

The ALICE Population of Lane County

**Predictors of Self-sufficiency among the Asset-Limited,
Income Constrained, Employed of Lane County for United
Way**

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Executive Summary:

Fighting poverty is an urgent mission for many countries in the world, including the United States. However, the definition of poverty is quite complicated, and varies not only from one country to another, but also within that country and even within individual states. Many US households earn an income greater than that specified by the Federal Poverty Level (FPL), a measure of poverty that does not vary across the 48 contiguous states; however, many households in the U.S who are above the federal poverty level still struggle to meet their basic needs and be financially self-sufficient. Although the FPL does not take into account the actual quantity of money required to meet the basic cost of living expenses across the United States, many financial assistance programs are designed solely to assist people below this line, especially federally administered programs.

To remedy this issue in the state of Oregon, Worksystems Inc. – a non-profit organization that has partnered with the City of Portland to improve the quality of the workforce in Oregon - has prepared a report measuring the cost of living for a variety of household types in each county in Oregon, which it defines as the Oregon Self-Sufficiency Standard (OSS) (Pearce 2011). Because people living below FPL are typically eligible for a number of government programs and services, United Way of Lane County is seeking a way to identify and assist the residents of Lane County who are above FPL, but below self-sufficiency, a group that United Way defines as the Asset Limited, Income Constrained Employed (ALICE) population (Rennie et al. 2011). To address the problems of the ALICE population, United Way needs to know the size, distribution and characteristics of ALICE households. To assist United Way in their goals, our methodology is focused on meeting two separate objectives. The first objective is to calculate the number and

percentage of the households in Lane County that are defined as being part of the ALICE threshold, and the distribution of households within that threshold. The second objective is to create a predictive model that will give United Way a tool to estimate future fluctuations in the size (but not the distribution) of the Lane County ALICE population so that they can better direct their programming to serve this group. By conducting this research, we hope to provide United Way of Lane County with a new way to serve people who need financial assistance.

Table of Contents:

Executive Summary.....	2
Table of Contents.....	4
Introduction.....	5
Literature Review.....	8
Methodology.....	12
Problems We Have Encountered.....	17
Data Analysis.....	20
Conclusions.....	31
Tutorial Guide.....	33
Bibliography.....	42

Introduction:

The federal poverty threshold is a limit that seeks to quantify how many Americans are living in poverty; however, the threshold used by the federal government is identical for the 48 contiguous states, with adjustments for Hawaii and Alaska. The cost of living, on the other hand, varies tremendously from one state to the next. The difference between states is not the only flaw in the federal poverty threshold; the variation within states can be substantial, and the cost of living in a major metropolitan area is typically very high compared to that of a rural town.

Families who are above the poverty line but who are not making ends meet - or who are just barely making ends meet - might not be in crisis, but they are potentially just one hospital bill, flat tire, or bounced check away from crisis. These families are not unemployed, rather, they are the working poor; a group that is working full-time, but that is unable to earn enough money to stay above water. This population is a significant fraction of Oregon residents, in fact, the Oregon Self Sufficiency Standard report found that of the 10 largest occupations in Oregon, only one occupation (registered nurse) reports median wage earnings above the OSS Level.

OCCUPATION TITLE	NUMBER OF EMPLOYEES	Hourly Median Wage	Annual Median Wage ^a	Percent of Standard ^a
Total, all Occupations	1,624,490	\$16.39	\$34,087	68%
Retail Salespersons	59,640	\$10.46	\$21,755	43%
Combined Food Preparation and Serving Workers, Including Fast Food	36,480	\$9.30	\$19,341	39%
Cashiers	35,680	\$9.49	\$19,747	39%
Office Clerks General	32,510	\$13.75	\$28,600	57%
Registered Nurses	30,730	\$35.80	\$74,473	148%
Waiters and Waitresses	26,160	\$9.98	\$20,751	41%
Bookkeeping Accounting and Auditing Clerks	25,340	\$16.40	\$34,108	68%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	24,210	\$11.31	\$23,509	47%
Laborers and Freight Stock and Material Movers Hand	24,150	\$11.90	\$24,736	49%
Customer Service Representatives	22,920	\$14.55	\$30,264	60%
¹ SELF-SUFFICIENCY STANDARD FOR ONE ADULT, ONE PRESCHOOLER, AND ONE SCHOOL-AGE CHILD MULTNOMAH COUNTY		\$23.75	\$50,164	100 %

^a Wages adjusted for inflation using the West region Consumer Price Index from the Bureau of Labor Statistics.

Source: US Department of Labor, "May 2009 State Occupational Employment and Wage Estimates," Databases and Tables, Occupational Employment Statistics, <http://www.bls.gov/oes/data.htm> (accessed January 4, 2011).

(Table 4-Wages of Oregon's Ten Largest Occupations, Pearce, 2011)

The previous table is for all of Oregon, not just Lane County, but it demonstrates the top occupations and their median earnings throughout the state.

United Way of Lane County would like to identify the population of Lane County that is not earning enough income to meet the cost of living, so that United Way can help them become financially self-sufficient. Assisting these families would be a part of their Financial Stability Partnership which helps households to make sure they have enough income to make it to the end of the month, with a little left over to build a safety net. Because the population below the Federal Poverty Level (FPL) is eligible to receive assistance from a variety of government programs, United Way is less concerned with helping that portion of this low income group to become financially self-sufficient; instead they would like to create a method of measuring poverty in Lane County more efficiently that will prove to be more sensitive to Lane County demographics. United Way believes if this is done successfully it will result in more financially distressed households being able to qualify for services, which will strengthen the community and local economy as a whole.

To take into account these differences within the state of Oregon, Worksystems Inc. has prepared a report that seeks to determine the Oregon Self-Sufficiency Standard, i.e., the actual cost of living in each county of Oregon for a variety of types of households. United Way of Lane County is particularly interested in identifying the Asset Limited, Income Constrained Employed (ALICE) population of Lane County, and seeks to define the ALICE threshold for Lane County as the population living above 100% of FPL, but below the Oregon Self-Sufficiency Standard. They are interested in utilizing the levels set forth in this report to assist them in determining which residents of Lane County could benefit from financial services designed to help families become financially self-sustaining. United Way is especially interested in creating a methodology that can be replicated in the future to determine how the size and distribution of the ALICE population of Lane County will change. For this reason, this paper will use the American Community Survey (ACS) to construct the number and percentage of households within the ALICE threshold in Lane County, and develop a predictive model, which will use a variety of economic indicators to predict the size of the ALICE population in the coming years.

This data unfortunately is only available in a lagged manner, where 2012 ACS earnings data will not be available until September of 2013, and 2013 ACS earnings won't be available until September of 2014 and so forth. Due to the nature of this data collection process, we have developed a model that utilizes estimated data to capture the change in the ALICE population for these missing years (2012 and 2013).

First, we estimated our data in order to build the sample that we later used in our estimates and predictions. This initial estimation consisted of estimating past OSS data with respect to the Federal Poverty Line to create an ALICE threshold consisting of a multiplier of FPL for each year prior to 2011, the only year for which the OSS Report exists. We then applied

ACS data on earnings for each year before 2011 to that year's respective ALICE threshold giving an estimate of ALICE for each year before 2011. Data on the explanatory variables, change in unemployment rate, change in poverty rate, and change in real median wages, was available for the years 2006-2011, which allowed us to create our model.

With the sample effectively created, we then regressed the change in the ALICE population on the explanatory variables, giving us estimates of how our explanatory variables affect the change in the ALICE population. We were able to apply this data to the current year because data associated with real median income, and the poverty rate is regularly available for the prior year, and the unemployment rate is available for the current year. Applying the estimates of these parameters, we then could obtain an estimate for the change in the ALICE population for 2012 and 2013.

Literature review:

Measuring and predicting poverty are complicated issues, and although studies at the Lane County level are not available, there is a vast array of literature available that deals with the many methodologies involved in this type of study. As explained in the introduction, the Federal Poverty Level has proved inadequate in providing organizations with information regarding the ability of individuals and families to meet their basic needs at the cost-of-living thresholds where they live. The great variety of poverty measurements available is in itself a complex issue because it is difficult to determine which of these methods is appropriate in defining poverty. The World Development Report states that “Poverty is pronounced deprivation in wellbeing” (World Bank, 2000), yet this definition, though succinct, is quite unclear on how we can measure deprivation in wellbeing. Kevin Lang, in his book *Poverty and Discrimination*, gives a slightly more nuanced explanation, explaining that “An individual is poor if he or she lacks sufficient financial resources to obtain adequate food, clothing, shelter, and medical care and to participate in society” (Lang, 2007). This definition of course, is still subject to further expansion, as seen in

a report for the Swedish International Development Cooperation Agency, where Jolly summarized a report by Robert Chambers, in which he states that poverty “can encompass many interacting dimensions such as: material poverties, physical ill-being, insecurities, poverty of time, institutions and access, lack of information and political clout, legal and social inferiority, impacts on social relations etc.” (Jolly, 2010).

