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Low-Income Weatherization:
Practical and Policy Limitations
to Increasing Services in Rural Oregon

by

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1. INTRODUCTION

This essay examines the low-income weatherization program (Wx) in rural Oregon, shedding light on difficulties in increasing weatherization services to low-income rural households. This essay also identifies policy limitations. There are strict rules in place for utilizing Department of Energy weatherization funding and some of these rules are likely to make it difficult for agencies serving rural areas to accommodate a larger portion of low-income households. These rules, coupled with the spatial distribution and economic circumstances of rural populations, compound both the need for and difficulties in delivery of weatherization services for low-income households in rural areas. This essay addresses these questions: Are rural regions under-served by the program? What are the difficulties in reaching and delivering services to more rural households? Is it the case that policy mandates make it more difficult to increase service delivery in rural areas? What role does the spatial distribution of the population and rural economy play in delivering services to households in rural areas?

Background and Significance: Rural communities are characterized by sparse populations distributed over large areas. Welfare reform literature specific to rural areas identifies household difficulties in procuring employment as “lack of transportation, low human capital. . . as well as a lack of job opportunities.” [1] In the absence of any scholarly literature specific to delivering weatherization services to rural households, the literature on rural welfare programs provides some basis for answering the questions raised about delivery of social services in rural areas. That literature reports on how demographic, economic, and geographic characteristics of rural communities make them more difficult to serve. In sum, “. . . structural and human capital disadvantages inherent in the history and culture of the areas and the general weakness of their local economies” preclude greater success in implementing policies to help low-income households.[1]

The low-income weatherization program is designed to decrease overall energy use and to help reduce the cost of home heating/cooling expenses for low-income households. The program has been assessed as being effective in reaching this goal when household weatherization takes place.[2] The program also increases employment opportunities for rural residents to become employed in green jobs as weatherization relates to energy conservation. There are, however, difficulties with inconsistent funding, higher expenses, and training for required worker certifications involved in delivering these services to rural households at the same rate as can be achieved in metropolitan areas.

Since weatherization services are delivered in Oregon through community action agencies (CAAs), interviews with weatherization program directors at CAAs serving rural communities can provide insights into unintended consequences or limitations of state- and federal-level policy mandates. This information will give state agencies the opportunity to determine an appropriate course of action for better utilizing low-income weatherization funding at higher production levels in rural Oregon and to help identify what, if any, policy adjustments may be needed.

I begin with a general description of the weatherization program, program funding, and a discussion of empirical research related to the effectiveness of the program in terms of benefits to low-income households and environmental benefits. Included in this section are potential difficulties in delivering weatherization services due to policy mandates in general and with respect to rural areas in particular. Next, is a brief history of the weatherization program identifying funding and programs. Third, a review of literature on welfare reform is included to examine issues specific to delivering services in rural areas and low-income households. This review serves to describe economic circumstances in rural areas, the spatial distribution of rural populations, and the demographics of low income populations in rural areas. Fourth, a discussion on defining rural is necessary in order to outline the specific areas being examined in

this study. The weatherization program does compensate, to some extent, for additional expenditures involved in delivering weatherization services in rural areas so a discussion of how the state defines rural compared to other ways of defining rural is included.

Following the rural discussion is qualitative data collected through interviews with program coordinators and directors at the state and local level. Respondents work for agencies serving both rural and urban areas, providing comparative data for identifying what issues may be uniquely 'rural'. This section includes a review of the weatherization program discussing limitations for agencies serving rural communities that may derive from policy mandates and from difficulties for individual rural households in obtaining services. Finally, this essay ends with a discussion of findings relating the weatherization program to rural agencies and low-income circumstances followed by a presentation of potential solutions and recommendations for further research.

2. THE WEATHERIZATION PROGRAM

2.1. Basic Description.

Low-income households have trouble keeping up with the high cost of home energy and bear a greater cost burden with respect to household budgets. These households pay a higher percentage of their incomes on home energy, sometimes as much as 35 percent or more, compared to more affluent households who pay about 6 percent.[4] Households with high energy burden commonly accumulate arrearages (late bills) resulting in collection costs for providers and disconnect charges to low-income households. It is expected that as the US government pursues mechanisms to reduce emissions and implement renewable energy sources, the cost for home energy will rise even more.[5]

Low-income weatherization services (Wx) are funded through the federal Weatherization Assistance Program (WAP) and 15 percent of the federal Low-Income Home Energy Assistance (LIHEAP) block grant.[6] Both WAP and LIHEAP funding have been inconsistent from year to year and insufficient to meet current needs overall. Petroleum Violation settlement funds (PVE) and the Bonneville Power Administration (BPA) also provide some federal funding. PVE funds are limited and sporadic. The state of Oregon also funds Wx services through the Oregon Energy Assistance Program (OEAP) with a portion of the Public Purpose Fund (PPF, SB 1149).[7] Other non-profit charitable organizations collect funds and provide a variety of energy efficiency services to low-income households. These charitable contributions are also filtered through CAAs but cannot be combined with federal funds.

Previously households qualified for energy efficiency services by demonstrating that their household income did not exceed 60 percent of Oregon's median income level (roughly 150% federal poverty level).[3] However, the current rules governing the use of new funding through the American Recovery and Reinvestment Act (ARRA) for weatherization state that qualifying household income is set at 200% of the federal

poverty level (FPL) for their respective family size.[8] This will increase the number of eligible households so that, coupled with increased funding, it is necessary to increase delivery of services. The weatherization program serves income-qualified households with priority given to the elderly (60 years and older), disabled, and households with children age 6 and under.[8]

Upon qualification, low-income households may receive an energy efficiency audit of the dwelling. Weatherization services include a variety of energy efficiency measures. Caulking, weather stripping, and compact fluorescent light bulbs are most common. If the audit reveals more extensive efficiency or health issues the client may be placed on a waiting list for full weatherization services. Some agencies do not keep waiting lists and only make referrals if and when the agency can readily perform the work. More extensive weatherization measures include, but are not limited to, insulation installation, window replacement, furnace repair/replacement, refrigerator replacement, and water damage/mold repairs. Most recently, through a pilot program in Lane County, solar water heaters may be placed in dwellings with at least 4 inhabitants.[15]

The weatherization program is necessary and beneficial for low-income households and their respective communities. Weatherization programs stimulate local economies by enhancing the spending capacity of low-income households for other necessities and creating “jobs and economic activity at local businesses.” In general, “for each job associated with the weatherization program, another 1.3 jobs are created locally.”[9] In addition to stimulating local economies, according to the same study, households saved an average of \$274 per year on energy. This savings allows households to spend more of their budgets on other necessary goods and services.

Previously, the weatherization program was under-funded and sporadic so that agencies did not know from year to year how much funding they would have to work with. With the new federal administration in 2009, the WAP has been fully funded at

the maximum authorized level of \$5.1 million and further increased with additional funds from ARRA.[10] This makes it necessary to identify barriers to delivery of services to low-income households, to define new, higher levels of service provision along with how to accommodate increased service delivery.

2.2. History, Funding and Programs.

2.2.1. *Federal funding.* One national source of funding for weatherization programs is the Low-Income Home Energy Assistance Program (LIHEAP) block grant to states. States may use up to 15% of LIHEAP energy assistance funding for low-income weatherization programs. States may also petition for a waiver from U.S. Housing and Human Services (HHS) to use up to 25% of LIHEAP for weatherization.[6] Oregon uses 15% of LIHEAP funds and sometimes petitions for up to the maximum of 25% when needed to accommodate periodic increases in demand.

Another federal source of funding for low-income weatherization is the U.S. Department of Energy Weatherization Assistance Program (DOE-WAP), implemented under Title IV of the Energy Conservation and Production Act, 1976.[11] Both LIHEAP and WAP are administered through the Oregon Housing and Community Services department and allocations are made to Community Action Agencies (CAAs) operating within the 36 counties throughout Oregon. There are 18 CAAs serving local communities. The primary goal of DOE-WAP is energy efficiency.[8]

Duke El Paso and Williams Petroleum Violation Escrow (PVE) settlement funds have contributed to both energy assistance and weatherization programs mainly through Oregon's Energy Efficiency and Consumer Competency (E2C2) program in combination with the federal Residential Energy Assistance Challenge (REACH) grant. PVE settlement funds are collected through lawsuits resulting from the violation of anti-trust laws by petroleum companies and provide a one-time allotment of funding. PVE funds are not renewable and both Duke El Paso and Williams settlement funds are nearly depleted.

In 1980 the 96th Congress passed the Pacific Northwest Electric Power Planning and Conservation Act, Public Law 96-501.[12] Under this act, the Bonneville Power Administration (BPA) provides funding for energy conservation and weatherization in the Pacific Northwest (Oregon, Washington, Idaho, Montana) and other regions. These funds may be combined with other federal program funding.

