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ABSTRACT

Is community size tied to attitude towards environmental spending? Previous research has shown that whether one lives in an urban, suburban, or rural setting affects one's environmental spending views and behaviors. I propose that living in an urban setting causes one to believe that the United States government is spending too little on the protection and improvement of the environment. Using 1,240 responses from interviews conducted in the 2016 General Social Survey, regression analyses were conducted to determine the relationship between community size and environmental spending views while controlling for political view, family income, and years of education completed. The results from the bivariate analysis show no correlation between community size and environmental spending views, but a weak, positive correlation between political views and environmental spending views, suggesting that identifying as liberal is what drives environmental spending views. Additionally, bivariate results show a very weak, positive correlation between highest year of school completed and environmental spending views. In the multivariate results, this relationship disappeared, but political view remained a statistically significant variable on environmental spending views. These results do not support my hypothesis, though they challenge much of the literature on the subject. Future research should further explore sociological determinants of environmental spending views such as political view, and examine the waning of the community size effect.

Community Size and Environmental Spending Views: Urban, Suburban, and Rural Attitudes on Environmental Protection and Improvement

With each climate report, many Americans increasingly recognize that the future of our planet is bleak. No matter how credible the source, issues of the environment are taken with varying degrees of seriousness. The topic is thought of usually in terms of politics, framing it as a liberal vs. conservative issue, but there are other sociological factors that likely affect one's views regarding government spending on the environment. Take size of community, for example. When contrasting rural, suburban, and urban areas, residents of each may think about the environment differently.

Sociologists have studied the relationship between environmental concern and place. Urban, suburban, and rural communities have their own sets of values and commonalities, like common educational attainment, income levels, and political affiliation. Characteristics like these and others help make up a community, and many of them are directly tied to the geographical size, as discussed in later sections. Therefore, the size of a community may be what drives differences in opinion. Regardless of whether that is true, sociological data revealing any kind of patterns regarding this topic could help policymakers and those with environmental messages understand why groups may have certain dispositions, and how to reach those that are less inclined to care. Efforts could include developing effective environmental education or framing environmental issues in a non-partisan way.

By isolating community size variables, it will be evident whether the size of a place, whether it is comprised of less than 3,000, over 50,000, or any amount in between, has any direct bearing on environmental spending views. Is there something about the nature of urban, suburban, and rural places that create common views on environmentalism? I hypothesize that

the greater one's community size, the more likely one is to support government spending on the environment.

THEORETICAL FRAMEWORK

Extractive Commodity Hypothesis

The extractive commodity hypothesis is a utilitarian value orientation to which rural residents are supposedly more inclined. It refers to "the likelihood of rural residents having an economic dependence on resource extraction, thus valuing economic growth over environmental protection" (Huddart-Kennedy et al. 2009) (Jones et al. 2003). Rural occupations include farming, mining, logging, and other extractive measures (Podeschi and Howington 2013). As J. Allen Williams and Helen Moore (1991) write, working in these occupations that exploit natural resources "engenders a nature-exploitative view." This may lead residents to take on an outlook that "nature is to be used, not just appreciated." (200). This theory proposes that individuals who benefit economically from exploitation of natural resources are less concerned than others about environmental protection and improvement. (Williams and Moore 1991).

The theory also differentiates between long-term residents and newcomers (Podeschi and Howington 2013). Place of socialization is important when it comes to the extractive commodity hypothesis. Formerly urban-residing newcomers to a rural area may want to "protect the natural amenities that drew them there in the first place," while long-term rural residents likely "feel economic need and thus favor further development" (Podeschi and Howington 2013). This is not to say that rural residents do not care about the environment, or that the work they do is detrimental, but it is simply a theorized difference of mindset when it comes to the purpose and utilization of nature.

My hypothesis was formulated with the extractive commodity hypothesis in mind. Rural residents, while not all involved in resource-extractive professions, live among a culture that values them. This culture may be part of the socialization to hold certain environmental views, and therefore be less likely to support government spending on the improvement and protection of the environment.

LITERATURE REVIEW

Literature on the relationship between community size and environmental spending views has evolved over the last forty years, showing more consistent results earlier on, and more varying results contemporarily. Scholars have analyzed aspects of communities such as socio-economic levels and education levels specific to rural and urban communities and how they may have effects on environmental opinions and behaviors. Themes pervasive throughout the literature include analysis of urban and rural cultures, the extractive commodity hypothesis, and urban to rural migration.

Rural Background

Rural residents have traditionally been less concerned with environmental protection measures than urban residents. The research previously conducted in this field has traditionally found higher concern among those living in urban settings as compared to those in rural settings (Takahashi and Selfa 2015: 860). Emily Huddart-Kennedy et al. (2009) attribute these differences to rural residents having achieved fewer years of education, lower income, and a more utilitarian value orientation (311). This refers to the extractive commodity hypothesis previously discussed. Congruent with this hypothesis, Gifford and Nilsson (2014) assert, "The anthropocentric tendencies of rural residents seem consistent with their use of natural resources for human ends" (148). Those who theoretically have lower income, especially one that is

dependent on the extraction of natural resources, have historically been less likely to make an economic trade-off for the sake of environmentalism.