This paper will not seek to analyze such a complex array of issues, but instead will simply attempt to measure the group of people who do not earn enough to meet their cost-of-living expenses, as defined by the Oregon Self Sufficiency Standard. In the Self-Sufficiency Standard for Oregon report, Worksource Inc. defines self-sufficiency as the ability to meet six different types of needs: housing, child care, food, transportation, health care and taxes, plus some miscellaneous expenses, as detailed in the table below:

COST	WHAT IS INCLUDED IN EACH BUDGET ITEM?
HOUSING	YES: Rent and Utilities NO: Cable
CHILD CARE	YES: Full-time family day care for infants, full-time center care for preschoolers, and before and after school care for school-age children NO: After school programs for teenagers, extracurricular activities, babysitting when not at work
FOOD	YES: Food for home preparation NO: Take-out, fast-food, or restaurant meals
TRANSPORTATION	YES: The cost of owning a car (per adult)—insurance, gas, oil, registration, etc.—or public transportation when adequate. The car or public transit is used only for commuting to and from work and day care plus a weekly shopping trip NO: Non-essential travel, vacations, etc.
HEALTH CARE	YES: Employer-sponsored health insurance & out-of-pocket costs NO: Health savings account, gym memberships, individual health insurance
TAXES	YES: Federal and state income tax and tax credits, payroll taxes, and state and local sales taxes NO: Itemized deductions, tax preparation fees (property, gasoline, and sales tax are included in housing, transportation, and miscellaneous costs, respectively)
MISCELLANEOUS	YES: Clothing, shoes, paper products, diapers, nonprescription medicines, cleaning products, household items, personal hygiene items, and telephone service NO: Recreation, entertainment, savings, emergencies, debt repayment, pets, education/training, gifts, broadband/internet, student loan repayment

(Pearce, 2011)

In order to measure poverty, we must take into account family size and composition. As Atkinson explains in “Measuring Poverty and Differences in Family Composition”, different ways of measuring poverty among households can lead to very different results, showing that

“the survey by Whiteford (1985, Table 5.1) tabulates 44 estimates of the scale [of poverty] for a single person, taking that for a couple as 100 per cent, and these estimates vary from 49 to 94 per cent” (Atkinson, 1992), among other equivalently polarized examples. To maintain consistency with our datasets, we will use the Census designations of family types, and use the levels put forth in the OSS to state whether a child is pre-school, primary school, or high school aged. Although it is possible that these categories might not be the most effective at determining family types, we are unable to gather primary data on the families that the ACS surveys, and therefore we are limited to the data given by the ACS and OSS.

An earlier article by Atkinson addresses a different issue: the manner in which we will count the number of Lane County residents living in poverty. Atkinson states that there have been issues raised with the “headcount” measurement of poverty, saying “the objection of Watts to the headcount is that “poverty is not really a discrete condition. One does not immediately acquire or shed the afflictions we associate with the notion of poverty by crossing any particular income line” (1968, p. 325) (Atkinson, 1987). Atkinson approaches this issue from both sides, saying that “there is room for difference of opinion. On the one hand, there are those who agree with Watts that there is a continuous gradation as one crosses the poverty line. On the other hand, there are people who see poverty as an either/or condition” (Atkinson, 1987). This is a serious concern, as United Way of Lane County is interested in helping the ALICE population cross the threshold to financial self-sufficiency. If, in crossing the ALICE threshold, the ALICE population loses access to programs that they depend on to survive, or if they experience lasting difficulties as a result of other socioeconomic impacts (lack of knowledge of retirement plans or college funds, among many other issues, could affect populations moving from one socioeconomic bracket to another, where they might have previously expected to depend upon

Social Security and Medicaid in their old age, and might have anticipated that if their children were to attend college, that they would receive the maximum financial aid), this could raise other issues that United Way might wish to address.

In their 2010 honors paper, Joe Hagen and Jessica Schneider sought to determine indicators of poverty in Central Oregon, and they describe several indices which are used to determine the economic health of Oregon communities. We did not make use of these indicators for our measurement of the ALICE population, as United Way is primarily concerned with income as the defining characteristic of the ALICE threshold.

Methodology:

To accomplish our two objectives we made use of several different methodological approaches. The first objective was to calculate the number and percentage of the households in Lane County that we defined as being part of the ALICE threshold for 2011, and the distribution of households within that threshold. The second objective was to create a predictive model that will give United Way a tool to estimate future fluctuations in the size (but not the distribution) of the Lane County ALICE population so that they can better direct their programming to serve this group.

To address our first objective, we utilize three components consisting of one data set and two indicators of income. To find the size and distribution of the ALICE population of Lane County, we used 2011 American Community Survey (ACS) data. The ACS is a relatively new survey that was developed with the intention of replacing the difficult “long-form” census, which was too complicated for many respondents and only yielded data once per decade. The ACS surveys a portion of the United States population on an annual basis regarding a variety of topics,

including earnings. We utilized the earnings, location, and household type data from the ACS in order to determine the size of the ALICE population, and to create our model.

The ACS takes un-weighted, or “raw” data from survey respondents, and creates weighted data, which are adjusted to represent the population from which the survey was drawn. They do this weighting of the data because few people take the survey, thus, the un-weighted data are biased because they do not represent the entirety of the population being considered. Because we are using the final ACS estimates, we will be using their weighted data.

The first income indicator is the Federal Poverty Line, which is used as a determinant of eligibility for a number of services. Only families who are above 100% of FPL in Lane County would be considered part of the ALICE population. The second income indicator used in our methodology is the Oregon Self Sufficiency Standard (OSS), a report that attempts to estimate what income a specific household needs to earn in order to meet basic needs, created by the nonprofit organization Worksystems, Inc.

To complete the first objective we used the ALICE threshold specified by United Way, which sets 100% of FPL as the lower bound of the threshold, and the OSS level of income as the upper bound. Using the American Community Survey’s measure of income we will be able to define the ALICE population as such: any household whose income falls between the lower bound of the poverty line and the upper bound of the OSS. The ACS surveys a variety of different types of households, of which we will use six different types (households containing between one and six people, identified as type 1, type 2... type 6, etc.), as these are the types for which there are significant numbers of households surveyed. There is a significant disparity

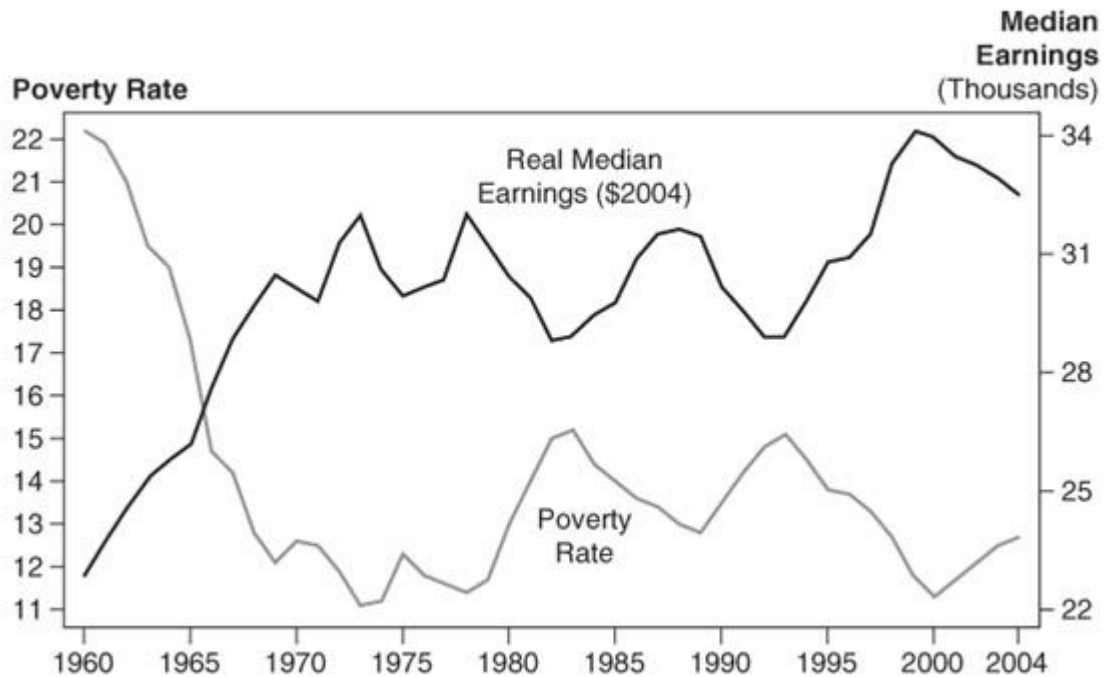
between the Federal Poverty Level and the Oregon Self-Sufficiency Standard, and this ALICE investigation allowed us to find the number of households between the two limits.

In order to find the number of households who fall within the ALICE threshold, we used a software called DataFerrett -a data mining and extraction tool- which allowed us to sort ACS data by household type, location (Lane County) and income level. This gave us both the quantities of each type of household, and the number of households who fell within the ALICE definition. Collecting the data through DataFerrett allowed us to easily see both the un-weighted and weighted data. Un-weighting the data showed us the size of the sample that fostered the estimate, which allowed us to eliminate the household types that did not have a statistically significant representation in the ACS. After comparing the un-weighted data of all eight household types surveyed, we came to the conclusion that we should exclude households with seven and eight members, because their sample size was too small. Unfortunately, for households of seven or eight residents, the sample was routinely falling below ten households surveyed, while one and two member households each had a sample size (n) of 40 or more. We were also able to use this software to determine the number of people living in poverty in Lane County, so that we could contrast the size of the ALICE population with the size of the population below the federal poverty line.

Because United Way is interested in something that they can continue to use in the future, we have created a predictive model for them using a variety of economic indicators to forecast the size of the ALICE population. We wanted to create a model that is similar in some aspects to one that would predict poverty, so we investigated the information used in the Oregon Index of Leading Indicators - an index designed to assist in measuring poverty in Oregon - to see how

it would fit with our objectives. As there is almost certainly a difference between the population below 100% of FPL and the population contained in the ALICE threshold, this index didn't appear to quite fit our specifications. Some variables that we believed might be correlated with the size of the ALICE population include the unemployment rate (only employed residents of Lane County are considered part of this population, so this will likely have a large effect), the number of people in poverty, and real median wage.

Real median wage appears to be an excellent candidate for predicting poverty, and as a result, the size of the ALICE population. This variable tracks remarkably well the changes in the poverty rate over time. Despite overall increases in GDP, income inequality the United States has grown significantly, and real median wages have remained relatively stagnant since the 1970s, as most growth in wealth and income has gone to the highest earners. This has resulted in an increase among the working poor, that is, those people who are employed full time, but cannot meet their cost-of-living needs. As our later tables will show, the median earnings demonstrated on this graph are insufficient to meet the costs of many of the ALICE household types, making growing income inequality a serious concern. The graph below shows the changes in the poverty rate and real median earnings from 1960-2004. Although it does not include the last several years, it is still a clear indicator of the correlation (though this of course does not imply causation) of real median income and poverty.