2.2.2. Oregon's state funding. Federal LIHEAP and WAP funds are intended to act as leverage to get additional funding from other sources and can only be combined with other federal or state funding. Varying only slightly from year to year, 12 percent of the Public Purpose Charge (PPC) fund is designated for low-income weatherization. The program is titled Energy Conservation Helping Oregonians (ECHO) [through SB 1149] and this funding is administered from the Energy Trust of Oregon.[13] PPC funding is used in conjunction with WAP, PVE, BPA and LIEAP.[14] The public purpose charge is collected through a standard monthly fee on customers' billing statements. All utility companies providing sources of home energy may include this charge on their customers' billing statements. Sources of home energy include electricity, fuel oil, propane, natural gas, and in some cases, wood.

A more holistic approach to providing assistance to low-income households is the E2C2 (REACH) program. This program is specifically designed to fund pilot programs and does not provide ongoing funding for successful programs.[16] The E2C2 program offers combined services of energy-assistance payments and weatherization services. Since community action agencies are knowledgeable and capable of addressing other needs, case management services are included and range from job-search and job-skills training to more comprehensive services like connecting individuals with health care, child care, and other necessary functions in an effort to assist low-income households in becoming self-sufficient.[16]

2.3. Other Energy Efficiency Measures.

2.3.1. *Appliances.* Energy efficiency measures aside from weatherization of the shell (doors, windows, insulation, roofs) may include refrigerator replacement, heating duct sealing, furnace work, and water leakage repair. Appliance replacement programs fall under the category of weatherization because newer energy efficient appliances contribute to energy savings in terms of both dollars for low-income households and reduced kWh for lower emissions into the environment.

2.3.2. *Solar hot water systems.* A pilot program operating through Lane County Housing and Community Services (LCHCS) offers solar water heater replacement services to qualifying households. Replacing electric water heaters with solar powered models saves an estimated 2,500 kWh, or \$181.25 per year.[15] More definitive numbers will be reported after the program has collected hard data over time.

Funding for this program comes from a combination of Oregon Department of Justice (ODOJ) grant, Eugene Water & Electric Board (EWEB), USDOE weatherization grant, and an owner co-payment. The unit cost for solar water heaters is \$6,500 and the client co-payment is 2 percent (\$150) of this cost. With \$487,475 in funding, LCHCS will replace 75 hot water heaters and has submitted a 44-unit multifamily project for funding consideration to Oregon Department of Justice (ODOJ).[15]

Standard income qualification of 60 percent of Oregon median income applies for this program (under DOE State Plan 2008) but is not limited to other priority populations (elderly, disabled, children). For purposes of meeting cost effectiveness tests, this program is targeted toward households with four or more members.[15]

2.3.3. *Self-sufficiency.* The goal of self-sufficiency programs is to end dependency on bill-payment assistance through LIHEAP and other local programs. The federal REACH grant that funds Oregon's E2C2 program is one such effort. E2C2 began in

1999 offered through 18 CAAs serving all thirty-six Oregon counties and was subsequently evaluated for effectiveness. As mentioned previously the REACH program is a holistic approach to moving low-income households away from assistance by providing a variety of services aimed at self-sufficiency and reducing energy burden.[16]

Qualification for LIHEAP assistance also qualifies households for REACH assistance and those households having a 15 percent or greater energy burden are referred to the program.[16] The focus of the program is social and economic stabilization by reducing energy costs and alleviating structural health and safety issues. The primary goals are to help households:

- Reduce energy consumption
- Remain current in their fuel bill payments
- Reduce home heating and/or cooling costs
- Eliminate health and safety risks to family members

Each household has a different set of needs so the program is designed to be flexible in the services offered. Services include bill-pay assistance, energy education on efficient practices, weatherization, and case management services for budgeting. Since these services are delivered through CAAs, these agencies can also make other referrals according to the specific needs of the household.

The evaluation of the REACH program conducted by Public Policy Research indicates that the goal of sustained reduction of energy burden was achieved.[16] Using a quasi-experimental design, participants were evaluated in two groups: those receiving energy education and those receiving both energy education and weatherization. Households receiving energy education experienced a 42 percent reduction in arrearages. Households receiving both education and weatherization experienced a 48 percent reduction in arrearages. Overall, the program resulted in an average reduction in energy burden of 2.5 percent (significant at $p < .05$). Eighty percent of households indicated higher levels of comfort and energy efficiency and two-thirds

reported healthier and safer environment. The evaluation also noted the persistent difficulty with funding for weatherization services stating that “Funding limitations made it impossible to weatherize all the households that needed it.”(p. 12)

The preceding information indicates that there are many options available to help low-income households reduce their energy burden. Direct, in-kind bill-payment assistance, appliance replacement, weatherization, and holistic programs complete with case management services intended to help lift families out of poverty on a permanent basis are all subject to area-specific circumstances. These area-specific circumstances are explored in greater detail in the next section.

3. LITERATURE REVIEW: SOCIAL SERVICES IN RURAL AREAS

Literature on welfare reform refers to research surrounding the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA). PRWORA resulted in changing the former Aid to Families with Dependent Children (AFDC), an entitlement program, into Temporary Aid to Needy Families (TANF). TANF imposes time limits for participation in the program and mandates work requirements in order to reduce welfare rolls.[1] Welfare reform literature is used in examining the rural population as served by the weatherization program through community action agencies because there is a lack of scholarly literature specifically targeted to policy implications of the weatherization program.

Rural communities are characterized by sparse populations distributed over large areas. Welfare reform literature identifies household difficulties in procuring employment as including, but not limited to, lack of transportation, low human capital, and a lack of job opportunities.[1] Also common to rural areas are less job growth, and social and educational services are sometimes unavailable or far away from low-income populations. Again, "...structural and human capital disadvantages inherent in the history and culture of the areas and the general weakness of their local economies" preclude greater successes with the new TANF legislation.[1](p. 7)

Since welfare and weatherization programs both target and serve low-income, difficult-to-reach populations, this literature review serves to identify household difficulties arising from the spatial distribution of the population in rural areas. It is likely that these same barriers interfere with the delivery and receipt of weatherization services.

3.1. **Transportation.**

Using survey data from the Iowa Transportation and Employment Survey (ITES), Garasky, et. al., examined the role of transportation on the likelihood of being employed among low-income households. The measure of poverty used in this research

was 200% of the official poverty level. The authors found that “Eleven percent of low-income households do not own or have access to a vehicle; nearly all the high-income households have access to private transportation.”[17] The data also indicated that among the unemployed respondents, 57% report that a reliable vehicle is not usually available.

Transportation is necessary for clients to access the weatherization program for intake and eligibility determination. Unlike attending job training or other skills and education sessions, clients need to access the intake office once to sign up for energy assistance and/or weatherization services. With respect to the REACH/E2C2 program, however, ongoing case management services to increase self-sufficiency are likely less effective since the situation is then more similar to what is required of TANF participants—ongoing attendance in skill-building and/or educational sessions, access to employment services, and other ongoing functions involved in becoming more self-sufficient.

In turn it is also necessary for auditors to access rural households to perform an audit of the dwelling to determine the extent of weatherization needed. Auditors are expected to audit two separate dwellings per day.[3] Longer distances between clients’ households may preclude fulfillment of this mandate. If this is the case, then the additional ARRA funds cannot be used.

McKernan et. al., find that “The most serious barriers to jobs facing welfare recipients, according to most respondents, were inadequate transportation and limited access to employment services.”[18](p. 262) Data for this analysis were composed of interviews of workers and agency staff in 12 regions in Arkansas, California, Maine and Alabama. They also found that other barriers, indicated in other research and in their interviews, affect transitions to employment. These include affordable housing, access to health care, domestic violence, and emergency food and shelter services.

Reducing energy burden for low-income households makes housing more affordable. The energy savings involved can amount to a month's rent depending on the extent of the measures implemented. Reduced energy burden also allows households to better meet other basic needs including the purchase of food.

Anderson and Hoy[19] present case studies of 17 women in Oregon transitioning from TANF to work. In the Portland metro area and The Dalles, a non-metro area, unique rural challenges included transportation and job opportunities as well as skills and access to training. Even though this is a limited sample and generalizations cannot be made, it is consistent with numerous other studies that also indicate transportation, employment opportunities, lack of skills, and need for training as among some of the key elements involved in rural welfare recipients' transitions to self-sufficiency.

3.2. Low human capital—education and skills.

Human capital refers to skills and abilities that people possess related to education and training that help make them competitive candidates for jobs within the labor market. Addressing both low human capital and labor market issues, Lichter and Jensen, using pooled data from the March Current Population Survey (CPS) from 1989-1999, indicate that “Limited job skills, education, poor labor markets, inadequate transportation and inadequate child care pose serious barriers to adequate employment among many rural women.”[20] Robert Gibbs also reports that human capital factors affecting employment levels of welfare recipients include low education levels where 1/8 of rural workers obtain a college degree compared to 1/5 of urban workers.[21]

Low levels of human capital are common in rural communities. Flora and Flora indicate that, “Historically, rural areas have lagged behind urban areas in terms of the educational level of the labor force.”[22](p. 90) The employment outlook for rural

low-income (or poor) residents with limited transportation, education, and skills is bleak at best.