Lower levels of education is another characteristic of rural areas. Gifford and Nilsson (2014) write, “One is unlikely to knowingly be concerned about the environment or deliberately act in pro-environmental ways if one knows nothing about the problem or potential positive actions” (142). In the same vein, Faiz Rasool and Charles Ogunbode (2015) assert that rural-urban differences in environmental concern may indicate disparities in levels of environmental awareness and availability of opportunities to engage in environmentally-supportive behaviors (277). There is perhaps a lack of quality environmentally-focused education in rural areas, and when one does not receive any information about environmental problems and potential solutions, one is less likely to care. Hamilton et al. make an interesting point, saying that even when environmental education and research are accessible to rural residents, it is often not framed in a way that is geared towards their lives and experiences: "Research often considers large-scale problems such as climate or sea level, but place characteristics should be at least equally relevant to views about local development or environmental protection, issues facing many rural communities" (Hamilton et al. 2010: 331). If residents were to learn about issues that directly affect their communities, the culture around environmental knowledge and protection could shift.

Additionally, on the impact of environmental education, Aaron McCright and Riley Dunlap (2008) observed the direction of the effect of education changes depending on political view. They found that the proportion who believes that global warming is real increases with education among Democrats, and decreases with education among Republicans. They write,

> New information on climate change (e.g., an IPCC report) is thus unlikely to reduce the political divide. Instead, citizens’ political orientations filter such learning opportunities in ways that

> magnify this divide. Political elites selectively interpret or ignore new climate change studies and news stories to promote their political agendas (McCright and Dunlap 2008: 166).

This is important to consider, as the environment is such a politicized issue, and is seemingly becoming more polarized.

Environmental spending views in rural areas may also be an issue of culture. In their study, Podeschi and Howington found what was expected, that rural residence is correlated negatively with willingness to pay to protect natural amenities. It remained true, however, even after controlling for income. This, they say, "supports interpreting concern for development as a sociocultural or heritage issue for rural residents" (Podeschi and Howington 2013: 438). The culture within rural areas may be what promotes resistance to environmental policy and attitude changes.

Urban Background

The literature traditionally suggests that urban residents show more pro-environmental spending views. Scholars have a few reasons for this. Franz Bogner and Michael Wiseman (1997) believe that urban residents are exposed to worse environmental conditions, so are more likely to experience environmental problems first hand. Therefore, they become more salient to these issues, which in turn leads to greater environmental concern (113). Being exposed to litter, pollution, and other detriments to the environment in an urban space is reason for those residents to feel strongly about the environment.

It is also important to look at the dynamics and culture of urban areas when considering how their attitudes form. Winston Tripp (2018) points out that "green lifestyle choices" centering around sustainability efforts are becoming mainstream (790). When something becomes popular or "mainstream," it is easy for that phenomenon to diffuse across a large population very quickly. Bogner and Wiseman acknowledge that environmental messages can circulate when one

is in such a populous environment: “Given the regular exposure of the general public to media-based messages promoting consumer-based economic growth, any interaction suggesting a perspective outside this normative expectation represents an opportunity to increase one’s level of environmental concern” (Bogner and Wiseman 1997: 114). Being in an urban environment exposes one to more opinions and increases one’s environmental knowledge.

This, some scholars believe, also has to do with Granovetter’s theory of weak ties. Thomas Macias and Elysia Nelson (2011) assert that an urban environment is classified as having a population of 50,000 or greater (570). This fosters one’s ability to have numerous weak ties. They continue, “Individuals with a greater number of ‘somewhat close’ and ‘not very close’ relationships are more likely to favor an economic trade-off in favor of the environment than those with a smaller number of weak ties” (Macias and Nelson 2011: 570). In urban areas where there are more people and therefore more weak ties to be formed, information and opinion are passed around faster, diffusing common opinions effectively. Based on the more accessible educational resources and the more liberal climate in larger communities, the combination of the weak ties and social contexts could more easily foster the development of pro-environmental spending views.

Migration from urban to rural areas seemingly also has a substantial impact. Huddart-Kennedy et al. write,

> Migration of urban residents with pro-environmental values to rural communities, rural communities gaining access to environmental services such as recycling facilities, and the decline in the economic dependency of rural areas on natural resource industries have been cited as factors influencing the growing similarities between rural and urban populations" (Huddart-Kennedy et al. 2009: 315).

Jones et al. (2003) call this phenomenon "Green Migration." They found that those who migrate from an urban area to a rural one tend to have higher levels of education and be more politically active in environmental issues than long-term residents. He acknowledges that green migration can also alter the value structures of receiving communities (Jones 2003: 225). Value structure is a social concept created by those who live within a community, so as Hamilton et al. (2014) point out, environmental spending views of a place is not set in stone: they found that environmental value priorities shift along with increasing heterogeneity of rural areas. Changing livelihoods and the newcomer–old-timer mix of these areas account for a less rigid rural cultural structure than maybe there once was (258). Freudenberg (1991) provides information that supports this green migration hypothesis, and it is that living in an urban area currently is not the strongest predictor of positive environmental spending views, but previously having lived in one is. He writes, "Socialization in a metropolitan environment, rather than current residence in a rural or urban environment, was the factor having the greatest explanatory power" (172).