(Lang, 2007)

To create the model for our second objective, we ran a regression with the ALICE population as the dependent variable and used the unemployment rate, real median income, and the percentage of the population at or below the poverty line in Lane County as our explanatory variables. Our sample was constructed using past data from the estimated ALICE population and explanatory variables for each of the years for which we could obtain ACS data. Part of our sample had to be estimated due to the fact that the OSS is only available for 2011. To estimate this, we took the relationship between the poverty line and the OSS for 2011 and used that relationship to estimate the OSS for the years 2006-2010, relative to the poverty line for those years. Because we have a very limited number of observations available, we were forced to use the smallest number of variables possible. We regressed each of our possible variables separately on the ALICE population size to determine which independent variables were more highly correlated with our left hand side variable. We discovered that wages and unemployment had a much higher correlation than the percentage or number of people in poverty had to the ALICE

population, so we chose to use unemployment and wages as the variables in our predictive model. Estimating the past OSS completed our sample, permitting us to estimate the following regression model: $ALICE = \beta_0 + \beta_1 UN + \beta_2 Wage + \mu_i$

We have also created an evaluative tool for United Way to check if our model is holding up, and to find the size of the ALICE population for future years: a tutorial which will walk the United Way employees through the steps required to repeat the process in DataFerrett so that they may view the ACS earnings data for subsequent years. The ACS figures are lagged by two years, so 2013 earnings, for instance, will not be available until 2015. As a result, United Way will benefit both from our regression results, which can help predict the direction in which the size of the ALICE population will go, and also from the ability to check this prediction as new ACS figures come out each year. Because the OSS level may not be updated past 2011, these figures will be inexact, as cost of living is likely to change each year, but this will allow United Way to see if the size of the ALICE population appears to be trending in the same direction as our prediction - which will help United Way to determine if their goals are being met, or if they need to reevaluate their programming.

Problems we have encountered:

The issues we have faced in this investigation mostly derive from the fact that there are limited data available for analysis. The OSS report is only available for 2011, which means that in order to create our regression we have had to use its relationship to the Federal Poverty Line in 2011 to estimate OSS in the past. Our estimates likely suffer from a number of issues due to unobserved future changes in cost of living, policy changes that will shift the FPL, and the small sample size of Lane County Residents that we have to work with. The data that would make solving both of the objectives straightforward would consist of both an ACS estimate of earnings

and an OSS level of income for the current year and every prior year since 1970. Because neither of these datasets exist, we have had to estimate what the values would be for these data in the past and present.

The American Community Survey creates an estimate of earnings by surveying a number of households across communities each year, as opposed to the US Census which is conducted just once per decade. Unlike the US Census, which surveys every household in the United States, the ACS surveys just a selection of households in each Metropolitan Statistical Area (MSA). Because the number of households surveyed in Lane County is relatively small, the household earnings figures that we utilize in this paper are also estimates, which are abstracted to the whole of Lane County based on the surveyed households. This means that the earnings data we will use to create our regression will result in an estimate based on an estimate, which raises further issues of reliability.

As we do not have data on the OSS limit or the earnings for households past 2011, we are unable to know the number of households in Lane County who are part of the ALICE threshold for 2012 or 2013, however, we have tried to predict that number with our estimator. Our estimator, however, is more limited than we had originally anticipated. When we began this investigation, we believed that we would be able to use earnings data from the Current Population Survey (CPS) in conjunction with our ACS data, in order to have observations going back to the 1970s. Unfortunately, we discovered that the CPS earnings are reported within brackets, for instance, a family earning \$26,000 would choose the pre-designated income bracket of \$25,000 - \$29,999. In the ACS, in contrast, households write in their earnings, so the data is more precise. In the case of the ALICE population, where the Federal Poverty Line is a particular number for each household type, and the OSS is another specific number, we are unable to set

limits on the bracket data such as the CPS data in DataFerrett in order to find the number of households that fall into the ALICE population with any sort of precision. Additionally, the CPS samples about 200,000 households each time, which is good for national-level data, sometimes acceptable for state-level data, and more or less useless at the county level.

Another way that income has historically been measured in the United States is the Census long form, but that questionnaire was distributed to a small percentage of households, and the survey was only conducted once every ten years, making it inappropriate for use in this investigation. As a result of these issues, we have an extremely limited number of observations from which to create our predictor: the ACS earnings information for the years 2006-2011, just six data points. We chose to create the estimator in any case, as we wished to see the relationship between our variables and the ALICE population, and we believe that it might provide a general (though statistically insignificant) guess at the direction in which the population might be trending; either upwards or downwards. United Way will be able to check our prediction for 2012 against the ACS estimates for that year in September of 2013, when the ACS data for 2012 will be published, so while they will not base any policy on our forecast, it might be useful for them in discussing how to address the large ALICE population in Lane County.

Unfortunately, we found that it is not feasible, given our data, to determine the distribution of the households within the ALICE threshold (i.e. are they closer to the poverty line or closer to self-sufficiency?), due to the nature of the ACS data. We do not have a large enough sample size of each household type to determine the range of income within the threshold with any statistical significance.

Another important issue that we have faced in this investigation is the determination of “Asset-Limited”. Unfortunately, we do not have the same level of resources that Workforce Inc.

possessed in preparing their report, and we have been unable to determine any way of measuring assets while using the ACS earnings data. We could change the name of this population to ICE, or some other measure, however, in order to maintain consistent terminology with the original ALICE report published by United Way in New Jersey, and to avoid confusion, we will continue to utilize the term ALICE.

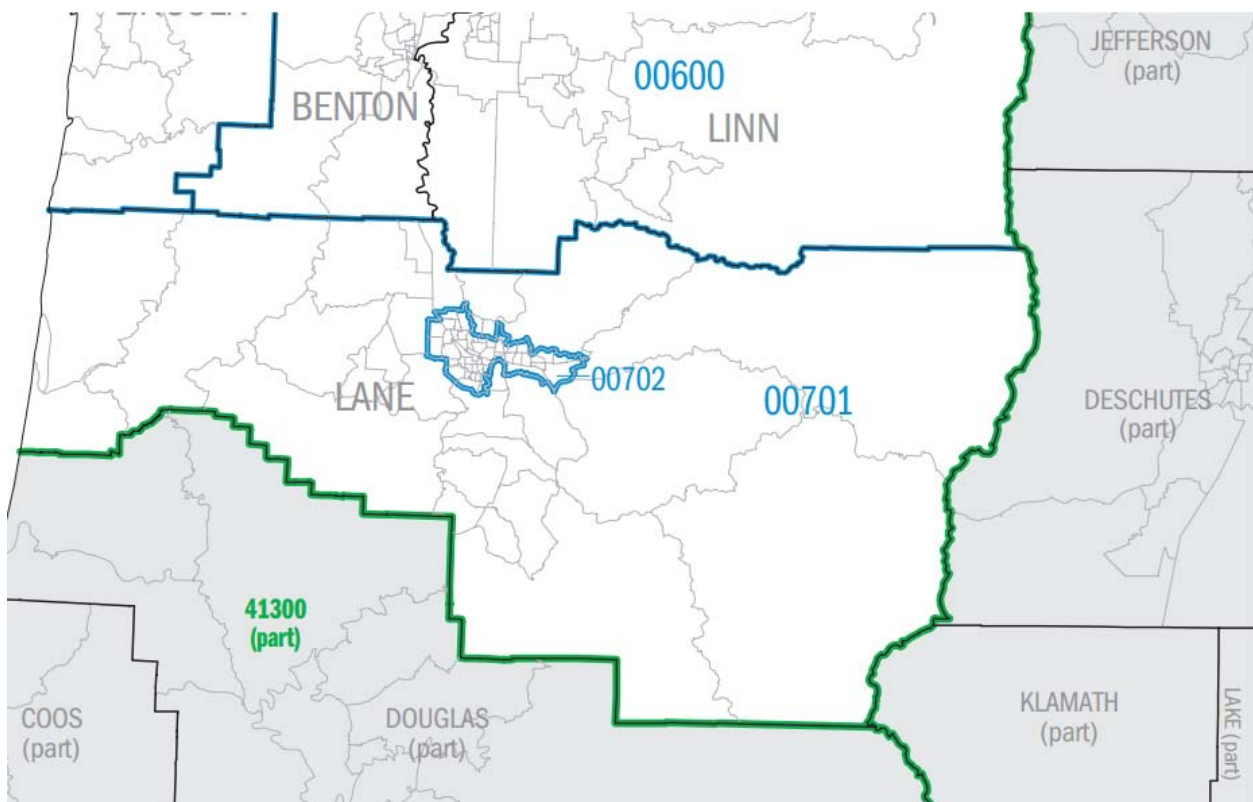
An issue separate from our methodology is the impact that this investigation might have on future United Way policy. If United Way makes policy changes based on the ALICE population levels and predictions laid forth in this paper, moving a household to a higher level of income might make that household ineligible for programs and services which served to supplement their prior income, such as food stamps, discounted childcare, or financial aid. The lasting impact of policy changes based on this model should be carefully analyzed prior to implementation.

Data Analysis:

In our analysis of the American Community Survey data, we were able to determine not just the number of households that are part of the ALICE population, but also the percentage of each household type that belongs to the ALICE population. We also looked at how many families in Lane County lived in poverty in order to determine what percentage of each household type was below a self-sufficient level of income. In three of the six household types, over 50% of the population in 2011 was below a cost-of-living income, and for the other three, only 52%-61% of households were able to earn an income high enough to be considered self-sufficient.

We obtained all of our ALICE numbers and percentages through the DataFerrett software. Although we originally intended to gather information for households of up to eight

persons, we instead gathered information for households containing from one to six people, as the ACS weighted data for households above that size are not statistically significant. We generated the number of households that are part of the ALICE population by using three variables on Dataferrett: household income over the past 12 months, a geographical identifier using the codes 701 and 702, which represent Lane County, and the number of persons in the household. Code 701 is the geographical area of greater Lane County, and code 702 is the geographical indicator for the Eugene/Springfield metro area. United Way of Lane County distinguishes between these two regions in their programs, so we have chosen to incorporate some information that distinguishes between the ALICE populations in these two different parts of Lane County. The following map, from the US Census Bureau, demonstrates the extent and location of the 701 and 702 regions.



(US Census Bureau, 2000)

As previously stated, the ALICE population is comprised of households whose income is above 100% of FPL and below the OSS for that household type. In order to retrieve the correct data, we input a different range of maximum and minimum income for each household type. Workforce Inc.'s OSS report defines household types in a different way than the ACS defines household types: the ACS defines households by the number of individuals in the household, and the OSS determines the cost of living based on household composition - whether the household is composed of one adult, two adults, an adult with a pre-school aged child, an adult with a teenager, etc., - as seen in the chart below.