With respect to hiring weatherization workers from within rural communities, education and skills are an important factor in whether or not this is possible. Regulations stipulate that only certified auditors and crews may perform weatherization services. This includes workers with specialized training in air-flow, mold/mildew, roofing, insulation, heating duct and furnace repair and/or replacement, and other construction related activities.[3] This requirement is necessary for safety and for ensuring that durable, quality work is performed. Durability is essential for cost effectiveness and high quality is essential to be sure that the measures installed result in adequate energy savings. The certification mandates for weatherization workers could prove challenging for those potential workers with limited education and skills and may not really be a promising employment option for many of the rural unemployed.

3.3. Employment opportunities.

The labor market in rural areas receives much attention, especially with respect to poverty and welfare reform. Without well-paying jobs, workers cannot work their way out of poverty. Gibbs' article also examines national trends using national data and indicates that rural labor market factors include predominantly low-wage, low-skill jobs, job growth (or non-growth), unemployment, and earnings where the earnings gap between rural and urban labor markets is between 25% and 30%.[21] (p. 53)

Henry et. al. employ caseload analysis to detect differences in welfare entry/exit and examine the possible link between employment and welfare and food stamp declines. Rural areas are typically characterized by having one industry and lack work supports such as child care, public transportation, etc., while urban areas have more opportunity with trades, services, and supports.[23] Regression analysis indicates that where manufacturing is strong (indicating higher wages) there are fewer caseloads.

Where the degree of remoteness is higher and opportunity is lower, there are higher caseloads.[23]

Hoynes et. al. utilize regression analysis incorporating macroeconomic factors of wages and control for income and growth in the economy and include a natural log variable to measure inequality. Also among controls were division (spatial/regional) and year fixed effects. Hoynes et. al. established a significant relationship between labor market factors and the poverty rate where level of wages, unemployment, and inequality are good predictors of the poverty rate. They indicate that “Other factors that are often cited as having important effects on the poverty rate do not appear to play an important role. . .”[24](p. 66)

Trained employees and crews are not likely to be located in rural areas and even though training programs exist, low-income rural populations with low education, low skills, and transportation challenges are likely to be less able to take advantage of such opportunities. So not only are there fewer trained people among the population, there is also less potential for recruiting rural low-income or unemployed workers into training programs.

3.4. Low physical capital–infrastructure.

Rural regions lack infrastructure and economic development. Tickamyer et. al. indicate that rural Appalachia, with respect to “one size fits all” policies and devolution of responsibility to local governments, has a lack of resources, employment opportunities, infrastructure, social and human capital, leadership, and a lack of political influence within central government.[25]

Rural Oregon counties also have a lack of infrastructure and economic development which limits the availability of materials for weatherization. It is not feasible to transport the necessary materials from regions having products readily available to weatherize homes that may be more than a hundred miles away from material suppliers (this was indicated in a prior conversation with Dan Elliott, Weatherization

Program Director at Oregon Housing and Community Services). Also, additional households that may qualify for weatherization might also be fifty miles apart or more.

Longer distances for weatherization crews along with difficulties accessing materials also increase the per-household cost of weatherization. Policy limitations on combined cost of weatherizing each unit may be prohibitively low so that many households will not qualify for this service. The most recent changes to weatherization policy include increased funding in general and increased allowances per household so that perhaps more households may qualify. On the other hand, there is also the stipulation that every dollar spent toward weatherizing a home requires that it results in a dollar savings for the household. In other words, a one-to-one ratio in spending to savings is required.[8]

3.5. Perceived stigma.

In a study of welfare reform in rural California counties, Brady et. al. find that non-metro counties have higher levels of poverty but lower welfare use, along with shorter time periods of welfare use. This pattern suggests a higher level of stigma associated with welfare due to decreased levels of anonymity among smaller rural populations.[26] (p. 177) Gennetain et. al. also indicate that rural participants are more likely to perceive stigma associated with welfare use in rural Minnesota.[27] (p. 296) A qualitative study also conducted in Minnesota by Shelton, et. al., indicates that there is a higher degree of stigma associated with welfare use in rural areas.[28]

It may also be the case that low-income rural households perceive stigma related to the idea of “free” energy payment assistance and weatherization services. Social norms and expectations are powerful deciding factors for people to take advantage of (or not to take advantage of) assistance programs. Weatherization services are more visible than food stamps or welfare payments since it requires the presence of a crew of workers at the residence receiving services.

3.6. Satellite offices/outreach.

In attempts to overcome the distances involved in accessing and delivering services, satellite programs could prove useful. Poole and Daley examine an innovative satellite model in Arizona and indicate that the location of social service offices within rural communities increased access.[29] For the weatherization program, administrative costs are strictly limited to 5% of the allocation for each agency. This limitation prevents agencies serving rural areas from running additional offices that would serve a smaller number of clients.

3.7. Application.

The question at this point is, do Oregon's rural counties have increased poverty levels similar to the trend measured in other areas and on a national level? The graph in Figure 1 shows county poverty rates across census metropolitan status codes. The Oregon poverty rate overall for 2000 was 13%. For the most part, counties in Oregon do follow the pattern of higher poverty rates in rural areas based on Census metro codes. However, there are some anomalies where county-level classifications obscure important differences in population distributions. Whether or not these anomalies occur because of obfuscation of rural areas where urban centers exist within county boundaries or differing levels of unemployment rates is a good topic for further research. The purpose here is simply to link the findings of rural welfare research to Oregon counties and it appears that the findings fit well where counties with higher levels of urbanization have lower poverty rates and vice versa.

Poverty Rates across the Rural/Urban Continuum for Oregon Counties

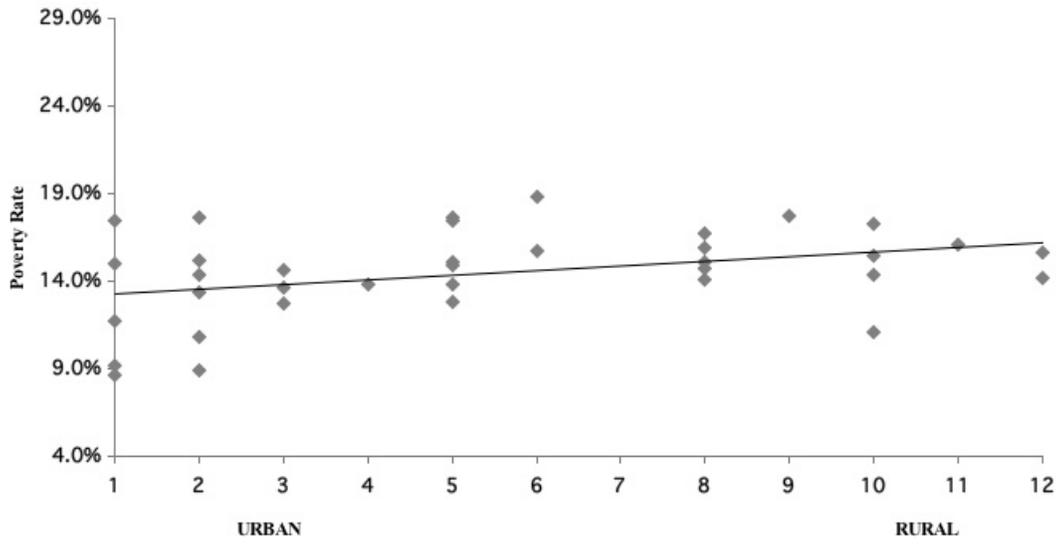


FIGURE 1. Poverty rates and county-level Census metropolitan classifications taken from the Oregon Rural Communities Explorer.

4. DEFINING RURAL

Defining a place as urban revolves around the presence of a sizable population located within a densely populated geographic area; i.e. a large town or city. Products, services, and transportation are more readily accessible in urban areas where distances are shorter and a wider variety of products and services exist where demand is greater. Defining a place as rural includes smaller populations distributed over larger geographical areas where products, services and transportation are not as readily accessible. The basic notion of ‘population density’ lies at the heart of this discussion and the terms ‘more’ and ‘less’ urban/rural are used to reflect the fact that the degree of urbanization of a given place lies on a continuum.

The weatherization program recognizes that low-income households in different parts of Oregon have differing levels of need for weatherization services; however, the differing levels of need are based on climate. The allocation formula indicates that the calculation uses heating degree days (squared) where Western Oregon has 4,500 heating degree days and Eastern Oregon has 6,000 heating degree days. Coincidentally, Eastern Oregon is also more rural. Along with heating degree days, the number of income-eligible households is also used in the formula. Unfortunately, these two factors offset each other somewhat since Eastern Oregon, having a colder climate, is more rural than Western Oregon and therefore has smaller populations distributed throughout larger counties.

A variety of definitions of rural versus urban areas are considered in this section because alternative definitions can affect budgetary allotments to different areas depending on population density and distance from urban centers. These factors relate to accessing low-income households and materials. Since the weatherization program is measuring area needs based on climate and population (number of low-income households), it may be the case that more sparsely populated areas require increased

per-unit funding in order to comply with other policy mandates such as the 1:1 ratio in the cost:savings calculation or the average allowable per-unit cost.

The weatherization program is able to track budgetary allotments by county given that CAA territories are delineated along county lines. However, any rural/urban definition system that is strictly county based will obscure rural/urban differences in costs of serving places with different population densities and levels of access to services and supplies.