Changing Elements of Place

Despite the established literature on rural/urban differences, things are changing in rural and urban spheres. According to Jones et al., a "pro-environmental shift is occurring among people employed in resource extractive industries and related occupations, such as the U.S. Forest Service" (Jones 2003). Recent literature such as Podeschi and Howington (2013) and Macias and Nelson (2011) suggests that even the extractive commodity hypothesis is becoming increasingly less accurate because of changing economic spheres and ideals. The urban, liberal ideals are perhaps diffusing into rural sectors. Additionally, those who work with environmental resources may be seeing the effects of climate change first-hand (Jones 2003). Berenguer et al. (2005) found an interesting phenomenon, which differentiates general from specific

environmental concern, and how that relates to urban and rural populations. They found that people living in cities were more environmentally concerned than those living in rural areas because of what they call "environmentalist beliefs" (130). The environmental beliefs were classified as general statements such as "Humans are severely abusing the environment." When both urban and rural residents were asked about more specific and place-based environmental concerns, those living in the rural environment had "a more well-developed sense of moral obligation to care for the environment" (Berenguer et al. 2005: 132). While the sentiment of having pro-environmentalist beliefs is more prevalent in urban communities, rural residents may be more experienced with the changing environment itself and have their own specific concerns about its well-being.

The idea of having a pro-environmental spending views is complex. Research has traditionally shown that urban residents are more liberal, wealthier, and more educated. Is this the reason studies have found them to be more environmentally conscious? Is there something about the urban environment, such as the witnessing of pollution and other environmental detriments or accessibility of diverse opinions, that makes those people care more about the environment? Do rural residents with first-hand environmental experience also have a deep understanding and care for the environment, but show it in a different way? Additionally, studies have cited the extractive commodity hypothesis as a viable reason for less environmentally supportive behavior in rural communities, but are cultural shifting and green migration changing that? Or have rural communities always been environmentally supportive, but in a more place-specific and nuanced way? Studying community size and environmentalism yields varying results, and these results have become even more unclear over time.

METHOD

The data used in this study is General Social Survey (GSS) data from 2016 (Smith et al. 2016). The data were collected from 2,867 randomly selected English and Spanish speaking adults (18+) throughout the United States via 90-minute interviews. The GSS tries to select an accurate representation of those throughout the country. The unit of analysis is the individual. I use size of place as my independent variable, an environment-related government spending question as my dependent variable, and I control for political affiliation, years of education completed, and family income. After removing missing data from all variables, there are 1,240 remaining cases. For more information on how these data were collected, visit the General Social Survey website (http://gss.norc.org/ 2016).

The independent variable, size, measures the size of a city in thousands. It is phrased in the GSS as "A 4-digit number which provides actual size of place of interview" and coded as interval-ratio. I separated this data into four ordinal categories: Rural, Small Suburb, Large Suburb, and Urban. I used the United States Census definition of rural and urban to create this measure. Therefore, a place with less than 3,000 residents became rural and a place with over 50,000 residents became urban. As for everything in between, I coded 4,000 through 25,000 as "Small Suburb" and 26,000 through 49,000 as "Large Suburb." These categories break community size down into urban, suburban, and rural categories, as to better visualize dynamics of that type of community may or may not influence environmental spending views. I dummied this ordinal variable into “Rural” and “Suburb” categories, using the urban category as my reference group, for my univariate, bivariate, and multivariate analyses.

The dependent variable is a question about government spending on the environment. The question is phrased, “Are we spending too much, too little, or about the right amount on improving and protecting the environment?” It is measured by the answers: "Too much", "About the right amount", "Too little", and "Don’t know." The missing data were removed, including the "Don't know" response. I then reverse coded this variable so that being extremely liberal is coded high, as to increase as size of place does. This is my measure of environmental spending views because it ties together political views and environmental views.

My most important control variable is political affiliation. The GSS question reads, "Does respondent think of self as liberal or conservative?" The answers are "Extremely Liberal," "Liberal," "Slightly Liberal," "Moderate," "Slightly Conservative," "Conservative," "Extremely Conservative." I reversed coded this, as I did other variables, coding liberal as higher to orient it with “urban” and pro-environmentalism. Another variable I control for is family income. I recoded the variable, which asks, "In which of these groups did your total family income, from all sources, fall last year?" because it was an ordinal measure. I recoded it to an interval-ratio so the values matched up to the midpoint of the income categories and became easier to measure alongside my other variables. My last control variable is years of education completed. The question asks, "What is the highest grade in elementary school or high school that you finished and got credit for? Did you ever get a high school diploma or a GED certificate? Did you complete one or more years of college for credit? How many years did you complete? Do you have any college degrees?" I did not need to alter this data in any way.

FINDINGS

Univariate Results

Table 1 shows the means, medians, and standard deviations for all variables. Starting with Size of Place (In 1000s), the mean value is 323, representing 323,000 people. However, the median is only 29, or 29,000, meaning that there is a substantial skew due to some cities being extremely populous. The standard deviation for size of place is 1147.480. The mean environmental spending views is 2.55 with a standard deviation of .638, meaning somewhere between "We spend about the right amount on the environment" and "We spend too little." As for political affiliation, the median is the middle category, 4, meaning "Moderate." The mean is also approximately 4 and the standard deviation is 1.456. The household income row shows that the average income is around $64,000 per year, with a median of about $10,000 less and a standard deviation of 48,191.699, representing a skew due to some very wealthy households in the dataset. The average highest year of school completed is approximately 14, with a median of the same value and a standard deviation of 2.954.