MONTHLY COSTS	Adult	Adult + Preschooler	Adult + Infant Preschooler	Adult + Preschooler School-age	Adult + School-age Teenager	Adult + Infant Preschooler School-age	2 Adults+ Infant Preschooler	2 Adults + Preschooler School-age
Housing	\$634	\$803	\$803	\$803	\$803	\$1,123	\$803	\$803
Child Care	\$0	\$843	\$1,804	\$1,275	\$432	\$2,236	\$1,804	\$1,275
Food	\$206	\$313	\$411	\$470	\$544	\$554	\$590	\$645
Transportation	\$219	\$226	\$226	\$226	\$226	\$226	\$432	\$432
Health Care	\$110	\$310	\$325	\$330	\$350	\$346	\$381	\$386
Miscellaneous	\$117	\$250	\$357	\$310	\$235	\$448	\$401	\$354
Taxes	\$246	\$599	\$951	\$746	\$262	\$1,258	\$979	\$532
OR Working Family Child Care Credit (-)	\$0	\$0	\$0	\$0	-\$173	\$0	\$0	-\$510
Earned Income Tax Credit (-)	\$0	\$0	\$0	\$0	-\$275	\$0	\$0	-\$52
Child Care Tax Credit (-)	\$0	-\$58	-\$100	-\$100	-\$55	-\$100	-\$100	-\$100
Child Tax Credit (-)	\$0	-\$83	-\$167	-\$167	-\$167	-\$250	-\$167	-\$167
SELF-SUFFICIENCY WAGE								
HOURLY	\$8.70	\$18.20	\$26.20	\$22.13	\$12.41	\$33.19	\$14.55 per adult	\$10.22 per adult
MONTHLY	\$1,532	\$3,203	\$4,611	\$3,894	\$2,184	\$5,841	\$5,122	\$3,599
ANNUAL	\$18,384	\$38,437	\$55,335	\$46,729	\$26,203	\$70,094	\$61,469	\$43,190

In order to reconcile the difference between the ACS earnings per household and the actual cost of living according to Workforce Inc.'s definition, we used a website called the Prosperity Planner (www.prosperityplanner.org); a tool designed by Workforce Inc. to demonstrate the self-sufficient level of income for each household type. Using this resource, we generated the numbers for the upper bound of income for each household. To use this website,

we entered the ages of people in the household and their specific location, in this case, Lane County, which outputs a summary table informing us how much income those households need to make to be considered self-sufficient. Because the OSS is partially determines household type based on presence of children in the household and those children's ages, we respectively put different child age ranges from infant, preschooler, school age, and teenager, and took the average of the amount of money required to be self-sufficient for each household.

The disparity between the federal poverty limit and the self-sufficient level of income is quite large for every household type, as demonstrated in the following chart. In the most extreme case, in household type 6, the discrepancy is as large as \$56,668 between the federal poverty limit and the actual cost of living for a six-person household in Lane County.

Household Type	Federal Poverty Income Level (\$)	Oregon Self-Sufficiency Income Level (\$)
1	\$10,890	\$18,389
2	\$14,710	\$38,437
3	\$18,530	\$42,757
4	\$22,350	\$58,251
5	\$26,170	\$60,012
6	\$29,990	\$86,658

We took the average of the OSS for all different types of households (for instance, for a household containing three persons, we took the average of two adults and one preschooler; 1 adult, one school age child [6-12 years] and one teenager; as well as other possible combinations) in order to arrive at the table above. However, in order to demonstrate the range that the OSS can include, we have created the following table, which demonstrates the highest and lowest self-sufficient level of income for each household type.

This table shows the highest and lowest self-sufficiency levels of income within each household type. For example, household type 3, which contains one adult, one school-aged child, and one teenager, needs to have an income of \$26,203 to be financially self-sufficient. Another

version of household type 3, consisting of one adult, one infant, and one pre-school aged child, needs to earn \$55,535 to be considered self-sufficient. The disparity of income within the household types is a factor in the household types 3-6, and further, but we are not including household types 7 and 8, as explained previously.

Household Type	Oregon Self-sufficiency Standard (OSS)	
	Low	High
1	\$18,384/annually	
2	\$38,437	
3	\$26,203 (A+S+T)	\$55,535 (A+I+P)
4	\$43,190 (2A+P+S)	\$70,094 (A+I+P+S)
5	\$53,035.96 (2A+2I+S)	\$75,836 (2A+I+P+S)
6	\$53,257.11 (2A+2I+S+T)	\$86,658.43 (2A+I+2S+T)

(A=adult, T=teenager, S=school-aged, P=pre-school-aged, I=infant)

The two largest expenses that generate differences in the income required for self-sufficiency within the same household type are childcare and taxes. A household with an infant, a pre-school age child, and a school-aged child tends to need higher earnings to attain self-sufficiency than a three-person household that consists of two adults and one teenager, primarily due to childcare costs. For example, according to the Prosperity Planner, a household type 3 which has one adult, one infant, and one pre-school aged child would spend

\$1,804 on childcare each month (more than twice their cost of housing, which is estimated to be \$804/month) while another three-person household with one adult, one school-aged child, and one teenager would spend just \$432 on childcare. It is reasonable to say that a household with children whose ages range from infants to school-aged children spend more money on childcare. Typically, adults in the ALICE category are employed full-time, so they require a high amount of childcare when there are children present in the household.

Another major expense that causes the difference in the upper and lower bounds of the ALICE range within households of the same type is tax. According to the OSS report, a household type 3 with one adult, one infant, and one pre-schooled child pays \$951 in taxes each month at a self-sufficient wage, while the one adult, one school-aged child, and one teenager household pays just \$262 in taxes. Households with more children (especially those from infants to school-aged) need to earn a higher income than the other types to pay for childcare and be financially self-sufficient. By earning higher incomes, these household types end up facing a larger tax burden than the others.

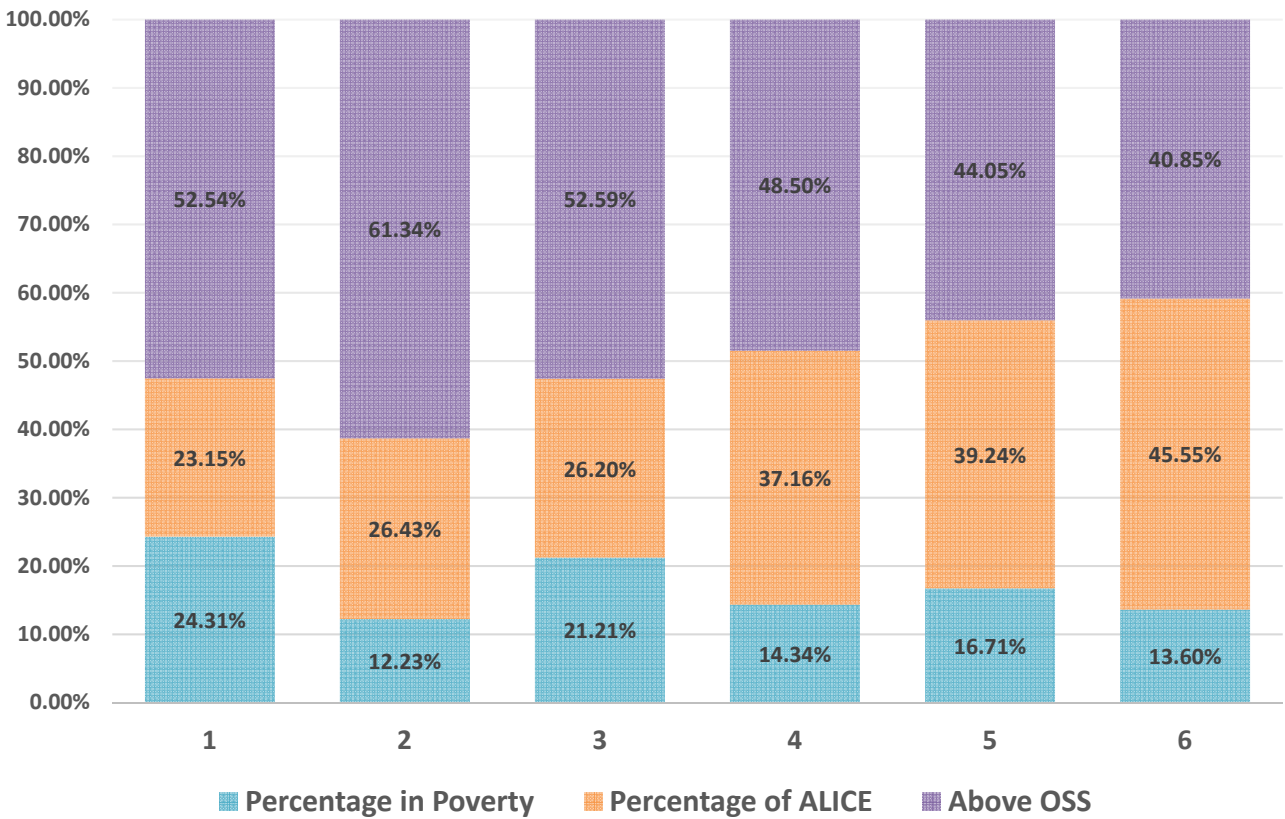
To determine how many households of each type are part of the ALICE population, we made a variety of calculations. For household type 1, for instance (a household consisting of just one person), we restricted the search parameters to households in Lane County consisting of one person, who earned between \$10,890 and \$18,389 in 2011. The total number of households of this type in Lane County is 10,099, with a standard error of 1,799.74. The data also shows that the average household income is \$14,535.80 (Although it appears similar, this number is not the average of the FPL and OSS; it is the average household income of the 10,890 people in household type 1 in Lane County).