The following is a brief overview of a variety of available classification systems used to define areas as metro/urban versus non-metro/rural.

4.1. Office of Management and Budget (OMB). The OMB uses county-based definitions of metropolitan, micropolitan, and metro-adjacent with all others classified as non-metropolitan.[30] Using county delineations for classifying rural and urban places obscures rural areas that may lie within county boundaries where there are also larger cities. For instance, Lane County is classified as metropolitan due to the inclusion of the City of Eugene with population 137,893. However, Lane County includes the town of Mapleton with population 2,355 that is located about an hour away from Eugene. Mapleton is, however, close to Florence with population 7,263 which is also classified as metropolitan based on a county-level classification.[31]

The inclusion of rural areas within metropolitan classifications does not allow differential funding required for social service agencies to serve areas with a more widely dispersed population. It is likely that serving rural areas is more expensive since offices are smaller (having fewer workers) and there are fewer clients (reducing the efficiency of funding).

4.2. Rural-Urban Commuting Area (RUCA). Rural/Urban Commuting Area codes (as defined by the Economic Research Service, ERS) are based on population size in conjunction with commuting behavior.[32] There are 33 RUCA codes

constructed using Census blocks and tracts. Using Census tracts offers smaller geographical areas containing reliable, measurable statistics available to researchers and policymakers. The RUCA classification system is recommended by Crandall and Weber.[34]

The RUCA classification system could be helpful in serving rural populations with services that need to be accessed on a regular basis and therefore is likely more useful for services like healthcare and welfare. Using the RUCA system for weatherization is likely more complicated than necessary since CAAs typically serve more than one county, some of which are nearly all rural so that this level of detail may be less useful.

4.3. Census Bureau. Census blocks offer the smallest unit of consistent statistical measurement and census tracts are comprised of these blocks. The Census Bureau follows a complicated algorithm which roughly translates into block groups with “population density of 1,000 persons per square mile” with additional adjacent blocks of 500/square mile added in up to 2,500. A group of census blocks totaling 2,500 or more are then designated as an urban area.

However, when using census data under this classification, data must be grouped by blocks in order to study geographically defined areas.[34] Census data is also updated every 10 years and often results in redefining areas (tracts) based on new population measurements. Reclassification is necessary as communities and their associated populations migrate and change in composition over time.

4.4. NCES Urban-Centric Locale Categories, released in 2006. The National Center for Education Statistics (NCES) classification system was developed for the purpose of determining the differing needs of rural schools based on proximity to urbanized areas rather than assessing needs based on population density alone.

Unlike the previous classification system that differentiates towns on the basis of population size, the new system differentiates towns and rural areas on the basis of their proximity to larger urban centers.

This key feature allows NCES to identify and differentiate rural schools and school districts in relatively remote areas from those that may be located just outside an urban center.[33]

The NCES system of classifying areas rests upon census definitions of rural/urban: principal city, urbanized area, and urban cluster.[33] The NCES classifications are as follows:

City

- Large Territory inside an urbanized area and inside a principal city with population of 250,000 or more
- Midsize Territory inside an urbanized area and inside a principal city with population less than 250,000 and greater than or equal to 100,000
- Small Territory inside an urbanized area and inside a principal city with population less than 100,000

Suburb

- Large Territory outside a principal city and inside an urbanized area with population of 250,000 or more
- Midsize Territory outside a principal city and inside an urbanized area with population less than 250,000 and greater than or equal to 100,000
- Small Territory outside a principal city and inside an urbanized area with population less than 100,000

Town

- Fringe Territory inside an urban cluster that is less than or equal to 10 miles from an urbanized area
- Distant Territory inside an urban cluster that is more than 10 miles and less than or equal to 35 miles from an urbanized area
- Remote Territory inside an urban cluster that is more than 35 miles from an urbanized area

Rural

- Fringe Census-defined rural territory that is less than or equal to 5 miles from an urbanized area, as well as rural territory that is less than or equal to 2.5 miles from an urban cluster
- Distant Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an urban cluster
- Remote Census-defined rural territory that is more than 25 miles from an urbanized area and is also more than 10 miles from an urban cluster

These distinctions closely approximate OMB metropolitan criteria and also reflect the need for consistent and accurate measurements of socioeconomic factors associated with rural communities. There is a need for Oregon to make distinctions of this nature in order to address the ‘two Oregons’ dilemma where the Western, more urbanized areas are relatively prosperous compared to the Eastern, more rural areas.

4.5. Specific to Oregon. The Office of Rural Policy Classification (ORPC) created by Governor Kulongoski in 2004 was an effort to address the disproportionately low level of services available in Oregon’s rural areas. The 2004 executive order outlines four levels of rural[36]:

- Frontier Rural: a geographic area that is at least 75 miles by road from a community of less than 2,000 individuals. It is characterized by an absence of densely populated areas, small communities, individuals working in their communities, an economy dominated by natural resources and agricultural activities, and few paved streets or roads.
- Isolated Rural: a geographic area that is at least 100 miles by road from a community of 3,000 or more individuals. It is characterized by low population density (fewer than five people per square mile), an economy of natural resources and agricultural activity, large areas of land owned by the state or federal government and predominately unpaved streets.
- Rural: a geographic area that is at least 30 miles by road from an urban community (50,000 or more). It is characterized by some commercial business, two or fewer densely populated areas in a county, an economy changing from a natural resource base to more commercial interests and reasonable, but not immediate, access to health care.
- Urban Rural: a geographic area that is at least 10 miles by road from an urban community. It is characterized by many individuals commuting to an urban area to work or shop, an economy with few natural resources and agricultural activities, easy and immediate access to health care services and numerous paved streets and roads.

These definitions address varying levels of proximity to urban centers as measures of population density and includes access to services (or lack thereof) as an important aspect of living in a sparsely populated area. In this sense, these provide adequate descriptions of varying degrees of isolation throughout Oregon counties. However, as

| Variable | Lane County | Eugene | Florence | Mapleton |
|-------------------|-------------|-----------|------------|------------|
| Population | 322,959 | 137,893 | 7,263 | 2,355 |
| Median Income | \$ 36,942 | \$ 35,850 | \$ 30,505 | \$ 28,727 |
| Ed. 4+yrs. | 25.51% | 37.28% | 17.47% | 14.59% |
| Urban influence | 2 | 2 | 2 | 2 |
| County definition | metro | metro | metro | metro |
| Census definition | urban | urban | not listed | not listed |

TABLE 1. Metro/non-metro classifications of places in Lane County, Or.

noted by Crandall and Weber, “it is difficult to implement from the standpoint of conducting research [because] the geographic layers...must be intersected with some base data layer.” [34](p. 16) Plotting geographical areas based on distance from a particular point does not line up neatly with areas used for data collection. See Crandall and Weber (2005) for maps showing data layers based on Census, OMB, RUCA, and Office of Rural Policy classifications.

4.6. An Example of the need for more precise definitions. An example of the dilemma involved in defining rural, or in delineating rural from metropolitan, is the case of Lane County. Selected Lane county statistics are presented in Table 1. Table 1 includes a breakdown of population, median income, education, urban influence code, and metro/non-metro status for Lane County, the City of Eugene, the Town of Florence, and the Town of Mapleton. Statistics were obtained from the Rural Communities Explorer[31] and the Census Bureau State and County QuickFacts.[35] This shows how population differences can be obscured by being buried in county-based measurements: the populations of Mapleton, Florence, and Eugene vary from 2,355 to 322,959 but all are labeled with an urban influence code (based on county-level data) of 2 ‘Small—in a metro area with fewer than 1 million residents’.¹

Another example of potential misrepresentation of a rural area based on a county classification is Malheur county. Because of the presence of Ontario with a census

¹Statistics for this section are from Census 2000 data.

classification of 5, the county classification is also 5 by proximity. In Ontario, only about .46% of approximately 11,000 people live in a rural setting while over 40% of the other 20,000+ residents of Malheur county live in a rural setting for an overall population density of approximately 3.2 people per square mile distributed over 9,887 square miles. The land area of Ontario is 4.1 square miles for a localized population density of about 2,284 people per square mile.

The same concept applies to Deschutes county where the city of Bend is located. The land area of Deschutes county is 3,018 square miles and has a population density of 38.2 people per square mile. The land area of Bend is 32 square miles and has a population density of 1,624.9 people per square mile. Based on a county classification, both Bend and Deschutes county have an urban influence code of 2. In terms of providing weatherization services, the agency serving Deschutes county also serves Jefferson and Crook counties (even more rural) adding to the square miles to be covered and lowering the population density. Further discussion of this agency appears in the next section.