[Insert Table 1 about here]

Figure 1 shows the breakdown of respondents by the size of their community. The largest group is urban residents, comprising 37.4 percent of the data. Rural is the smallest category, at only 12.6 percent.

[Insert Figure 1 about here]

Figure 2 represents environmental spending views of respondents. It shows their answers to the question, "Are we spending too much, too little, or about the right amount on improving and protecting the environment?" A majority, 63.3 percent, say that we spend too little. This is

the most pro-environmental response. The fewest amount of people, 8 percent, gave the opposite response: that we spend too much on the environment.

[Insert Figure 2 about here]

Figure 3 shows respondents' political views on a seven-point scale from "Extremely Conservative" to "Extremely Liberal." The majority of people, 38.9 percent, identify as "Moderate." There is a slightly larger portion of conservatives in this sample as well, as 32.1 percent picked one of the conservative-identifying answers. Liberals, however, are closely behind with 29.1 percent falling into a liberal category.

[Insert Figure 3 about here]

Figure 4 displays yearly family income. The majority, 10.9 percent, are making around 68,000 per year. The other most common answers fall around there as well. There is a bit of a spike in answers for the "$170,000" category, as that group includes all those making anything above that per year. This decreases some of the variation.

[Insert Figure 4 about here]

Figure 5 shows respondents' highest year of education completed. The majority, about 27 percent, completed 12 years, or through high school. The next highest amount, 18.2 percent, completed 16 years, or through undergraduate college.

[Insert Figure 5 about here]

Bivariate Results

Table 2 shows the correlations among size of community, environmental spending views, and three control variables: highest year of school completed, family income, and political views.

For the bivariate analysis, size of community was dummied into "Rural" and "Suburb" with urban as the reference category. Looking first at these two independent dummy variables and the dependent variable, there is no statistically significant relationship between them. This means that community size does not correlate with environmental spending views at the bivariate level. Neither of the community size independent dummy variables have a statistically significant relationship with another variable whatsoever, except for with each other. As for the dependent variable's relationship with control variables, environmental spending views and family income additionally is not statistically significant. Highest year of school completed, however, has a very weak, positive correlation with environmental spending views at the $p<.01$ (r =.085), meaning that the more years of school one has completed, the more likely they are to believe the government does not spend enough money on improving and protecting the environment. Political views has a positive, weak relationship with environmental spending views as well (r =.269). This means that the more liberal one is, the more likely they are to believe the government does not spend enough money on improving and protecting the environment.

[Insert Table 2 about here]

The next statistically significant relationship is that between highest year of school completed and family income. This is a moderate, positive relationship that is statistically significant at the $p<.01$, meaning that the higher one's family income, the more years of school they have completed.

Multivariate Results

Table 4 presents the results from the regression analysis of the dependent variable, environmental spending views, on the independent and control variables, community size, political views, years of education, and family income. This model is significant at the $p<.01$

level. The R^2 value, .075, indicates that 7.5 percent of the variation in environmental spending views can be attributed to the independent and control variables.

[Insert Table 4 about here]

The relationship between highest year of school completed and environmental spending views, which was significant at the bivariate level, is no longer significant at the multivariate level. This means that the relationship between highest year of school completed and environmental spending views is accounted for in political views' relationship with environmental spending views, which is the only significant relationship at the multivariate level. Looking at the unstandardized coefficient of this relationship, it is shown that for every point more liberal one is on the conservative-liberal scale, the person will answer .117 higher on the three-point environmental spending views scale. The more liberal one labels themselves, the more likely they are to believe that the government is spending too little on the improvement and protection of the environment. Looking at the standardized beta, political view also has the largest coefficient, .267, suggesting that this control variable has the strongest effect on environmental spending views out of all the variables used.

DISCUSSION

This research sought to understand the root of people's environmental spending views. Much of the literature from the 1990s and earlier results in a clear divide between rural residents and urban residents in their environmentalism (Bogner and Wiseman 1997) (Blake 2001) (Samdahl and Robertson 1989) (Jones et al. 1999). More recent literature has found this effect to be slowly disappearing, and this study found no significant relationship between the two whatsoever (Podeschi and Howington 2013) (Takahashi and Selfa 2015).

Political affiliation was found to be the most important variable in relationship to environmental spending views. McCright and Dunlap (2011) pointed out that political affiliation has a puzzling relationship with environmental spending views. They found that as education increases, political affiliation's effect on environmental spending views becomes more polarized in opposite directions. Educated conservatives do not believe in climate change, while educated liberals do. In the bivariate results, there was a statistically significant relationship between highest year of schooling completed and environmental spending views. However, at the multivariate level this relationship disappeared. This shows that political affiliation mediated the relationship between education and environmental spending views, meaning that this study found more educated people to be liberal, and therefore more environmentally supportive. This slightly conflicts what McCright and Dunlap found in their study.