Household Type	Total number of Households	Number of ALICE by Household Type	Percentage of ALICE by
-----------------------	-----------------------------------	--	-------------------------------

			Household Type
<u>Type 1</u>	<u>43,630</u>	<u>10,099</u>	<u>23.15%</u>
<u>Type 2</u>	<u>56,820</u>	<u>15,017</u>	<u>26.43%</u>
<u>Type 3</u>	<u>20,741</u>	<u>5,434</u>	<u>26.20%</u>
<u>Type 4</u>	<u>14,081</u>	<u>5,233</u>	<u>37.16%</u>
<u>Type 5</u>	<u>6,830</u>	<u>2,680</u>	<u>39.24%</u>
<u>Type 6</u>	<u>2,213</u>	<u>1,008</u>	<u>45.55%</u>

Although this study does not focus specifically on people below the poverty line, as they are already targeted by a variety of programs intended to alleviate their financial issues, it is useful to compare the size of the ALICE population to the number of people living in poverty. We have found the ALICE household rate for each of the six household types by taking the number of Alice households divided by the total population of the household types, and we have done the same with the households living in poverty. The following chart shows that the number of Lane County residents who earn less than the amount of income needed to be self-sufficient is significantly greater than would be indicated if the federal poverty line were used as the only measure of insufficient income.

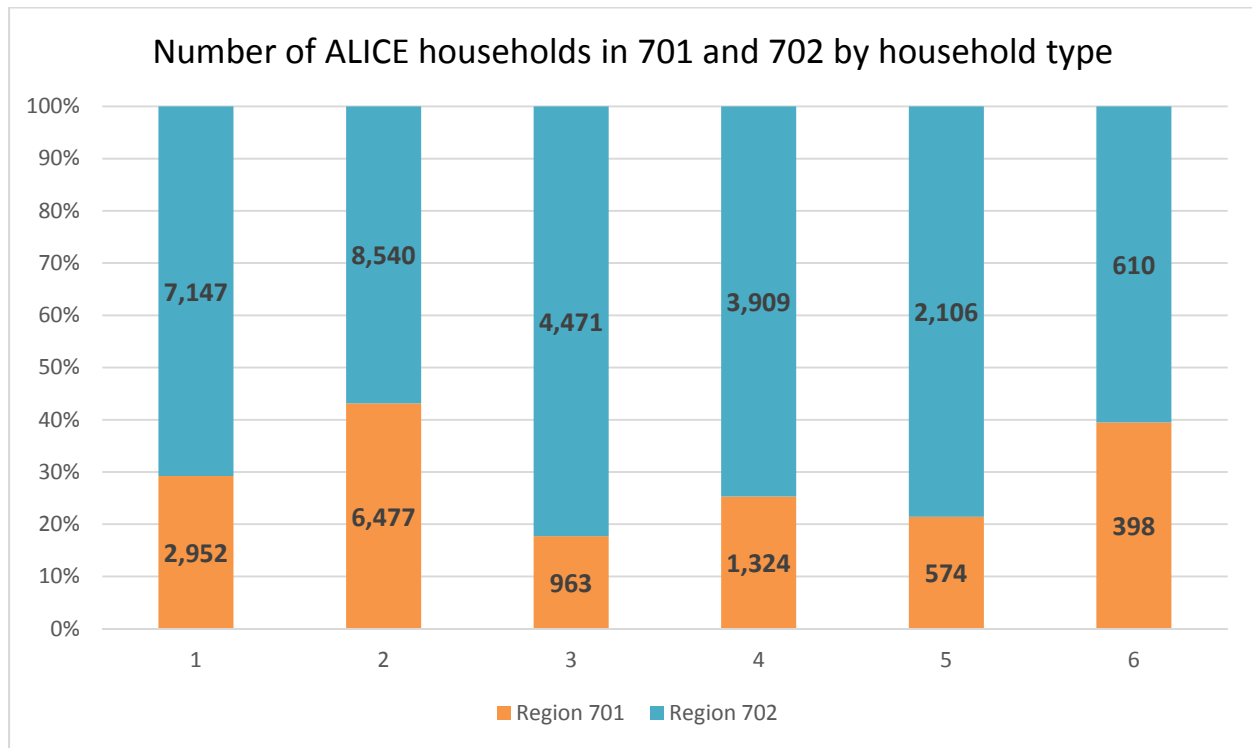
POVERTY, ALICE AND SELF-SUFFICIENCY, BY HOUSEHOLD TYPE



In household type 6, the household type with the fewest households above OSS, only 40.85% of households earn enough money to be considered financially self-sufficient, and in household type 2, the most self-sufficient group, only 61.34% of households are above the OSS. In contrast, the poverty rates for households of each type are just 13.60% and 12.23%, respectively. This tremendous discrepancy shows the need for aid organizations as well as local and federal government to recognize the flaws inherent in the current system of poverty measurement, as it falls short of the true requirements of the population by a wide margin.

As United Way is interested in knowing where the ALICE households are, that is, how much of the ALICE population is located in the Eugene/Springfield area vs. greater Lane

County, we have also created the following chart to show whether the ALICE households fall into the 701 (greater Lane County) or 702 (Eugene/Springfield) regions, sorted by household type.



Because we do not have ACS data (or an OSS limit) for 2012 or 2013, we have created an estimator in order to give us a rough idea as to the figures for those years.

Outreg 1 Table 1

VARIABLES	(1) Results	(2) Results	(3) Results	(4) Results	(5) Results
Unemployment	80,763.25*** (10,751.81)				64,176.29 (33,347.26)
Povertynum		0.62 (0.35)			
Povertyperc			99,906.05 (52,767.78)		
Wage				2,331.88*** (492.25)	522.46 (841.54)
Constant	31,227.50***	26,525.92**	24,660.34**	1,517.24	24,445.09

	(934.86)	(6,886.90)	(7,367.60)	(7,987.32)	(10,585.66)
Observations	6	6	6	6	6
R-squared	0.94	0.37	0.38	0.89	0.95

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Our first OLS regression allowed us to see which of our variables had the greatest correlation with the variation in the size of the ALICE population. In the first table, models 1-4 attempt to capture how each variable by itself is correlated with the ALICE population. As the table above (Table 1) demonstrates, Unemployment and Wage were the most highly correlated with the changes in our left-hand side variable, so those are the variables that we chose to use in our predictive model. In the following table (Table 2) we regressed Unemployment and Wage on the ALICE population for our first five observations (2006-2010), and then plugged the 2011 year into our equation to determine what our model would predict for the ALICE population size in 2011. Plugging the data for unemployment rate and real median wage rate for 2011 into the regression estimates table gave us a very similar estimate of the ALICE population to the estimate we found in DataFerrett for the same year. With DataFerrett, our estimate of the ALICE population was 39,471 for 2011, and our model predicted a number quite near the estimate: 38,926. For 2012 the same prediction procedure was done but we utilized all 6 data points (2006-2011) in hopes of achieving greater accuracy.

Outreg 2 Table 1					
VARIABLES	(1) Results	(2) Results	(3) Results	(4) Results	(5) Results
Unemployment	79,019.45*** (10,590.93)				75,167.38 (43,597.66)
Povertynum		1.19* (0.42)			
Povertyperc			223,963.87** (48,920.65)		
Wage				2,401.06**	126.78

Constant	31,272.11*** (933.60)	16,606.64 (8,244.29)	9,040.62 (6,853.09)	(532.85) 509.13 (8,637.41)	(1,178.19) 29,621.82 (14,669.95)
Observations	5	5	5	5	5
R-squared	0.95	0.45	0.55	0.88	0.95

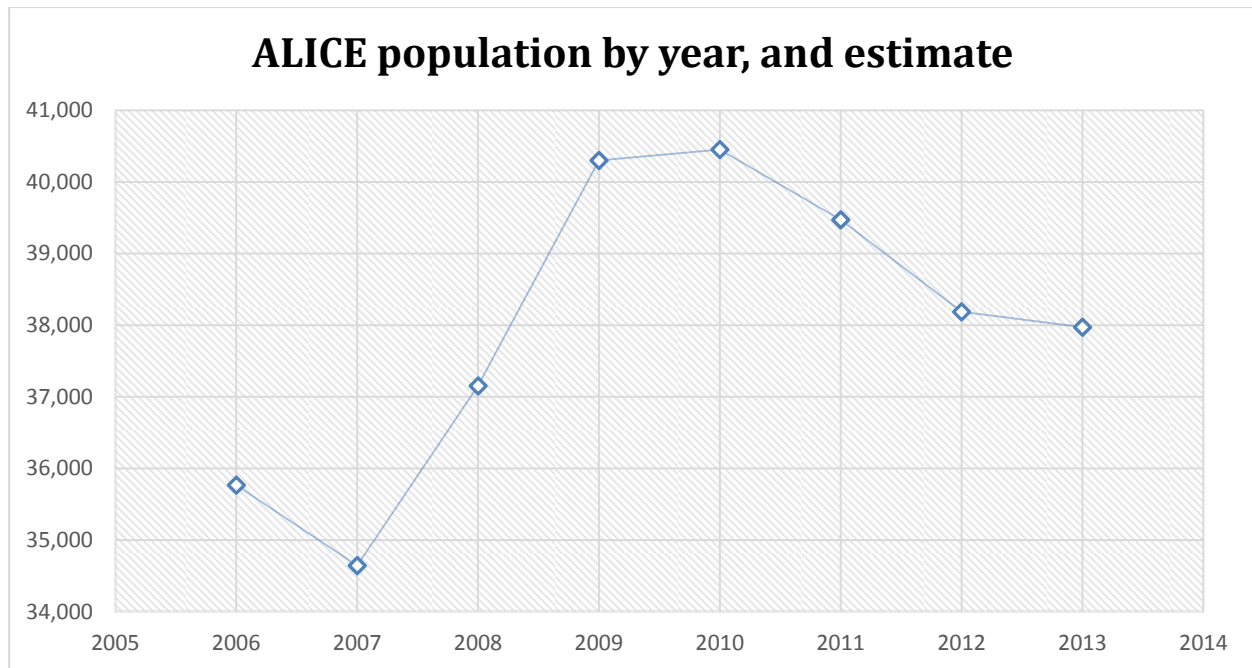
Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Because we do not yet have median wage data for 2013, the 2013 estimate of the ALICE population for that year is done with just unemployment as a predictive variable. We do not believe that this result is as accurate as the result we would achieve if we had access to wage data for this year, but our figure was checked by estimating 2011 using the 5 data points and only unemployment as a variable. This model output an estimate of 38,865 for the size of the ALICE population. This is slightly lower than the estimate we found using both unemployment and median wage, but we believe it is adequate as a very rough guide to where the Alice population is moving through time.

