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Investigating Factors That Impact Income Generation and Distribution in Western National Park Gateway Communities

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INVESTIGATING FACTORS THAT IMPACT INCOME GENERATION AND DISTRIBUTION IN WESTERN NATIONAL PARK GATEWAY COMMUNITIES

by

Elizabeth Depew

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ABSTRACT

Investigating Factors That Impact Income Generation and

Distribution in Western National Park Gateway Communities

by

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Utah State University, 2022

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Embracing the "New West," typified by tourism, amenity migration, and seasonal residence, has been heralded by some as a remedy to the waning feasibility of relying on agriculture and extractive industries. Many western communities, specifically those that are "gateways" to natural amenities have seen this shift. However, anecdotal evidence and case study data indicate the factors which make these gateway communities unique can lead to lower incomes and increased income inequality. This thesis is a regional study of the factors impacting income generation and distribution in western gateway communities near national parks. Through an examination of the literature, I identified seven unique variables with potential to effect income levels and income inequality in gateway communities; these variables include: park visitation, proximity to park visitor's center, number of other gateway communities within 16.1 km (10 miles) of the park, the population size of the gateway community, it's migration rate, it's proportion of seasonal residential units, and it's proportion of jobs in the leisure and hospitality industry.

Using data from the American Community Survey as well as open-source GIS, I investigate two primary research questions: Research question 1*: Are there significant trends in*

the income profiles of gateway communities? And, do these trends in income profiles differ from comparable non-gateway communities? Research question 2: *Are there significant relationships between the unique characteristics of gateway communities and the income generation and distribution within these communities?*

Results suggest a negative trend in gateway community earnings from 2010 to 2019. In addition, gateway communities have had significantly lower mean earnings than comparable benchmark communities. The proportion of in-migration, the proportion of seasonal residential units, the proportion of jobs in the leisure and hospitality industry, and the interaction between the latter two variables had a significant and negative impact on income in gateway communities. In my discussion, I detail how these results can guide community planning and decision making within gateway communities outside of national parks.

(112 pages)

PUBLIC ABSTRACT

Investigating Factors That Impact Income Generation and Distribution in Western National Park Gateway Communities

Elizabeth Depew

Many rural towns in the western united states have come to be defined by high levels of tourism, seasonal residents, and migration driven by the desire to be close to natural amenities and the higher quality of life they afford. This shift is especially apparent in communities that are "gateways" to natural amenities such as national parks. Embracing this shift towards the "New West," many community planners have heralded amenity-led development as a remedy to the waning feasibility of relying on agriculture and extractive industries. However, anecdotal evidence and several case studies indicate the factors which make these gateway communities unique can lead to a lower incomes and increased income inequality. This work is a regional study of the factors that effect income generation and distribution in western gateway communities near national parks. Through an examination of the literature, seven unique variables were identified as having the potential to effect income and income inequality in gateway communities; these variables were: park visitation, proximity to park visitor's center, number of other gateway communities within 16.1 km (10 miles) of the park, the population size of the gateway community, it's migration rate, it's proportion of seasonal residential units, and it's proportion of jobs in the leisure and hospitality industry.

Using data from the American Community Survey as well as open-source GIS, I investigate two primary research questions: Research question 1*: Are there significant trends in the income profiles of gateway communities? And, do these trends in income profiles differ from comparable non-gateway communities?* Research question 2: *Are there significant relationships*

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INTRODUCTION

Beginning in the mid to late 20th century, the economies of many small communities located near public lands across the Western U.S. began to shift away from resource extraction and towards tourism and service-based industries (Hjerpe et al., 2020; Kurtz, 2010; Gary Machlis & Donald Field, 2000; Power & Barrett, 2001). The increasing importance of tourism and hospitality industries to the wellbeing of these communities has also coincided with record rates of in-migration driven by individuals' increasing desire and ability to live and work in the areas where they frequently recreate (Hjerpe et al. 2020). The evolution of tourism-dependent economies in these small, amenity-rich communities has consequently led to a whole host of problems for the residents, city planners, elected officials, and public land managers who collectively guide the future trajectories of these areas. Recent survey research has documented the challenges experienced in these communities range from inadequate tax bases to support the infrastructure required to accommodate tourists and seasonal residents, little to no affordable housing for service-sector employees, and housing and property values that are not affordable for the majority of the local labor force (Rumore et al., 2019; Stoker et al., 2021).