As for the extractive commodity hypothesis, it may be an outdated theory. While the results of this study alone cannot disprove a theory, they did not provide support that rural residents are less likely to favor an economic-environmental trade off. Some of the literature alludes to this theory as becoming obsolete (Podeschi and Howington 2013) (Macias and Nelson 2011). However, it is stated in most of the literature that rural residents tend to have lower levels of education and lower incomes. The results of this study did not find either of those to be the case. In the bivariate analysis, there was no significant relationship between income and rurality or education and rurality. This may be due to the "Green Migration" effect described by Jones et al. and Huddart-Kennedy et al., which makes rural communities more heterogeneous. It also may be because of these shifting ideals in extractive professions, and the acute knowledge that rural residents possess regarding the environment. The phenomenon described by Berenguer et al., where urban residents care more about the environment conceptually and rural residents care

more in terms of specific needs, is important to consider because environmental concern is a difficult concept to measure.

CONCLUSION

Does one's community size affect one's environmental spending views? It does not, according to the data from the 2016 General Social Survey. A control variable, years of education completed, was shown to affect environmental spending views at the bivariate level, but this relationship disappeared at the multivariate level. Another control variable, family income, had no significant effect at all. However, one control variable, political views, did indeed show a significant relationship with environmental spending views at the bivariate and multivariate levels. These results refute my hypothesis.

Limitations

This study is not without its limitations. One limitation is that using an opinion on government spending as a metric for environmental support is not entirely accurate. Some respondents may have certain opinions on the ways the government spends money that do not indicate their opinions of environmentalism. Another issue with this measure is that it does not give information about environmental behaviors. To study the levels of environmentalism in populations across the country, it would be beneficial to have a well-rounded measure of both environmental opinions and behaviors.

Another limitation is that only the current place of residence was considered for the independent variable. It may be a better indicator to use place of socialization, or residence at age 16, for this variable. This would potentially reveal whether formation of environmental spending opinion has more to do with the type of community in which one grew up.

Future Research

While the hypothesis was not supported by the findings, the findings do bring up interesting questions about the formation of environmental spending views. Is one's opinion on the environment formulated most prominently by political view? Would it be the political views of one's parents, of one's community, etc.? With a political climate that is becoming more polarized, future research should seek other determinants of environmental views. Additionally, future research should study whether populations in different regions across the country have differing relationships to place and environmental views. Coastal regions and landlocked regions should be contrasted.

As climate reports continue to be published, we will learn more about what the future holds for our planet. Despite this information, there will always be subsets of people who believe that climate change is a hoax, and that government spending on the protection and improvement of the environment is a waste of federal dollars. Will quality environmental education change their minds, or is the political divide too wide to allow an influx traditionally conservative-identifying people to join in support of protecting the environment? Though the disparities between rural and urban residents are becoming less significant, the cultures and economies of certain-sized places are important to consider when thinking about peoples' environmental approaches. People do not all conceptualize the environment in the same ways, so some believe taking care of their own local environment is the solution, and some, pushing for government spending. Whether there are patterns to these types of people should be considered by future research.

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Table 1: Means, Medians, and Standard Deviations

Variable	Mean	Median	Std. Deviation
Rural	0.13	0	0.332
Suburb	0.50	1	0.550
Environmental spending views	2.55	3.00	0.638
Political Affiliation	3.99	4.00	1.456
Household Income	63766.67	54999.50	48191.699
Highest Year of School Completed	13.97	14.00	2.954

Table 2: Correlation Among Size of Place and Three Independent Variables

Variable	Rural	Suburb	Highest Year of School Completed	Family Income	Political Views
Environmental spending views	-.047	-.025	.085*	-.009	.269*
Rural		-.379*	-.028	.005	-.023
Suburb			-.013	.048	-.050
Highest Year of School Completed				.403*	.110*
Family Income					.052

**p<.01*

Table 3: Regression of Environmental spending views on All Variables

Variable	*b*	β
Constant	2.136	
Political Views	0.117	.267*
Family Income	-.278E-07	-0.021
Suburb	-0.039	-0.031
Rural	-0.1	-0.052
Education	.016	.075