Year	Unemployment	Median Wage	Poverty(num)	Poverty(perc)	Alice
2006	5.43%	\$14.22	17227	0.126	35,767
2007	5.19%	\$14.78	16157	0.118	34,644
2008	6.70%	\$15.35	17764	0.127	37,153
2009	12.10%	\$16.58	17052	0.126	40,300
2010	11.02%	\$16.44	20113	0.142	40,452
2011	9.61%	\$16.41	22582	0.16	39,471
2012	8.59%	\$16.63	No data	No data	38,187 (est.)
2013	8.48%	No data	No data	No data	37,972 (est.)

We can see from our estimates that Alice peaked post-recession, but now as the economy recovers the ALICE population is decreasing in Lane County.



(2006-2011 data from DataFerrett, 2012-2013 data estimated in STATA)

Because we have only been able to obtain data on earnings to find the ALICE population for six years, our estimator is only a rough guide to the fluctuation in Alice. The estimator primarily highlights which variables are most correlated with the changes in the size of the ALICE population, and therefore should be monitored in the future to anticipate changes in this group before the current-year data is available.

Conclusions:

Although we do not have ideal data for performing this analysis, we believe that with the information we have gathered, we have been able to answer the questions that United Way of Lane County is concerned with. It is clear that the population who is unable to meet its cost-of-living needs in Lane County is significant, and that this group might face many barriers that residents might not encounter, due to their lack of eligibility for many state and federal programs

and services. If income inequality continues to increase, the problems for this group may be expected to increase in turn, and the ability to evaluate the characteristics of this population and create sensible, evidence-based policies as early as possible will be essential in providing this group with the ability to become financially self-sufficient, before the problem becomes even greater.

We believe it would be beneficial for United Way to contact Workforce Inc., the creators of the Oregon Self-Sufficiency Standard and the Prosperity Planner website. A partnership between these two organizations could be very helpful for United Way, as they would have access to a greater amount of data concerning the ALICE population, and they could benefit from the resources that Workforce has access, as well as their continued updates on the OSS level.

It would be helpful for United Way if future investigations were able to gather data about assets, which we were not able to do. Other helpful data would include demographic information, such as age, gender, level of education, and race, so that United Way could more easily create programs to target the ALICE population. Programs that could assist with the cost of childcare would be incredibly beneficial to this group, as childcare can be a very significant fraction of household expenses, and people in the ALICE income bracket may not qualify for government-funded programs to assist with childcare. Taxes are another significant expense for these households, so financial literacy programs that educate low-income groups about the tax credits and deductions that are available to them could prove very helpful for the ALICE population. In the long run, however, one of the most important ways to decrease the size of the ALICE population would be to increase income for low-income Lane County residents. As we explained, out of the top ten most common jobs in Oregon, only registered nurses earn a median

wage that puts them above cost-of-living wages. This may indicate that job-training programs, as well as college or vocational preparation programs, could be instrumental in enabling people to cross the ALICE income threshold into financial self-sufficiency.

We hope that this investigation will prove to be a useful tool for United Way to implement policies directed at serving this population and improving economic conditions in Lane County.

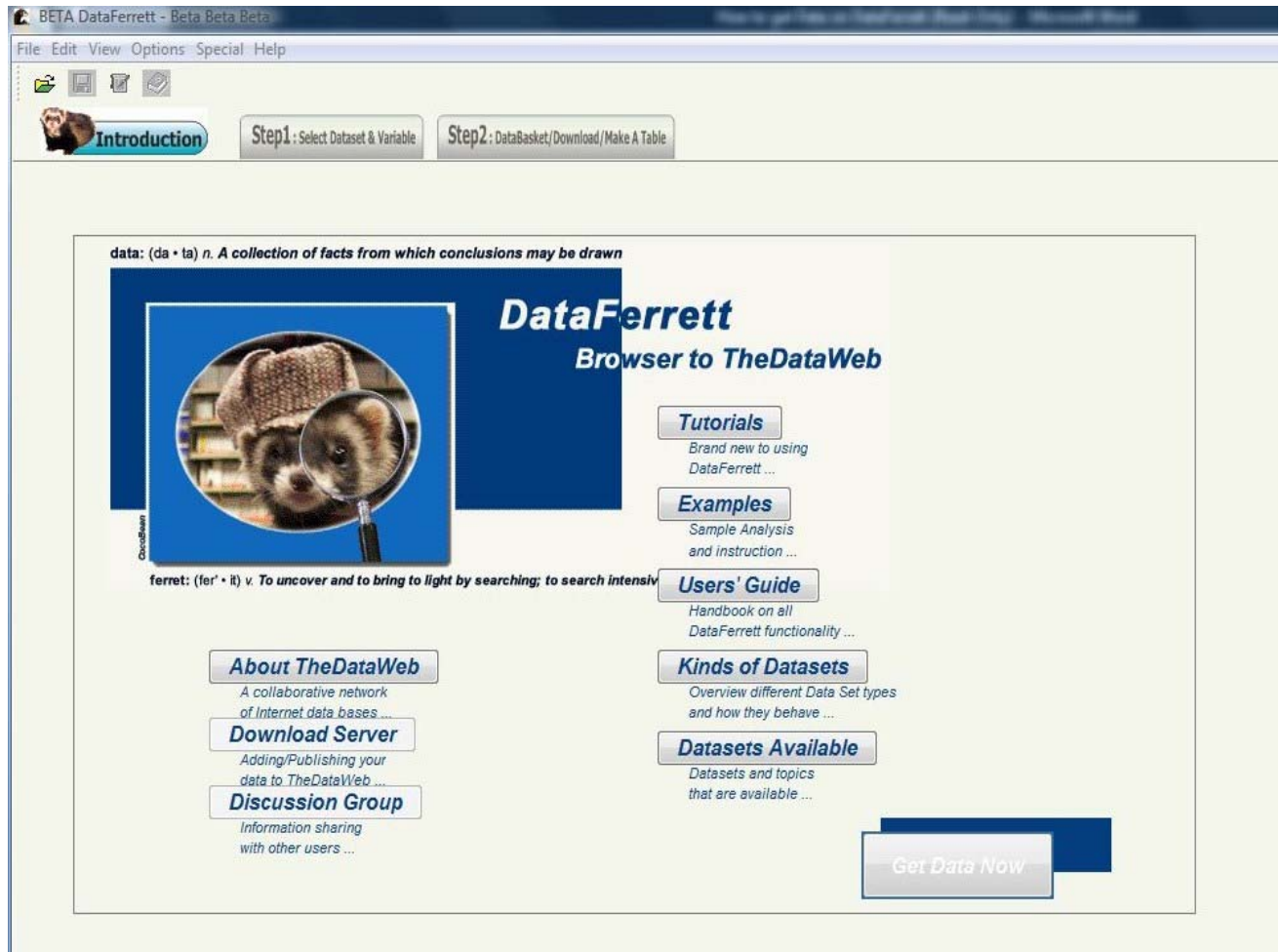
Tutorial Guide: How to get data on DataFerrett

First, we need to know what variables we are looking for. For this thesis, we are looking for the size of ALICE population and its distribution in Lane County, Oregon. To this purpose, we are looking for two main variables: housing (housing incomes, and number of person in household), and geographic entities (Lane County whose PUMA code are 701 and 702.)

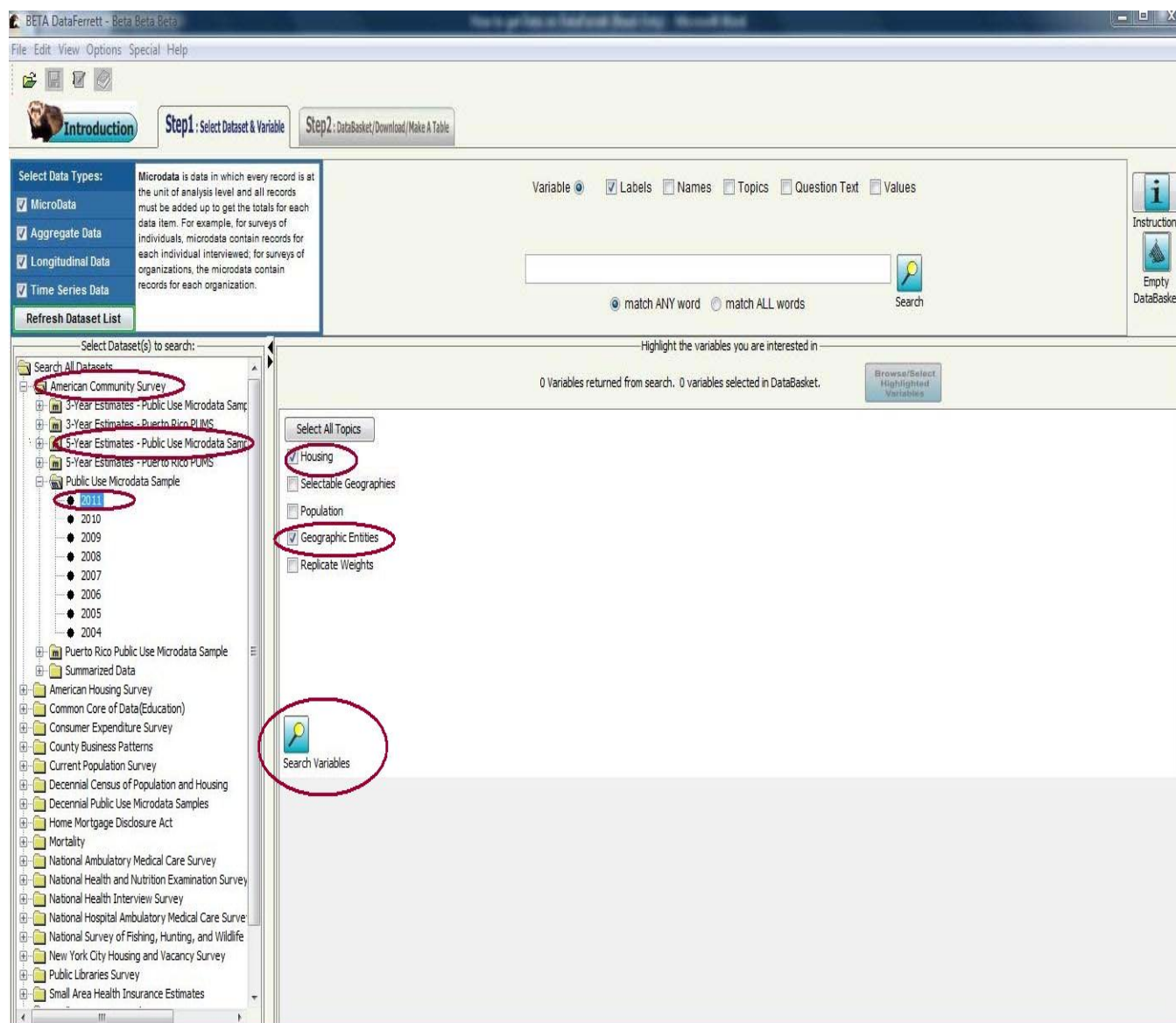
In order start our search, log-in DataFerrett website at

<http://thedataweb.rm.census.gov/TheDataWeb/launchBetaDFA.html> by entering your valid email address.