The loss of a unique community identity, crowding during the "tourist season," the reliance on low paying seasonal employment to keep the economy running, and the shortage of affordable housing are just some of the issues faced by those living and working in these small, amenity-rich communities, as well as the even smaller municipalities that surround them (Huiliang, 2016). A growing body of academic and

practitioner-oriented literature has begun to refer to these areas as gateway and natural amenity regions, or GNARs (Rumore et al., 2019; Stoker et al., 2021; Sodja et al., 2021). Many of the problems of gateway communities are beginning to spill over into adjacent communities and places in the rural west, which causes entire regions to be considered as part of this category.

While tourism and amenity-led development in GNARs may be increasingly synonymous with all the challenges noted above, it is also a targeted economic development strategy for many GNARs. Destination marketing organizations, tourism boards, local elected officials, and county officials all often advocate for more tourism, believing it generates more jobs, sales-tax revenues, income for residents, and a general improvement to local economic wellbeing. While these connections certainly do exist, as many gateway communities have seen a rapid economic expansion after focusing economic development efforts on tourism, there has been a paucity of research on the relationship between tourism activity and the generation of income within gateway communities. Does more tourism lead to significant and positive improvements to the incomes of residents? Or, does more tourism simply attract large populations of low-wage, low-skill, seasonal workers that may actually bias aggregate income growth downwards within the community, while also creating secondary or unintended consequences like housing shortages? In addition to the need to better understand how tourism activity generates income within gateway communities, there is also an unmet need to understand whether tourism activity relates to the distribution of income within gateway communities. Since at least the early 1990s, critics of tourism-focused development have argued this type of development actually exacerbates local income

inequalities as residents are placed into a subservient role in which they must cater to tourists and seasonal homeowners (Ashworth, 1992a). Recent research has characterized the populations of contemporary gateway communities as the working-class rural poor and the millionaires and billionaires they serve (Farrell, 2021).

The purpose of this thesis will be to add a much needed empirical and contemporary analysis to long-standing, and very anecdotal, concerns over the influence of tourism on the generation and distribution of income in gateway communities. I begin by examining trends in incomes within gateway and comparable non-gateway communities across the Western U.S. to ascertain if, and to what extent, the income profiles of gateway communities differ from other communities. My research is guided by two research questions. *Research question 1: Are there significant trends in the income profiles of gateway communities? And, do these trends in income profiles differ from comparable non-gateway communities?* I follow this up with an analysis of how tourism contributes to income and income inequality in gateway communities. *Research question 2: Are there significant relationships between the unique characteristics of gateway communities and the income generation and distribution within these communities?* In short, the thesis attempts to empirically tease apart the factors influencing income and income inequality in gateway communities.

This analysis is focused on all gateway communities adjacent to national parks in the Western U.S. I focus on this sample of communities for three reasons: 1) the availability of data on visitation to national parks; 2) the fact communities proximate to national parks are generally considered to be the "icons" of gateway communities; and 3) the documented economic impacts of national parks (Donnelly et al., 1998; Gabe, 2016;

Wilkerson, 2003; Machlis & Field, 2000). The majority of studies on income generation or distribution in gateway communities has either been focused on individual communities (i.e., case studies) or they have focused on regional economies (Bennett et al., 2012; Beyers & Nelson, 2000; Farrell, 2020; Hjerpe, 2018; Krannich et al., 2006; Matarrita-Cascante et al., 2006; Smith & Miller, 2020).[1] The analysis in this work will span the entire Western U.S. instead of focusing on a particular community or on a small geographic region (e.g., the Greater Yellowstone Ecosystem).

I will analyze the relationships between seven different factors identified in the literature and income and income inequality within gateway communities near Western national parks. Park visitation, proximity to park visitor centers, the number of proximate gateway communities, population size, migration rate, the proportion of seasonal residential units, and the proportion of jobs in arts, entertainment, recreation, accommodation and food services[2] will each be analyzed for their potential impact on income and income inequality within these communities. It is important to note that this work focuses exclusively on mean income and income inequality as economic metrics. Though important measurements of the economic well-being of gateway community residents, they are only two of many economic metrics and conclusions cannot be drawn regarding other metrics such as number of jobs, overall wealth, cost of living, or housing availability.

LITERATURE REVIEW

[1] There are several works which encompass a large sample of western GNAR communities instead of focusing on a particular area. However, these geographically larger studies are focused on particular topics such as identifying planning and developmental challenges (Rumore et al., 2019; Stoker et al., 2021), factors which increase amenity migration, (Hjerp, 2020) vulnerability to climate change (Fischer et al., 2013), or the impact of policy change on gateway communities (Kurtz, 2010).

[2] Hereafter referred to as "leisure and hospitality."

