Shapiro, Isaac. "New Research Findings on the Effects of the Earned Income Tax Credit" *Center on Budget and Policy Priorities*. 2003

Stegman, Michael A., Walter R. Davis, and Roberto Quercia. 2003. "The Earned Income Tax Credit as an Instrument of Housing Policy." Washington: *Brookings Institution*

"Value of Federal Earned Income Tax Credit". Center on Budget and Policy Priorities. 2012

Texas Perspectives, Inc., "Increased Participation in the EITC in San Antonio" 2003

Trading Economies. "United States Unemployment by County". 2012

Treyz G. I. and Stevens B. H. The TFS regional modelling methodology, *Reg. Studies* 19, 547–562. 1985

Triest, Robert. The Efficiency Cost of Increased Progressivity. *National Bureau of Economic Research*. 1993.

United States Department of Commerce: Bureau of Labor Statistics. “County Profiles”. 2012

Washington State Department of Transportation. “Distressed Areas and Rural Counties in Washington”. 2012

Washington State Department of Transportation. “American Recovery and Reinvestment Act (ARRA)” 2013

Washington State Office of Financial Management: Population Statistics 2012

Zelenak, Lawrence. “Tax or Welfare-The Administration of the Earned Income Tax Credit”. *UCLA Law Review* 2004.

Ziol-Guest, Kathleen M. , Greg J. Duncan, Ariel Kalil, and W. Thomas Boyce, “Early childhood poverty, immune-mediated disease processes, and adult productivity,” *Proceedings of the National Academy of Sciences of the United States of America*(October 16, 2012), 17289-17293.