The majority of statistics from the Rural Communities Explorer website are from census data and, when completed, will be linked with tract-level data for each of the 724 named places in Oregon to the greatest extent possible. The urban influence codes used by the Rural Communities Explorer, based on census designations, are as follows:

- 1 Large-in a metro area with at least 1 million residents or more
- 2 Small-in a metro area with fewer than 1 million residents
- 3 Micropolitan area adjacent to a large metro area
- 4 Noncore adjacent to a large metro area
- 5 Micropolitan area adjacent to a small metro area
- 6 Noncore adjacent to a small metro area with town of at least 2,500 residents
- 7 Noncore adjacent to a small metro area and does not contain a town of at least 2,500 residents
- 8 Micropolitan area not adjacent to a metro area
- 9 Noncore adjacent to micro area and contains a town of at least 2,500 residents

- 10 Noncore adjacent to micro area and does not contain a town of at least 2,500 residents
- 11 Noncore not adjacent to a metro/micro area and contains a town of 2,500 or more residents
- 12 Noncore not adjacent to a metro/micro area and does not contain a town of at least 2,500 residents

4.7. **Discussion.** The urban influence codes and metro/non-metro status designations in Table 1 are a result of classification based on county-level statistics. However, in comparing population sizes it becomes apparent that a town (Mapleton in this example) with population 2,355 is non-metro based on a census definition since the population is less than 2,500. A RUCA definition includes proximity in terms of commuting patterns so that Mapleton might be coded somewhat more urban since it is approximately fourteen miles from Florence. Using the NCES definitions, Mapleton fits squarely within ‘Fringe Town’. However, it seems as though Florence would fall under the category of ‘Distant Town’ with population of 7,263 (less than 100,000) and more than 35 miles from other more urban areas implying that Florence would be more rural than Mapleton. The population/distance classifications in Governor Kulongoski’s definitions of rural would place Mapleton in the urban/rural category because of proximity to Florence although only 8.26% of the economy is comprised of agriculture, forestry, fishing, and mining.[31] The urban influence code from the Rural Communities Explorer appears as 2 in Table 1 because that particular variable, for Mapleton, is based on county data. The census code that better approximates the level of urbanization for Mapleton is likely 7—noncore adjacent to a small metro area and does not contain a town of at least 2,500 residents.

So what is Mapleton? It has a small population that is near a place with three times its own population and that place is far from any other place having similar population density. Population density as a measure of number of people per geographic square mile and distance from other particular types of places (rural or urban) are the primary factors involved in determining the level of urbanization or isolation.

Census data are easy to use, they are reliable and measure variables based on more precise levels of population density. Given that Census data is widely used and relied upon for many statistical analyses and that those statistics can be broken down by very small socio-geographic areas, it seems that Census classifications dominate. So why are the more distinct Census classifications not used more widely with respect to funding for programs?

Using county level classifications is easiest but can obfuscate smaller populations that are more remote where access to products and services are limited and infrastructure is likely lacking. In order to apply a rural/urban classification system for disbursing state funds, the codes would need to be easy to use, readily accessible, specifically tied to named places, and would have to be included explicitly in policies and then accepted (approved) by the state and/or federal government as valid determinants of varying levels of need within counties due to differing levels of access and infrastructure in addition to existing factors in the allocation formula. Making more precise area distinctions in funding would result in the delivery of more weatherization services to rural, low-income households and facilitate the use of the new ARRA funds.

5. INTERVIEWS WITH STATE AND LOCAL AGENCIES

Potential issues for CAAs in delivering weatherization services include the combined functions of time and distance (transportation and access), access to available workers who can be trained, access to material supplies, time limits to use funding, and economic efficiency. Agencies are limited to a maximum average expenditure per household of \$3,055 (set to increase with ARRA funding); a time limit of two years in which to use funds (may change with ARRA); a cost-to-savings ratio of 1:1; training and certifications for auditors and crews; a maximum of 10% of allocation can be used for administrative functions for agencies receiving less than \$350,000; set amounts for training and technical assistance; and previously, agencies were exempt from paying ‘prevailing’ wages to construction workers but the newer ARRA mandates that this criteria be met regardless of whether crews are contracted or employed in-house full time.

The purpose of conducting these interviews was to gather and assess information relating to the delivery of low-income weatherization services to rural populations in Oregon as administered by community action agencies (CAAs). The intent was to identify what difficulties, if any, may occur due to policy limitations in conjunction with the spatial distribution of rural populations. It is expected that agencies serving rural areas will have difficulty increasing capacity in order to utilize recently increased levels of funding. Not only has funding increased, it has increased approximately eight-fold through ARRA along with further stipulations as to how the funding may be used. It is also expected that agencies will have difficulty recruiting weatherization workers from within rural communities due to low levels of human capital among the population coupled with training and certification mandates.

One respondent was chosen from each of two less rural regions and one more rural region in Oregon so that a comparison can be made between rural and urban counties. In Western Oregon, CAAs are serving more urban counties with smaller land areas

(higher population density) and these are located in closer proximity to urbanized areas, namely, Corvallis and Portland.

The agency serving Benton County (more urban), also serves Linn and Lincoln counties which are comparatively more rural but still encompass smaller land areas compared to counties farther east. The agency serving Clatsop County, close to Portland, also serves two other counties farther west of Portland that are more rural but very small and close to the Portland-metro area. In Central Oregon, the agency serves Deschutes county, which is somewhat urban, and Crook and Jefferson counties with larger land areas and smaller population densities.

Questions were asked in an open-ended format in order to capture an overall view from administrators' perspectives on how the program works in conjunction with policy mandates and to get a feel for aspects of the policy that may be problematic in terms of increasing service delivery. The questions asked of program administrators were:

1. Are rural regions under-served by the program?
2. What are the biggest challenges that you are currently facing in expanding the weatherization program in general? In other words, what are the difficulties in reaching and delivering services to more rural households?
3. What is it about the program that will make that difficult?
4. Are there ways that you think the program could be set up differently that would make it easier to overcome those challenges? And is it the case that policy mandates make it more difficult to utilize funding in rural areas at a greater rate?
5. What are the complications or difficulties particular to your rural area in expanding the program? And what role does the spatial distribution of the population and rural economy play in delivering services to households in rural areas?
6. What kinds of improvements in the program or additional resources would help your agency in delivering the program in rural areas?

Asking these questions in an open-ended format enabled discussions to move toward those aspects of the program that administrators felt were most difficult to deal with. In most cases, asking the first two questions resulted in answers that progressed to include information pertinent to the remaining questions. The statistics in Table 2 will be helpful in understanding the metro/non-metro status of each county along

| Agency | County | Area | Pop | /sq.mi. | Code | Allocation |
|--------|--------------|--------------|----------------|-----------|------|-------------|
| CSC | Benton | 676 | 78,153 | 115 | 2 | |
| | Lincoln | 979 | 44,497 | 45 | 6 | |
| | Linn | 2,292 | 103,069 | 45 | 5 | |
| | Total | 3,947 | 225,719 | 57 | | \$1,954,997 |
| CAT | Clatsop | 827 | 36,130 | 43 | 3 | |
| | Columbia | 656 | 43,560 | 66 | 1 | |
| | Tillamook | 1,102 | 24,262 | 22 | 4 | |
| | Total | 2,585 | 103,952 | 40 | | \$955,952 |
| NI | Crook | 2,979 | 19,182 | 6 | 5 | |
| | Deschutes | 3,018 | 115,367 | 38 | 2 | |
| | Jefferson | 1,780 | 19,009 | 10 | 6 | |
| | Total | 7,777 | 153,558 | 18 | | \$1,484,782 |

TABLE 2. County Statistics for CAA’s interviewed with ARRA allocations.

with the spatial distribution of the population for the counties served by Community Services Consortium (CSC), Community Action Team (CAT), and Neighbor Impact (NI). Answers provided by the respective agencies appear paraphrased and in italics.

5.1. **Transportation: access and delivery.** Community Services Consortium (CSC) serving Linn, Lincoln, and Benton counties, reported that there are very few difficulties reaching any part of the populations in the counties served by CSC. CSC serves a combined land area of 3,947 square miles and a total population of 225,719 with an office in each county. The main weatherization office for CSC is located in Corvallis (Benton county) which is classified as an urban center where Oregon State University is located increasing the affluence of the area. The respective population densities range from 45 in Linn County to 45.4 in Lincoln County to 115 in Benton County.

It seems that distance is not a barrier to providing services for CSC: *We perform wx services throughout all three counties. The most difficult is nearer to the coast because it’s the farthest but crews are employed year-round so when those jobs come up the crew just goes there.* It is about a one-hour drive for the weatherization crew to reach the coast from Corvallis.

Community Action Team (CAT) serving Clatsop, Columbia, and Tillamook counties also reports very few difficulties in reaching the populations in each county which totals 103,952 people distributed over 2,585 square miles with population densities ranging from 22 to 66 people per square mile. CAT reports that *Distance is not an issue and could not be an issue, we must serve them when it comes up on the list. . . it's not far enough to matter. The contractor may quote a higher price but likely not too drastic because of competition, they have an incentive to keep costs low.*

For agencies serving areas with higher population densities it seems that neither clients nor construction crews have any difficulties with access or transportation. Clients need only access the office once to sign up for services so that even though many do not own their own vehicle, they may be able to get to the available offices at least once. CSC employs in-house weatherization crews so that workers are available and ready when needed. CAT uses contractors providing weatherization services and reports no difficulties or significant extra expense in reaching clients located farther away from offices.