Defining Gateway Communities

Definitions of what a 'gateway' community is varies within the literature. Gateway communities are most commonly distinguished by their proximity to parks and protected areas (McMahon, 1999; Machlis and Field, 2000; Thomas & Koontz, 2012; Winkler et al., 2007) and by their economic ties to adjacent public lands (Kurtz, 2010). Previous research has also characterized gateway communities by their population size (they typically have less than 15,000 residents, Kurtz, 2010). Recent research (Rumore et al., 2019; Stoker et al., 2021) has attempted to systematically define gateway communities using a composite set of criteria, which include:

- A population size of 150-25,000 people;
- Being located further than 15 miles (24.1 km) from a census designated urbanized area by road; and
- Being within 10 linear miles (16.1 km) from the boundary of a national park, national monument, national forest, state park, wild and scenic river or other major river, or lake.

I use these criteria as a starting point in this research, but focus more explicitly on communities that are adjacent to national parks (more detail in the Methods section below).

While the formal criteria for what a gateway community is have tended to focus on aggregate social and spatial characteristics of populations, the literature on gateway communities has a heavy focus on the development of these communities' economies. Previous research emphasizes or at least touches on the shift from the "Old West," typified by ranching and resource extraction, to the "New West," typified by high amenity migration, outdoor recreation opportunities, and reliance on the leisure and hospitality industries (Hjerpe et al., 2020; Kurtz, 2010; Machlis & Ried, 2000; Power,

2001; Shumway & Otterstrom, 2001; Winkler et al., 2007; Vias & Carruthers, 2005). The literature is replete with anecdotal documentation of how, following the decrease in profitability of resource extraction, tourism has been heralded as the future of many rural towns (Liu & Wall, 2006; Singh et al, 2010; Seetanah et al., 2010). The economic activity occurring within gateway communities has become part and parcel of how we (academics and practitioners) define and understand what a gateway community is. The earliest literature on gateway community development focused primarily on singular, aggregate economic metrics such as the number of jobs in discrete sectors of the economy. However, early critics of research (and promotion efforts) emphasizing metrics like 'number of jobs,' and 'sales tax revenue generated' have argued these measures gloss over many of the more nuanced economic factors characterizing gateway communities; factors like the seasonality of jobs, the dependence on one sector of the economy (leisure and hospitality), and the inequitable distribution of income (Marcouiller & Green, 2000). Marcoullier and Green (2000) specifically note that social scientists need to utilize a holistic approach when studying the implications of tourism on income and income inequality and warn of the danger of relying on measures of economic benefits such as "increase in jobs" without thoroughly examining them.

Income and Income Inequality

For this literature review, the seven variables I will subsequently analyze will be discussed in relation to income and income inequality, the two dependent variables of interest. There has been significant concern that gateway communities are dependent upon a large pool of low-wage employees who work in the leisure and hospitality industries and that these communities simultaneously have attracted high-income amenity

migrants (Ashworth, 1992; Jakus & Akhundjanov, 2018; Krannich et al., 2006; Kurtis, 2010; Marcouiller & Green, 2000; Gibson, 1993). These two factors may lead to the populations of gateway communities having relatively low median incomes and large wealth disparities.

The concern about income and income inequality is shared by those currently involved in the governance of gateway communities. A survey of over 300 public officials in western gateway communities found over half believed income inequality was a moderate to severe concern for their community and over half believed average wages relative to cost of living was very to extremely problematic (Stoker et al., 2021).

Wealth disparity in several prominent gateway communities is highly visible. Areas such as Jackson Hole (Wyoming), Vail (Colorado), Aspen (Colorado), and Sun Valley (Idaho) are known for the significant gap between prosperous second-home owners and low-income seasonal or hourly workers (Farrell, 2020; Lapping et al., 2010). In the state of Utah, Smith and Miller (2020) found the median income in gateway communities was $12,000 less than non-GNAR communities, a significant difference. However, there is little research which shows whether this trend exists in all western gateway communities or is isolated to certain locations.

The following literature review will examine the potential impacts of relevant variables on income and income inequality in gateway communities. For some of these variables, such as park visitation, there is a significant body of literature. For others, like proximity to a park visitor center, the literature is sparse. For those variables with a significant body of literature, I first describe historical trends in the variable and then review how those trends have, or could, impact income and income inequality in gateway

communities. For the variables for which not much is known, I describe how they may logically be influencing both income and income inequality. This literature review will be used as the basis for unraveling some of the more nuanced economic factors of gateway communities through a regression analysis.

Park Visitation

Trends

Visitation to national parks has increased significantly since the 1980s. While there was a decrease in overall visitation from 2000 to 2011 (Poudyal et al., 2013), the years since have seen a notable rise. Since the early 2010s, the upward trend in visitation has continued to accelerate.