After you log in, it will take you to a new window. (See picture below)



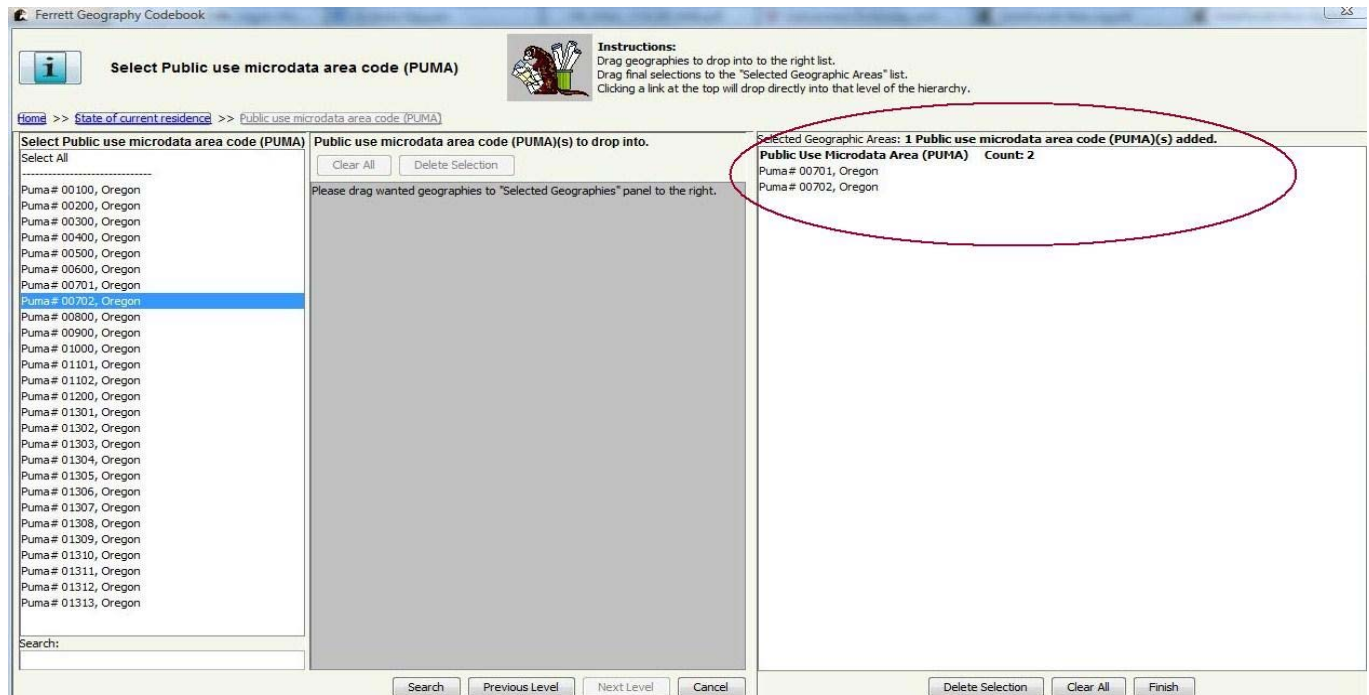
Click on “Step 1: Select Dataset and Variable.” As you see on the left side of the window, there is a “Select Dataset(s) to search” box. Double-click on “American Community Survey”. It now gives you a list of data under “American Community Survey” section. Now, click on “Public Use Microdata Sample”. Then, click on “2011” and choose “View Variables”. As you done that, you will see “Select All Topics” showed on the right side of the screen. Here, check on “Housing” and “Geographic Entities”. Then, hit “Search Variables”. (See picture below)



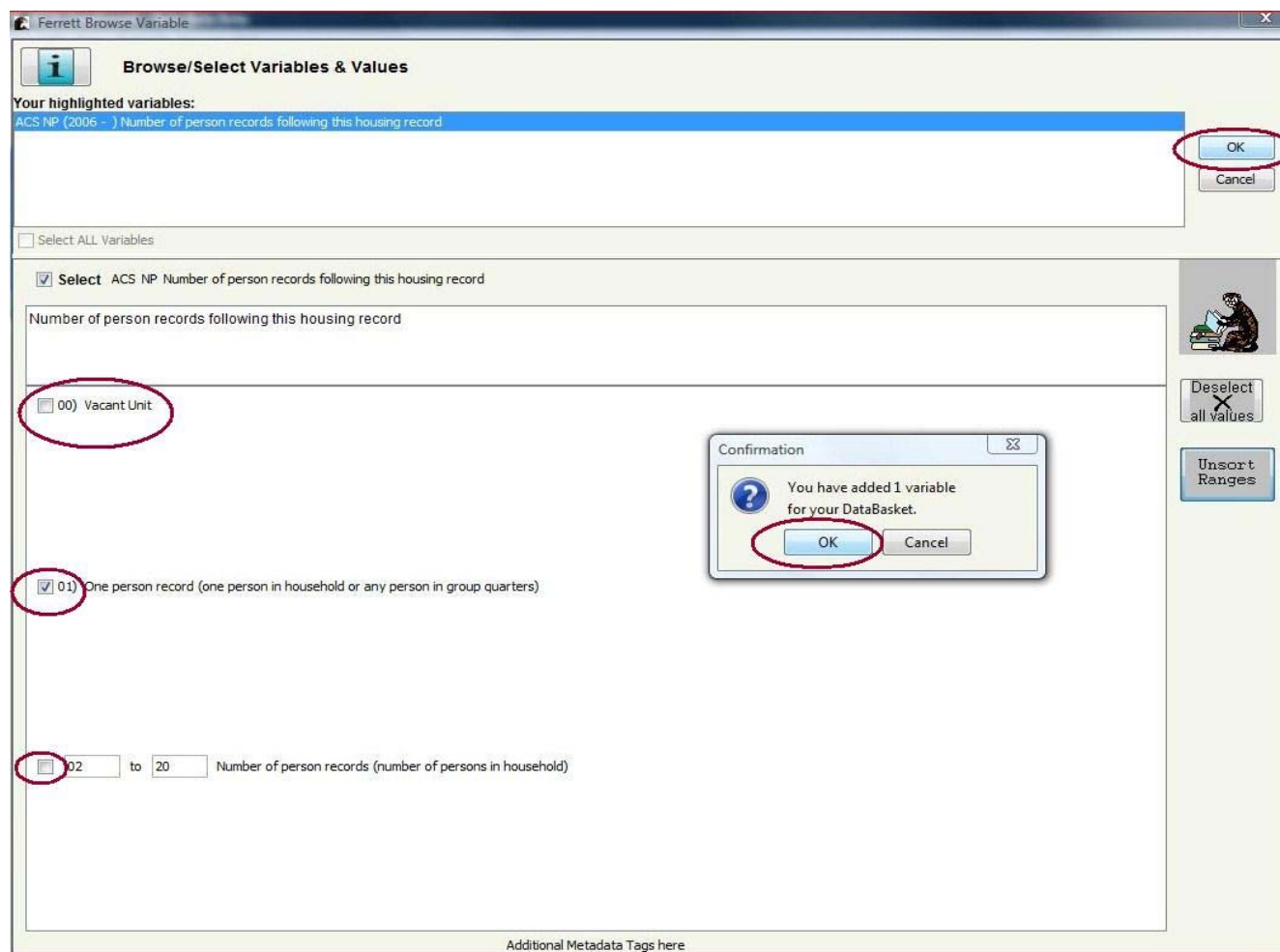
Now, it takes you to another window. You will see a table containing: “Topics”, “Name”, “Availability”, and “Variable Label”, respectively, on the first row of the table. You are looking for three variables: geography, number of people in household, and household income. Now, we will show you how to look up data for Household Type 1 (a household that has one person in the house). The process to look up data for other household types is similar to this.