The situation is somewhat different for counties farther east. Neighbor Impact (NI) serving Crook, Deschutes, and Jefferson counties in Central Oregon serves a population of 153,558 distributed over 7,777 square miles with population densities ranging from 6 to 38 people per square mile. The time needed to access clients' homes with weatherization services is significantly increased, *the longer distance results in additional cost; there is much more time involved [extra emphasis on time]*. This extra expense makes it difficult, in many cases, to meet the maximum allowable expenditure per housing unit where the full array of weatherization measures are necessary. Sometimes, *our first client of the day might be 100 miles away so we can't do more than one in a day. Also, fuel costs about 15 cents more. . .* creating even more difficulty meeting cost-effectiveness requirements.

This information represents the perspective of the agency with respect to reaching low-income households and does not reflect any transportation difficulties that may prevent some potential clients from reaching the offices in order to sign up for services.

5.2. Human capital: education and skills. The DOE-WAP provides allocations for training and technical assistance so that the required worker certifications may be obtained. However, varying levels of human capital among populations located in rural vs. urban areas can affect an agency's ability to recruit and train workers. CSC reports that *training and certifications are performed at CSC as needed and employee turnover is minimal* so that accessing people with the appropriate level of education and skills does not pose a problem. CAT indicates that with the additional funding for the weatherization program they *must double the number of contractors with training certifications in lead-safe practices, mold identification and repair, etc. Trainings are infrequent and not necessarily local which will require extra time to get this in place. We will need more auditors.* Although it may take time to hire additional crews, training auditors and hiring crews is not expected to pose a problem in NW Oregon.

The situation is different for NI where the counties served are more rural: *larger populations (in other areas) have more people to draw workers from. We've put out a request for qualifications and haven't seen any at all yet.* NI also receives what is termed 'floor funding' which is the most minimal allocation for training and technical assistance (T&TA) and so they *must leverage more funding for training. Ninety-nine percent of the trainings are in the [Willamette] valley so we have to pay for a week's stay.* In this case, not only is there a smaller pool of workers to draw from, the allocation for training is insufficient to accommodate the additional time and distance associated with this aspect of the program.

5.3. Physical capital: infrastructure and supplies. For agencies serving larger populations over smaller areas, infrastructure does not appear to pose a problem. CSC has access to Albany, Corvallis, Waldport, and Newport making it less difficult

to access insulation, wood products, and other supplies needed for weatherization at cost-effective rates. Likewise, in Clatsop and Columbia counties, CAT has access to Astoria and the Portland-Vancouver areas where products are readily available. Tillamook is the most rural county served by CAT and the use of contractors makes it so that the crews performing the work are responsible for locating supplies as needed. Since those contractors are in the construction business full time it appears that they have their own sources for materials and supplies thereby alleviating CAT of any difficulties involved with access to materials.

For NI in Central Oregon, *funding is based—at least in part—on population but delivering these services costs more in rural areas. We don't have suppliers providing materials at wholesale prices; therefore cost effectiveness is difficult to accommodate.* The efficiency mandate that \$1 in weatherization measures must result in \$1 energy savings for the household requires the use of products that are priced as low as possible.

5.3.1. *Meeting the 1:1 ratio in cost:savings.* For CAT, the most prominent aspect of the DOE-WAP policy that caused difficulty was meeting the 1:1 ratio of cost:savings for retrofit measures installed. The 1:1 cost:savings mandate addresses economic efficiency of program expenditures. This ratio is calculated by computer prior to the actual installation of materials. The 1:1 ratio is difficult to accommodate because not only do prices fluctuate according to the market functions of demand and supply but now, according to CAT, the Davis-Bacon mandate *raises the per-unit cost and may throw off the 1:1 ratio.* However, this will not be known until after agency capacity increases.

The market fluctuations were also noted by NI: *four years ago we had three price increases in insulation. [At that time] it was a demand issue during the building boom. Prices are subject to the market.* NI, as with all other CAAs, is also subject to the

Davis-Bacon mandate and may also find that it further complicates meeting the 1:1 ratio in cost:savings.

5.4. **Satellite offices.** Neighbor Impact, being required to traverse longer distances, indicated another expense where additional offices must be maintained to accommodate client access, *We must run extra office space in each county at additional cost; we pay for offices located in each county to provide services.* Other agencies operate additional offices but also spread the cost over a larger client base. Not only are additional offices needed to serve smaller populations that are highly dispersed (with smaller budgets), there is the issue of a tracking and reporting mandate where *at every job we must interview [workers] and document worker pay.* This is the same for all CAAs but is more problematic with respect to much longer distances and the time involved in satisfying this rule. CAT also noted this difficulty and indicated that it seems unnecessary to perform this task for the same worker(s) *on every job.* For CAT, it is not necessarily the distance involved (in terms of time) in visiting every job for tracking and reporting but instead is the redundancy. CAT coordinates as much as possible with auditors to include these functions in routine visits to work sites but coordination is not always an option.

5.5. **Employment: prevailing wages and the Davis-Bacon Act.** In addition, the new funding through ARRA indicates that construction workers must be paid prevailing wages (per Davis-Bacon Act) whereas previously, in Oregon, this was not the case. Even though the per-unit maximum allowable expenditure has increased, paying prevailing wages to all workers (whether in-house or contracted) may cause difficulty meeting the 1:1 ratio for CAT. CAT uses contracted crews, hired through a bid process, to perform the work of weatherizing low-income homes so this additional mandate requires that contractors include prevailing wages to workers in job-pricing:

It hasn't been our business to know what contractors pay their workers; we check for license/bonding/insurance and include forms describing conditions (for the contractor) in working for the agency.

For CSC, this is not the case. CSC keeps four crews on staff full time and pays prevailing wages to those crews so the additional Davis-Bacon mandate will not cause any changes in process. But for NI, *literally, a worker in Bend [metro area] will get paid the same as in LaPine [rural area]; and if we can find someone to train, we struggle to pay them a competitive wage.* In fact, looking at the Department of Labor website (reference [37]) it is not clear to anyone unfamiliar with the specifications what rate applies to which place and for what kind of work. Weatherization jobs sometimes include the use of electricians as well as insulation handlers and roofers and other kinds of construction workers. However, it appears that the farther away a job is from a 'basepoint' (urbanized area), the more the worker is to be paid. In addition, prevailing wage amounts appear to lump counties together regardless of any rural or urban designations. Applying the Davis-Bacon prevailing wage mandate is likely to cause confusion and it appears that it will increase costs for rural counties more than for urban counties. From the literature review it is noted that household earnings are generally lower in rural areas but that concept applies to the changes in the labor market that have occurred with the transition from more highly paid employment in logging and industrial jobs to lower paid service and sales jobs.

6. CONCLUSIONS AND DISCUSSION

The low-income weatherization program provides home weatherization services, free of charge, to low-income households. The program, as with all assistance programs, is issued with certain policy mandates governing the use of funding. Income eligibility is currently set at 200% of the federal poverty level with priority given to households having children under age 6, elderly, or disabled members. Since funding has been subject to fluctuations in the past, CAAs have been operating at the minimum level that allows the full use of funding without expanding capacity. The federal government has increased funding for the weatherization program for 2009 and President Obama has further increased this funding through the American Recovery and Reinvestment Act (ARRA). The income eligibility was previously set at 60% of Oregon median income which was roughly 150% of the federal poverty level. The increased funding coupled with higher income qualifications requires that CAAs expand capacity and, ideally, will be able to accommodate current levels of need for these services.

Raising the income qualification limit is necessary in order to accommodate increased numbers of housing units that can be weatherized and also addresses the fact that the official poverty line does not adequately describe the necessary minimum income that households require to keep pace with modern living expenses. In conjunction with increasing the maximum expenditure limit per household, this will likely result in increased delivery of weatherization services. However, more money to perform more weatherizations does not address rural/urban disparities in agencies' ability to accommodate increased delivery of services.

The remainder of this section discusses the points raised in the interviews: the Davis-Bacon mandate; worker training and certifications; human capital, or lack

thereof in rural areas; tracking and reporting; overall higher costs involved in serving rural areas; time limits for use of funds and stabilization of funding; increased administrative allotments for satellite offices; and discussion of rural considerations.

6.1. Davis-Bacon Act. Interviews with CAAs indicate that agencies serving more urban areas have fewer difficulties with respect to policy mandates but with the exception of the Davis-Bacon provision. Previously the Davis-Bacon act did not apply to workers performing weatherization services in Oregon. As an economic stimulus plan, from the perspective of the administration, this mandate is viable in that it will, in some areas, increase the incomes of weatherization construction workers. However, from the perspective of agencies making use of contractors to perform these services, regardless of serving either rural or urban populations, it adds a hurdle to be overcome. CAAs have not previously imposed any worker wage requirements on their contractors and this mandate will increase expenses. This can prevent meeting the maximum average allowable expenditure per household even though that maximum has also increased. It may also cause some contractors to opt-out of contracting with CAAs as they may not have the means to keep up with the wage increase for other types of jobs and would then need to pay workers differently depending on which job they are working.