R^2=.075; $F(4,1235)=25.11$; $p<.01$
*$P<.01$

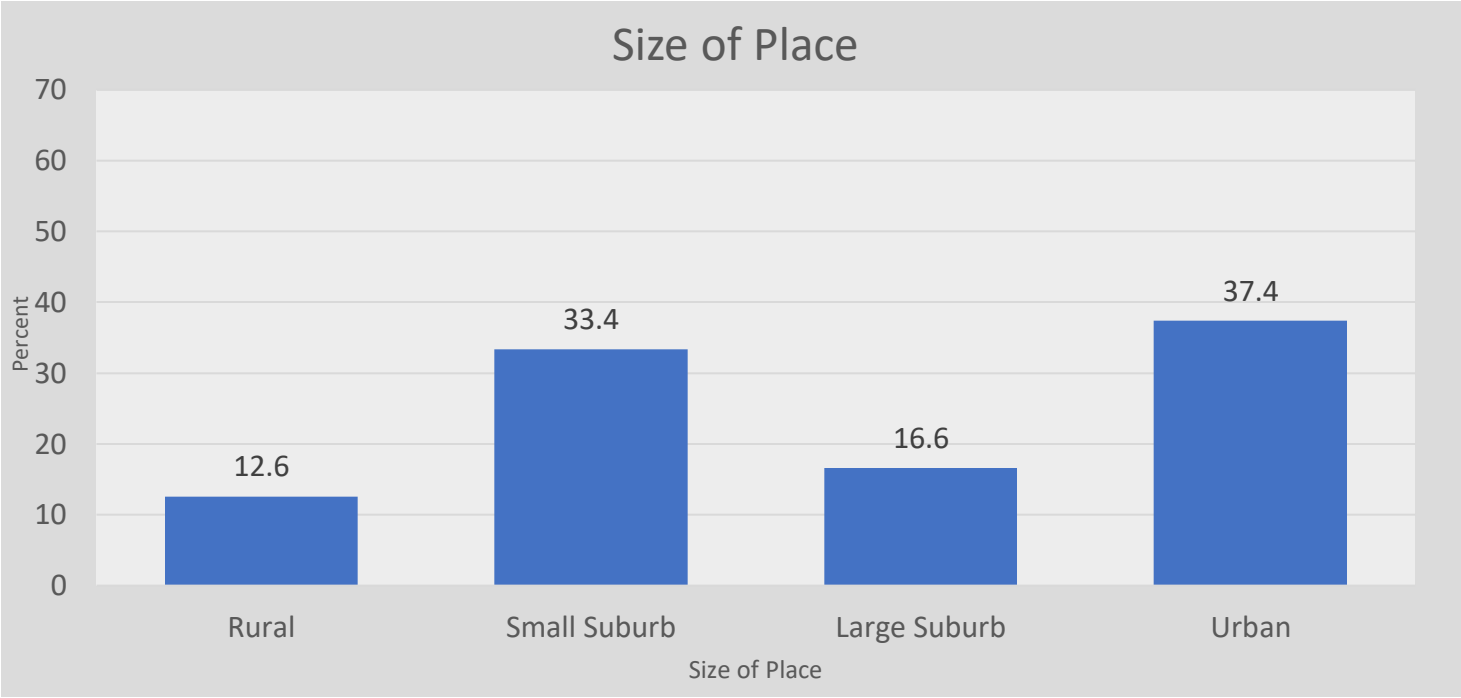

Figure 1: Size of Place

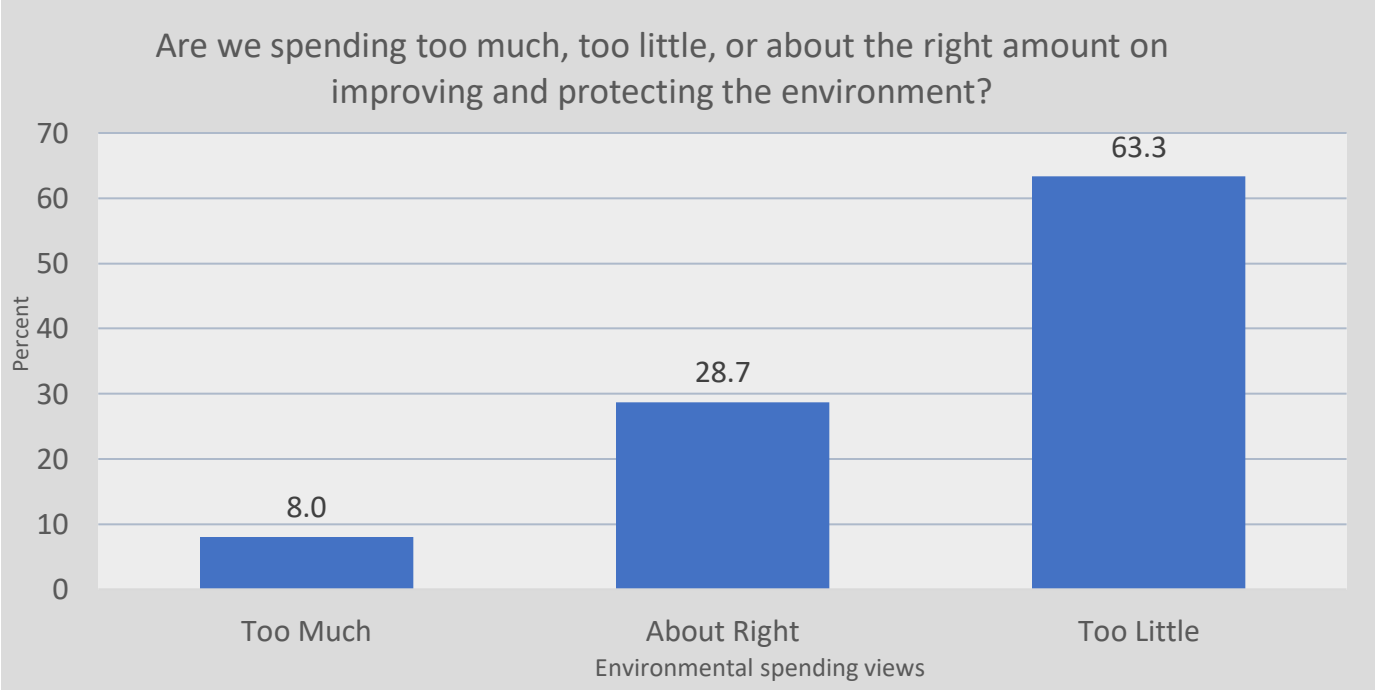