1. Look for “Geographic Items”, then double click on it. You will see another window named “Ferrett Geography Codebook”. Click on “State”. Then, click on ‘State of Current Residence > Public

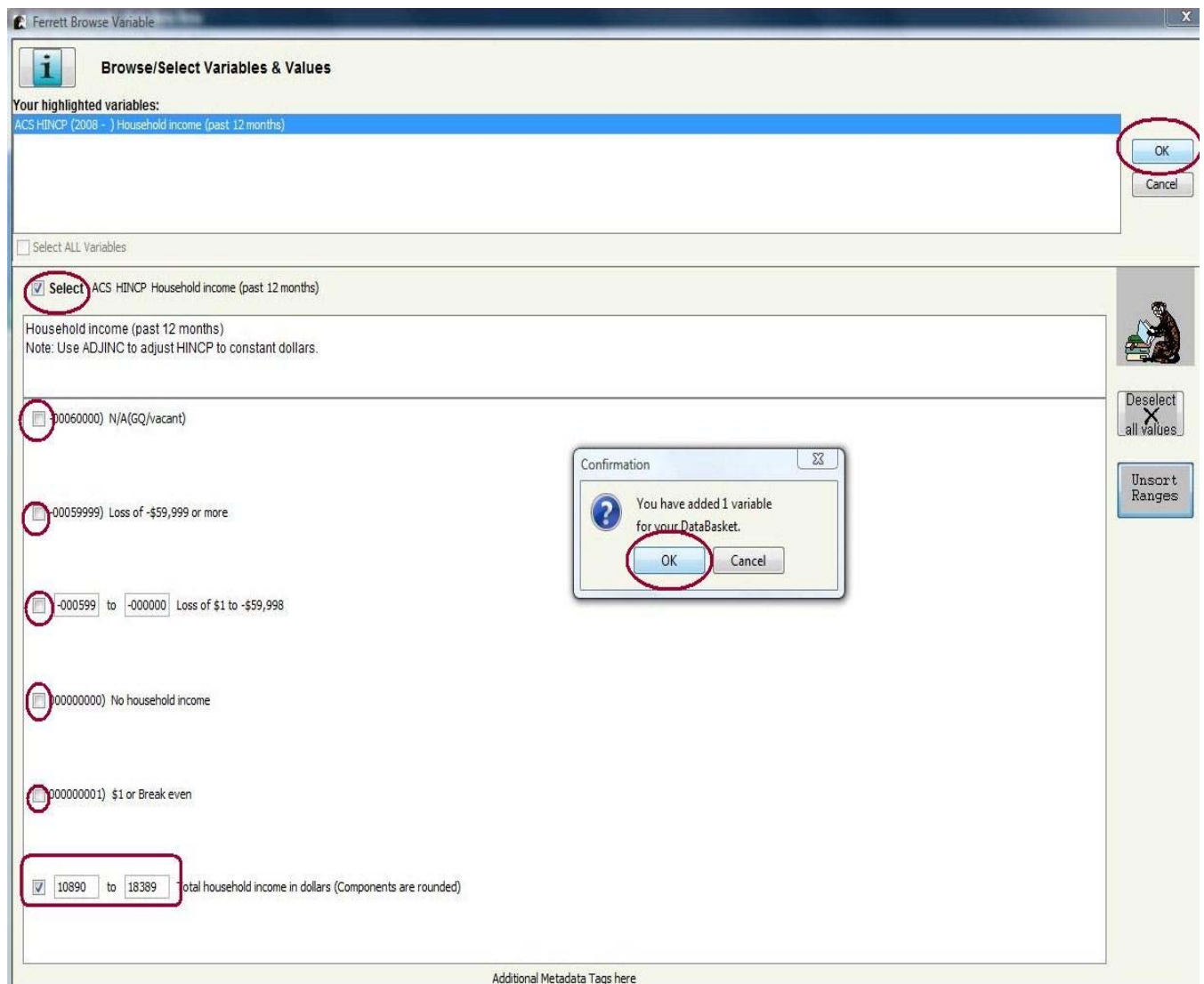
Use Microdate Area Code (PUMA)”. Again, it takes you to another window. Choose “Oregon”, then hit “Next Level” at the middle bottom of the window. Another window will pop up; click on “Puma #701, Oregon” and “Puma #702, Oregon”, then drag them to the right side section called ‘Selected Geographic Areas’. Finally, hit “Finish”. If you are doing it correctly, your window should look like the picture below.



2. Now, you will look for the “NP” variable, which means “Number of Person Records following this Housing Record”, and click on it. Then, you will see a new window said “Ferrett Browse Variable”. Check on “Select: ACS NP Number of Person Records Following this Housing Record.” Then, un-select the first box “00) Vacant Unit” by clicking on its little check box. You are looking for the number of people in Type 1 Household; thus, you leave the “01 1 Person Record (1 Person in Household or Any Person in Group Quarters)” box. Then, un-select the last box “02 to 20 Number of Person Records (Number of Person in Household”. Finally, hit “OK” on the top right hand side of the window. Then you will see a “Confirmation” window said “You have added 1 variable for your Data Basket.” Click “OK”. (See picture below)



3. Lastly, you look for “HINCP Household Income (Past 12 Months)” on the table. Click on it, then check “Select box ACS HINCP HH Income (Past 12 Months)”. There are 6 checked boxes in the table, unselect the top 5 boxes from the top to bottom by clicking on them. Select the last check-box “Total Household Income in \$ (Components Are Rounded)”. This is the Type 1 Family whose lower bound earnings (number get from FPL) is \$10,890 and upper bound earnings (number gotten from OSS) is \$18,389. Enter these numbers in the boxes. After entering 10,890 and 18,389 in to the range respectively, click ‘OK’. Also click “OK” as the “Confirmation” window popped up. (See picture)



After you done selecting the variables, hit on “Step 2: DataBasket/Download/make a Table” located on the top of the DataFerrett window. Here, you can decide whether to download or make a table as your preference. If you want to see the statistic quickly, choose “Make a Table”. Click on “Make a Table”. Then, you will see a spreadsheet on the left, and your selected variables will be on the right side. Drag “Average HINCP” to R1C1 box on the spreadsheet. Then, drag “NP Number of Person...” to the spreadsheet. You do not need to drag “GEOG-101” to the spreadsheet. After you done all of the above steps, click “Go Get Data” showed on the top of the spreadsheet. Then, all the data will be showed on that spreadsheet. (See pictures)

BETA DataFerrett - Beta Beta Beta

File Edit View Options Special Help

Introduction

Step1: Select Dataset & Variable

Step2: DataBasket/Download/Make A Table

Review your variables then go back to select more variables or go on to get data

Download

Make A Table

i

Download

Current Query Variables from ACS (Public Use Microdata Sample):

Name	Variable Label	Availability
GEOG-101	Public Use Microdata Area (PUMA)	2006 - current
NP	Number of person records following this housing record	2006 - current
HINCP	Household income (past 12 months)	2008 - current

Act on Your Query:

Recode Variable

Delete Variable(s)

View/Modify Variable(s)

Advanced Sql Option

Change Longitudinal Period

Add TimeSeries Time

Merge Datasets

Save Selected Variable(s) CodeBook

Create Multi-Variable Data Step

Name	Variable Label	Availability
GEOG-101	Public Use Microdata Area (PUMA)	2006 - current
NP	Number of person records following this housing record	2006 - current
HINCP	Household income (past 12 months)	2008 - current

The screenshot shows the Ferrett Tabulation software interface. The top menu bar includes 'File', 'Edit', 'Format', 'View', 'Options', and 'Help'. A 'GO Get Data' button is highlighted in the top toolbar. The main window displays a pivot table with the following data:

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17
R1																	
R2	Total HINCP	10,099															
R3	Average HINCP	14,535.8															
R4	Std Err HINCP	1,799.74															
R5																	
R6																	
R7																	
R8	Total NP	10,099															
R9	One person record (one person in household or any person in group quarters)	10,099															
R10																	
R11																	
R12																	
R13																	
R14																	
R15																	
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R30																	
R31																	
R32																	
R33																	
R34																	
R35																	
R36																	

The right sidebar shows the variable list and a summary of the current selection:

- SEOG-101 Public Use Microdata Area (PUMA)
- NP Number of person records following this housing
- Average NP Number of person records following th
- Average HINCP Household income (past 12 months)

Universe: ((HINCP between 10
Weight used: WGTP
DataSet(s) selected: 2011

In order to get data for Type 2, 3, 4, 5, 6, 7, and 8 you will basically do the same thing that you have gone through these above steps. After saving the table you just make for household type 1, you can close it. There are several things to keep in mind. We do not need to change the “Geographic Entities”. However, we need to change number of person in household and its following income. We can change it by clicking on the variable directly, and it will take you to the new window where you can enter the new value for your variables. If you are looking for number of people in household type 2, you simply just

need check and enter 02 – 02 to the last box of ACS NP table. Similar for household earning, you put 14710 as the minimum and 38437 as the maximum. (See picture). To find data for household type 3 (put 03-03 as NP range, and earning range for household type 3 following the table we previously provided), and that is similar for household type 4, 5, and 6. Then, click on make table and repeat what you did for household type 1; you will be able to get data for certain household type.

The screenshot shows the 'Ferrett Browse Variable' window with the title 'Browse/Select Variables & Values'. Under 'Your highlighted variables:', the variable 'ACS NP (2006 -) Number of person records following this housing record' is listed. The 'OK' button is circled in red. Below this, there is a checkbox for 'Select ALL Variables' and a 'Select' checkbox, which is also circled in red. The variable 'ACS NP. Number of person records following this housing record' is selected. Below this, there are two radio button options: '00) Vacant Unit' and '01) One person record (one person in household or any person in group quarters)'. The '01' radio button is circled in red. At the bottom, there is a range selection box with '02' in the first and last boxes, and 'to' in between, with the text 'Number of person records (number of persons in household)' to its right. This range box is also circled in red. A 'Confirmation' dialog box is overlaid on the right side, stating 'You have modified 1 variable for your DataBasket.' with 'OK' and 'Cancel' buttons. The 'OK' button in the dialog is circled in red. On the right side of the main window, there are buttons for 'Deselect all values' and 'sort ranges'.

Browse/Select Variables & Values

Your highlighted variables:

ACS NP (2006 -) Number of person records following this housing record

☐ Select ALL Variables

☒ **Select** ACS NP. Number of person records following this housing record

Number of person records following this housing record

☐ 00) Vacant Unit

☒ 01) One person record (one person in household or any person in group quarters)

☒ 02 to 02 Number of person records (number of persons in household)

Additional Metadata Tags here

Confirmation

You have modified 1 variable for your DataBasket.

OK Cancel

Deselect all values

sort ranges

Ferrett Browse Variable

i

Browse/Select Variables & Values

Your highlighted variables:

ACS HINCP (2008 -) Household income (past 12 months)

OK

Cancel

☐ Select ALL Variables

☒ Select

ACS HINCP Household income (past 12 months)

Household income (past 12 months)

Note: Use ADJINC to adjust HINCP to constant dollars.

☐ -0060000

N/A(GQ/vacant)

☐ -00059999

Loss of -\$59,999 or more

☐ -000599

to

☐ -000000

Loss of \$1 to -\$59,998

☐ 00000000

No household income

☐ 00000001

\$1 or Break even

☒ 14710

to

18389

Total household income in dollars (Components are rounded)

?

You have modified 1 variable
for your DataBasket.

OK

Cancel

Deselect
all values

Unsort
Ranges

Additional Metadata Tags here

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