The only recommendation arising from difficulties of the Davis-Bacon mandate is that the DOL website outlining who gets paid what, depending on location, is confusing and it would be beneficial to the program if agencies could be informed by the state as to the appropriate level of pay for their respective areas.[37] In this way the state may become more aware of cost differences that are location-dependent. As workers at the state level become more aware of these differences, they may better understand other spatial disparities in the ability of agencies to deliver services in rural areas.

6.2. Worker training and certifications. Worker training is another mandate that may cause difficulty for increasing services but more so for agencies in rural counties since most training programs are offered in Western counties. Of course both efficiency and safety are necessary concerns, but access to training sessions is not equally distributed. For rural agencies, with training programs offered less frequently in their local area, the expense involved in training new workers is considerably higher as some training programs are three weeks long. If workers must be sent from Eastern Oregon to the Western valley, agencies must pay for workers to stay away from home for the duration of the training, disproportionately increasing costs for rural agencies. Even with dedicated allotments for training and technical assistance (T&TA), there is little consideration for the higher expense involved in meeting this mandate for rural agencies. Making training programs more accessible in Western Oregon would significantly reduce this additional expense for agencies serving those more rural, Eastern counties.

6.3. Human capital. Another aspect of hiring and training workers in rural areas is the persistent lack of human capital that is characteristic of such regions. No experience is necessary in order to attend training for auditors but some base level of education is necessary in order to successfully complete the training. Some base level of skill is also necessary in order to perform the actual work of weatherizing homes although the requisite level of skill is reduced since the work does not involve original, new construction.

A lack of human capital in the form of education and skills are deficiencies experienced more profoundly among low-income, rural populations and it is likely that employment in the weatherization program may not be as promising as previously imagined. It is also the case that CAAs are generally located in more highly populated areas, where there are higher levels of education and skills among the population. For example, the main office for NI is located in Bend (Deschutes county) and it is most

likely that workers will be recruited from within that local population through construction contractors. In terms of generating jobs for low-income, rural households, the weatherization program may not be as effective in reducing poverty through employment opportunities to the same degree that the assistance function of the program reduces household energy costs.

Lower human capital in rural areas is also an indicator that a larger proportion of those populations are likely low-income and so, as a per capita measure, the need for weatherization services is likely greater.

6.4. Tracking and reporting. The spatial distribution of the population in rural areas presents additional pressure for agencies serving rural counties. The mandate of documenting worker certifications, and now pay (tracking and reporting), on every job is likely to be particularly problematic. When clients come to the top of the list for weatherization, they come up according to eligibility and are not always conveniently spaced close together; they may be a hundred miles apart. Tracking and reporting tasks are to be performed by agency staff who must travel to every job in order to fulfill this mandate. If households in the process of being weatherized are a hundred miles apart, it may take all day just to perform the tracking and reporting for services to one household. Likewise, this spatial variable, at times, also precludes the mandate of performing two audits per day. This calls for increased administrative allotments to accommodate the time involved in this process for agencies serving rural areas.

6.5. Higher costs in rural areas. The lack of infrastructure (access to goods) that is typical of rural areas also increases costs, when materials can be found, and can sometimes prove extremely challenging in finding materials at all. Businesses that provide the appropriate construction materials at wholesale prices are only located in urban areas. This is not a problem for agencies operating in closer proximity to urban areas. Increased average cost per household, to the extent that it exceeds allowable amounts, can result in misuse of funds and is grounds to have funding revoked. Either

costs are exceeded or some, more remote, eligible households must be left out of the program.

6.6. Time limits and stabilization of funding. Time limits for use of funds and stabilization of funding go hand-in-hand. Operating a business, as with a household budget, with unstable inputs requires constant adjustments to continually changing circumstances. In the same way that paying household energy bills in full, on time, requires a stable source of funding, so does the consistent operation of the weatherization program. Higher levels of funding, although desirable, will not do as much good as consistent funding where the hiring and continued employment of more workers and crews is dependent upon such consistency. Time limits for using higher levels of funding cannot be met without increasing capacity and, ideally, that increased capacity should be sustained until the majority of older housing stock is brought up to better energy efficiency standards. Stabilization of funding will result in increased and sustained green jobs while promoting and meeting the requirements of better efficiency standards and accommodating the disproportionate energy burden for low-income households as energy prices increase during the transition to green energy.

6.7. Satellite offices. Satellite offices are an option with respect to increasing access to services for clients and increasing the ability of agencies serving rural areas to reach more households. Clients must access weatherization offices at least once in order to prove eligibility and many do not have access to reliable transportation. Conversely, through the use of satellite offices, the program would be better able to deliver services and perform tracking and reporting tasks but this option increases administrative costs. Increased administrative allotments for satellite offices in rural areas can help mitigate some of the other suggested funding increases for agencies serving rural areas. Satellite offices may serve as a staging area for materials shipped from metropolitan areas in Western Oregon so that CAAs may be able to take advantage of lower prices

for materials. Coordinated cost-sharing with other social service agencies can help lower the additional expense of operating more offices. An example of this may be sharing offices with employment and food pantry services so that client access may be increased for weatherization, energy assistance, employment, and food services, while lowering overhead costs for each agency respectively.

6.8. Rural considerations. Prioritization of eligible households provides a socially acceptable means by which to offer assistance. Policies that are intended to help disadvantaged populations are not always implemented in such a way that they are equally helpful in different places. The “one size fits all” model is effective in reducing confusion on paper but often results in an uneven distribution of benefits. It is easier to serve urban populations because the individual households are greater in number and conveniently located within a smaller boundary. The fact that rural populations are smaller makes it easy to overlook them and reduces the sense of urgency. Leaving them out also lends itself to the reported economic efficiency of program administration but efficient does not always mean equitable.

There is a need to closely examine Oregon counties and assess the degree to which some are more rural than others so that the most rural populations are not overlooked and left out. The inclusion of a large urban area within a geographically large county generally leaves rural households hidden. Greater attentiveness to differing levels of remoteness and associated costs should result in a more equitable distribution of services.

6.9. Further research. Further research is recommended in order to assess the impacts of particular policy mandates. The Davis-Bacon mandate will increase costs but more precise impacts can only be assessed after implementation. More exact cost assessments of operating satellite offices in rural areas would reveal the level of practicality in operating these offices along with any mitigating impacts of cost-sharing

with other agencies. Further research on the stabilization of funding would be well-served by an economic approach and could include better discussion of the impacts of unstable inputs. More in-depth exploration of differences in serving rural versus urban areas at the national level would be very helpful to states as having these considerations built-in to federal program expectations could allow states to better accommodate the spatial and economic dimensions of serving rural areas.

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APPENDIX A. LIST OF ACRONYMS

- AFDC Aid to Families with Dependent Children
- ARRA American Recovery and Reinvestment Act. Obama, 2009
- BPA Bonneville Power Administration
- CAAs Community Action Agencies, also known as Community Service Agencies
- CAT Community Action Team; serving Clatsop, Columbia, and Tillamook counties
- CPS Current Population Survey
- CSC Community Services Consortium; serving Benton, Lincoln, and Linn counties
- DOE-WAP Department of Energy Weatherization Assistance Program
- E2C2 Energy Efficiency and Consumer Conservation program
- ECHO Energy Conservation Helping Oregonian's
- ERS Economic Research Service
- EWEB Eugene Water & Electric Board
- FPL Federal Poverty Level
- HHS U.S. Housing and Human Services
- ITES Iowa Transportation and Employment Service
- LIEAP Low-Income Energy Assistance Program, Oregon equivalent of LIHEAP
- LIHEAP Low-Income Home Energy Assistance Program, federal program for bill-pay assistance
- NCES National Center for Education Statistics
- NI Neighbor Impact; serving Crook, Deschutes, and Jefferson counties
- ODOJ Oregon Department of Justice
- OMB Office of Management and Budget
- ORPC Office of Rural Policy Classification, Oregon
- PPC Public Purpose Charge per the Public Purpose Fund
- PPF Public Purpose Fund
- PRWORA Personal Responsibility and Work Opportunity Reconciliation Act. Clinton, 1997
- PVE Petroleum Violation Escrow accounts
- REACH Residential Energy Assistance Challenge option
- RUCA Rural-Urban Commuting Area
- T&TA Training and Technical Assistance
- TANF Temporary Aid to Needy Families, 1997
- Wx Weatherization

APPENDIX B. EXCERPTS FROM THE ARRA-WAP
STATE PLAN 2009-12 DRAFT

The selected information in this appendix was copied directly from the ARRA-WAP State Plan 2009-12 DRAFT. All bold and italic emphases duplicated herein as closely as possible to the original.

2.01 Eligible Population

The Energy Policy Act of 2005, Section 122(b) states Eligibility Section 412(7) of the Energy Conservation and Production Act (42 U.S.C. 6862(7)) was amended by striking Section 412(7) of the Energy Conservation and Production Act (42 U.S.C. 6862(7)) and amended by striking "150 percent in both places it appears and inserting "200 percent". **The income eligibility level for the DOE Weatherization Program is 200% percent of the Poverty Income Guidelines.** In determining the level of eligibility, the State shall use the DOE criteria of 200 percent of poverty. This must be applied throughout an agencies entire service territory.