Figure 2: Environmental spending views

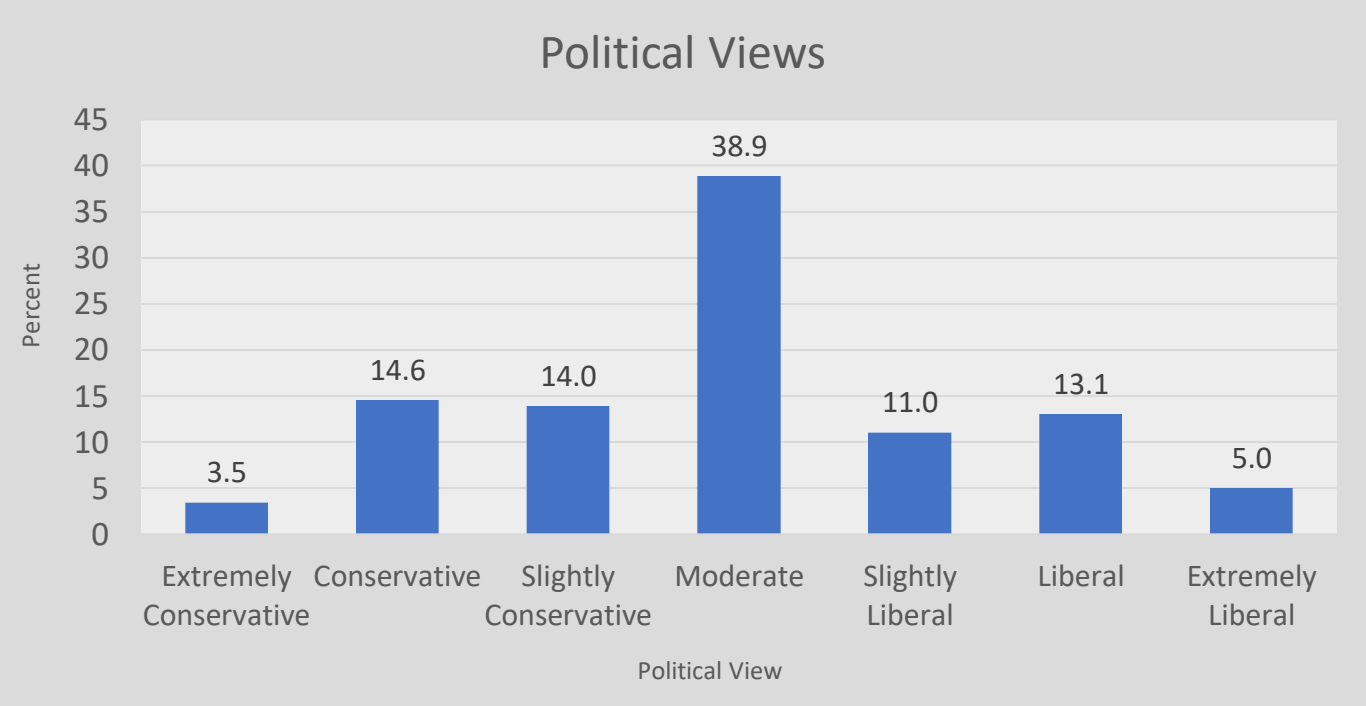

Figure 3: Political Views

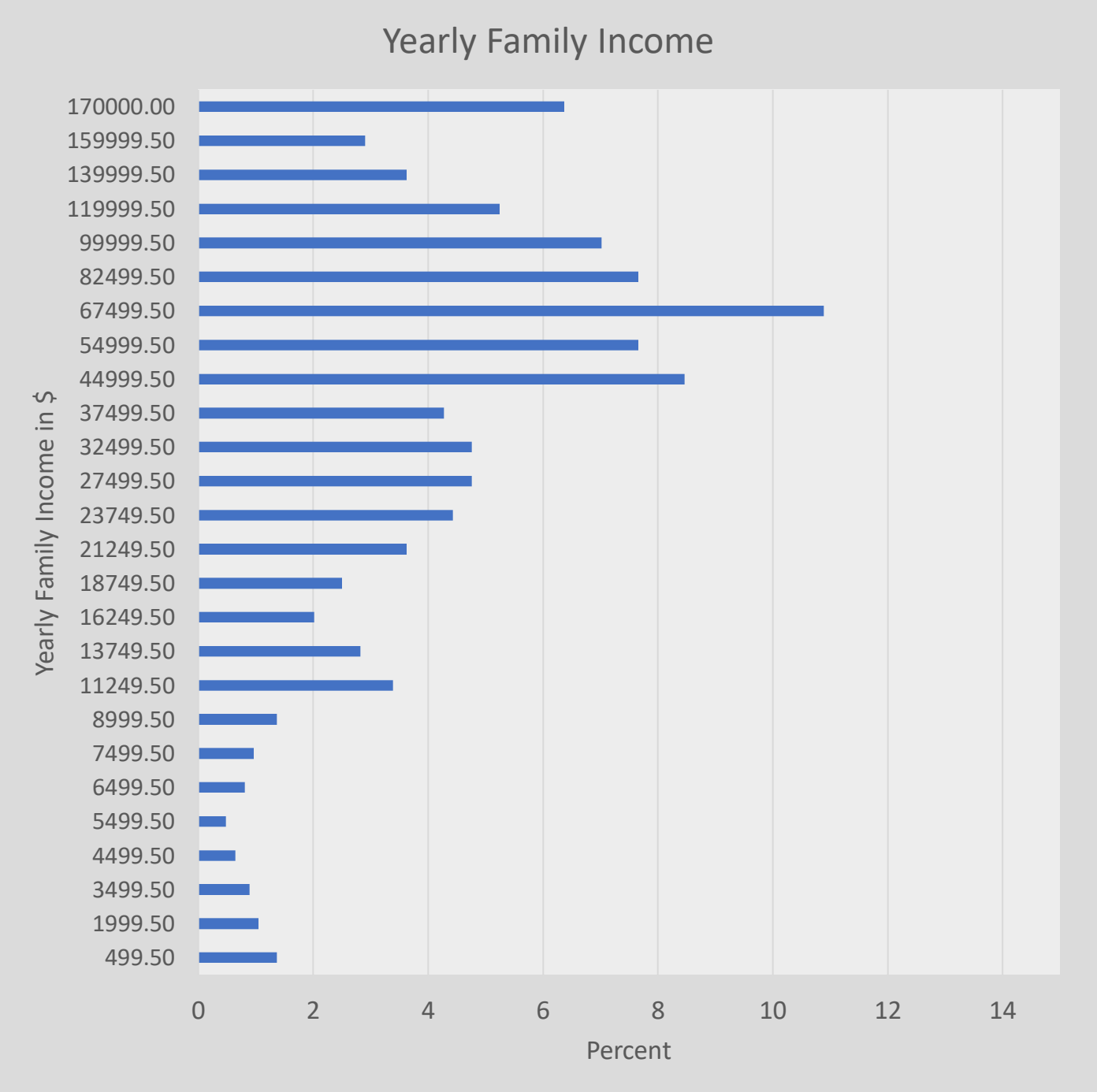

Figure 4: Yearly Family Income

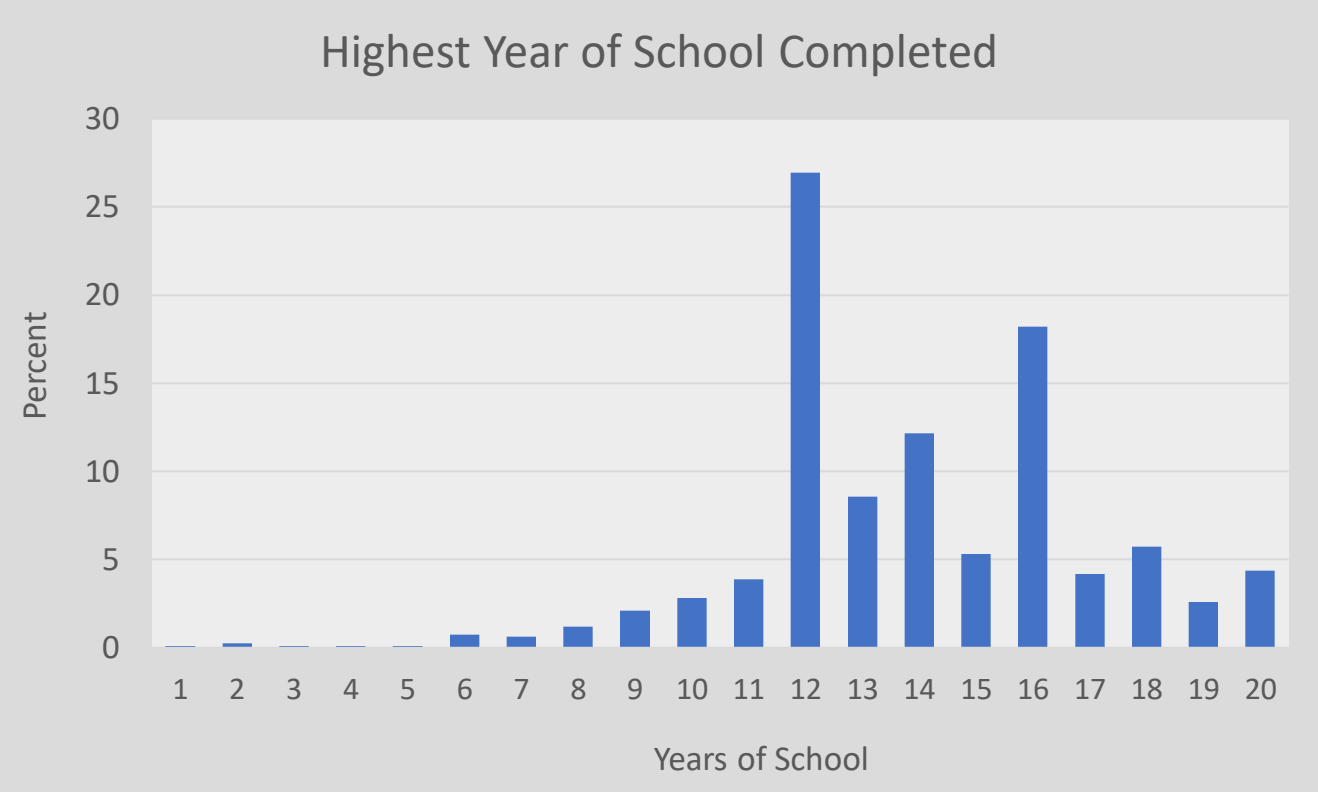

Figure 5: Highest Year of School Completed