2.01.1 What is Income

Those households are eligible whose incomes are at or below the current criteria, which is 200% of poverty. Income refers to total cash receipts, before taxes, from all sources for all people living in the dwelling unit (defined as household). This includes wages and salaries before any deductions but do not include food or rent in lieu of wages. Receipts also include net receipt from non-farm or farm self-employed (e.g., receipts from own business or farm after deductions for business or farm expenses). Other such receipts would include: public assistance, social security or railroad retirement, unemployment and workers compensation, strike benefits from union funds, veterans benefits, training stipends, regular foster parent grants or payments, alimony, child support, and military family allocations or other regular support from an absent family member or someone not living in the household; private pensions, government employee pensions, and regular insurance or annuity payments; grants, scholarships and work study; and income from dividends, interest, rents, royalties, or periodic receipts from estates or trust and lottery earnings if paid monthly or annually.

2.01.2 What Is Not Considered Income

For eligibility purposes, income does not refer to the following money receipts: capital gains; any assets drawn down as withdrawals from a bank, sale of property, house,

or car; tax refunds, gifts, lump-sum inheritances, one-time insurance payments, or compensation for injury. Also excluded are non-cash benefits, food or rent received in lieu of wages, energy grants, student loans, bank loans, the value of food and fuel produced and consumed on farms, and the imputed value of rent from owner occupied non-farm or farm housing. Households receiving funds from a private energy suppliers assistance programs shall not have those funds counted as income.

2.01.4 Priorities

An actual waiting list to determine whos next to receive weatherization services must be developed with priority given to: elderly (60 years of age and older), disabled, and households with children six (6) years of age and under. The criteria used for determining applicant priority must be in writing and on file with the subgrantee. The priority criteria must be used consistently for all applicants unless the subgrantee is involved in an OHCS sanctioned special project. Priority can also be given to households with high residential energy use. High residential energy use is defined, as energy usage above average as a result of household composition or unusual needs for energy. Households with a high energy burden where 20% or more of the household income is going towards energy can also be a priority for weatherization. Subgrantees may chose to add additional factors to their priority list such as the ability to leverage funds, Native Americans and households with a member on active military duty, etc. Subgrantees must notify OHCS of changes and additions to their priority criteria.

2.02 Climatic Conditions

The State of Oregon is comprised of two basic climatic regions. Western Oregon (west of the Cascade Mountains) experiences a wetter climate and has an average of approximately 4,500 heating degree-days. Eastern Oregon (east of the Cascade Mountains) experiences a drier, colder climate and averages close to 6,000 heating degree-days.

2.03.2 Permission to Proceed

Prior to **any** work being done on a dwelling (including baseload measures) and prior to a subcontractor visiting the dwelling for purposes of evaluating the cost of the job. The Subgrantee **MUST HAVE A SIGNED STATEMENT FROM THE OWNER** (or owners agent) that permission has been granted to perform weatherization and base-load measures on and at the dwelling. The statement **MUST** include a list of measures that are proposed to be installed. If walls are to be blown,

the statement **MUST** indicate that the owner / owners agent has seen pictures of what a wall blow includes and how it will look when completed. If windows are to be installed the state **MUST** indicate that the owner / owners agent is aware that the measure will not include cosmetic treatment of the window trim. **If refrigerator(s) are to be installed the statement MUST clearly indicate who owns the refrigerators only.** A copy of this statement with owners / owners agent signature clearly visible **MUST** be in the job file. A second copy **MUST** be given to the tenant and the original **MUST** be given to the owner / owners agent.

Note: Refrigerators are the only appliance allowed under base load measures. Subgrantees must have an OHCS approved refrigerator replacement plan prior to replacing refrigerators.

2.04.1 Use of the Computerized Audit Tool

Subgrantees **are required** to only provide weatherization services that have been identified as “**Cost Effective**” (a savings to investment ratio of 1.0 or greater) by a DOE approved computerized audit, or other computerized audit approved by DOE and adopted by OHCS. At this time and until replaced by OHCS OASIS, REM/Rate is that audit tool. No other method of establishing cost effectiveness/savings to investment ratios can be used by a subgrantee other than those approved by DOE and adopted by OHCS. The weatherization of mobile homes shall also follow these procedures.

2.04.2 Coordinator Override

If in the opinion of the local weatherization coordinator (subgrantee level) a measure should be installed that has not been identified as cost effective, and the coordinator believes that such a measure will improve the overall energy savings and comfort and meets one of the criteria a. - e. below, the coordinator can over-ride the computerized audit. Such deviation in measures must be documented in writing and reported to OHCS:

- a. More cost-effective (highest savings to investment ratio), based on an energy audit procedure approved by DOE and accepted by OHCS;
- b. A measure more readily acceptable to the owner;
- c. A measure necessary due to structural defects of the dwelling; or,
- d. A measure necessary for health and safety reasons.
- e. The energy savings from other installed measures with an SIR of 1 or greater.

- f. Nothing in the above section 2.04.1 authorizes the subgrantee to forego the use of the approved computerized audit tool altogether.
- g. Written documentation explaining why a measure not identified as cost effective by the approved audit tool was installed and must be included in the job file.

2.04.3 Prioritization of Work

Work will be done with measures receiving the highest cost effectiveness (savings to investment ratio) installed first. The average unit cost for overall program expenditure is limited to \$2,885 as established by DOE. The per unit cost has been established for each dwelling, or until all measures are completed which ever happens first.

2.07 Health and Safety Plan

DOE requires that all grantees develop a Health & Safety Plan (H&SP). OHCS will work with ACE, OECA and the EPC to consistently review and maintain the Oregon Health & Safety Plan as an updated, useful and meaningful tool for all subgrantees and contractors. The primary goal of the DOE Weatherization Assistance Program is energy efficiency. DOE is concerned that the achievement of this goal endures even with the program changes which allow DOE funds to be used for health and safety risk mitigation. *The final rule has eliminated the requirement that the cost of all energy-related health and safety risk mitigation be within the per home expenditure average. Agencies are still required to identify health and safety procedures and the percentage of costs involved per DOE.* This change will allow local agencies greater flexibility and incentive to incorporate new technologies and their costs into their programs by removing health and safety costs from the per-house limitation, if they are budgeted separately. In providing this flexibility, OHCS will continue to encourage agencies to be prudent in their oversight of the percentage of funds approved for health and safety mitigation on homes weatherized by their local agencies The final rule does not mandate a separate health and safety budget cost category, but rather allows the state to budget health and safety costs as a separate category and, thereby, exclude such costs from the average cost calculation. The related health and safety costs will be included in the calculation of the average cost per home and cost-justified through the audit.

2.12.5 Administrative Expenditure Limits

1.2 10 CFR Part 440.18 (d) clearly defines the amount of allowable Administration funds as up to 10%, where subgrantees receive less than \$350,000. There is a statutory

limit of 10 percent on funds that may be used for administrative purposes. Not more than 5 percent of new funds may be used by the State for administrative purposes, with the remainder to go to subgrantees. Sub-grantees receiving more the \$350,000 will receive no more than 5% for administration. An exception to exceed the 10 percent total administrative requirement may apply to subgrantees funded at **less than \$350,000 of new DOE funds if the state provides its administration**. Sub-grantees that fall below the above threshold are allotted the full 10% administration funding level under DOE rule. OHCS however is limited to 5% administration for their part in the DOE-WAP.

2.12.7 Funding Formula

Funds remaining, after Administration, T&TA, Farm Worker and Native American allocations have been removed from the grant and will be allocated to subgrantees using the following formula:

- a. Households below the poverty level as established by the Federal Office of Management and Budget and the most current U.S. Census will account for 85% of the funds allocated to subgrantees.
- b. Heating degree-days squared, (averaged for subgrantees with multi-county service areas) will account for 15% of funds allocated.

2.20 Standard Weatherization Procedures

2.20.1 Labor

It is the subgrantees responsibility to assure that employees and contractors are qualified and properly supervised.

- All weatherization staff engaged in installing or inspecting of building shell retrofit upgrades (attic, wall, floor, windows, doors, duct sealing and general house sealing) must be able to pass a test for certification in the state of Oregon Residential Energy Analyst Program (REAP®) certification levels of Shell Tech 1
- All lead AGENCY STAFF persons and supervisors must be able to pass a test for certification to qualify with the designation of: Building Performance Specialist (this includes lead safe work practices and mold and mildew safe work practices awareness).
- All auditors, at the minimum, must be able to qualify for the designation of: Energy Analyst.
- All inspectors, at the minimum, must be able to qualify for the designation of: Inspector.

These are required certifications for agency staff through the REAP certification program

2.20.2 Davis-Bacon Act-Prevailing Wages

All laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the Federal Government pursuant to the American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code. With respect to the labor standards specified in this section, the Secretary of Labor shall have the authority and functions set forth in Reorganization Plan numbered 14 of 1950 (64 Stat. 1267, 5 U.S.C. App.) and section 3145 of title 40 United States Code. See U.S. Department of Labor, Wage and Hour Division website at <http://www.dol.gov/esa/whd/contracts/dbra.htm> . Wage determinations can be found at <http://www.wdol.gov>.