Factors contributing to this trend include increased marketing efforts from both the National Park Service (e.g., the "Find your Park" campaign) and local governments, an aging population with more time and ability to travel to national parks, and an increased awareness of the experiences that are offered within national parks given the ubiquitous use of the internet and social media to share experiences. This trend of increasing visitation is particularly notable for national parks relative to other types of public lands as park lands tend to be substantially smaller than other types of public land units such as national forests or landscape-scale national monuments. Research has found the change in designation from a national monument to a national park results in a significant increase in visitation (Cline et al., 2011; Weiler, 2006; Weiler & Seidl, 2004).[3]

While the past decade has seen park visitation rise across the Western U.S., there are several factors known to decrease national park visitation, such as recessions

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[3] Other factors known to increase visitation to public land include Wilderness designation (Hjerp, 2018) and the development of major resorts (Krannich et al., 2006).

(Poudyal et al. 2013) and wildfires. Wildfires not only results in trip postponement or cancellation during the event, but also have long-lasting economic effects due to burn scars (an aesthetic impact) and the closing of businesses (Hystad & Keller, 2008; Cioccio & Michael, 2007; Otrachshenko & Nunes, 2021). While these exogenous factors may temporarily hamper park visitation, the long-term growth trends often return.

Park Visitation in Relation to Income and Income Inequality

Because of their connection to the tourism industry, the economies of gateway communities could be significantly impacted by changes in visitation. Previous research suggests visitation to national parks can be an important regional economic driver (Gabe, 2016; Achana & O'Leary, 2000). Donnelly (1998) specifically found total visitor expenditures increase as park visitation rises. Additionally, the Department of the Interior (2020) estimates visitor spending in communities near national parks contributed $41.7 billion to the national economy, while supporting 340,500 jobs. Data from the USDA Forest Service also suggests that while the National Park Service manages less than half the acreage than the Forest Service and less than one third the acreage of the Bureau of Land Management[4], the economic benefits ($15 billion in visitor spending and 243 thousand jobs created) from national park visitation are significantly higher than those of the Forest Service (11 billion in visitor spending and 194 thousand jobs) or the BLM (3 billion in visitor spending and 58 thousand jobs) (White et al., 2016).

Several specific instances have highlighted the connection between national park visitation and the economies of gateway communities. In October 2013, park visitation ground to a halt due to the shutdown of the federal government. The loss of 7.88 million

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[4] National Forest: 193 million acres, BLM: 247 million acres, National Park Service: 80 million acres

park visits resulted in an estimated loss of $414 million in NPS visitor spending within gateway communities nationally (Koontz & Meldrum, 2014). The impacts of park management decisions on local economies can be considerable. For example, a proposed price increase to national park visitor passes was projected to cost gateway communities $3.4 million annually due to decreased visitation (Koontz & Meldrum, 2014)). Collectively, current data suggests increases in visitation do lead to economic benefits for gateway communities. However, previous research has not documented a direct link between park visitation and the average incomes of gateway community residents.

It is more difficult to anticipate the relationship between national park visitation and income inequality. It is likely that an increase in national park visitation will increase the number of jobs in the leisure and hospitality industries, many of which are seasonal and low paying. Visitation could thereby indirectly increase income inequality.[5] However, there is no direct evidence to support predictions of the relationship between national park visitation and income inequality.

Proximity to Park Visitors Center

All communities in this study are within 16.1 km (10 miles) of a national park. Despite the significant amount of research suggesting proximity to national parks affects the economies of gateway communities, I am unaware of any investigations into whether distance from a national park visitor center impacts income or income inequality in nearby gateway communities. It can be reasonably assumed that those communities closer to the entrances of national parks will experience greater economic benefits than those further away. It is probable that tourists would be more likely to make stops in a

[5] See the 'Percentage of Jobs in the Leisure and Hospitality Industry' below for impacts of these jobs on income inequality.

town that is close to the place they are visiting. This added demand would also likely increase the percentage of jobs in the leisure and hospitality industry. In addition, proximity to national parks and protected areas has been positively correlated with attracting amenity migrants (Hjerpe et al., 2020).

Number of Other Gateway Communities Near the Park

It is plausible that the presence of several gateway communities in close proximity to a national park can decrease the economic benefits generated in any one particular community. A lack of competition likely increases the concentration of national park visitors who need to re-supply in a particular gateway community. While there is no empirical research on the spatial concentration of economic benefits generated by national parks, Winkler and colleagues (2007) suggest that "New West" communities tend to be clumped together and that their "New West-ness may disperse through a region following a spatial diffusion type of process (pp. 497)." This may indicate a higher number of proximate gateway communities could increase the amenity migration, tourism, seasonality, and recreation dependence associated with the "New West." Therefore, the number of proximate gateway communities could be indirectly tied to income and income inequality through increases in these other variables. Overall, the effects of the number of proximate gateway communities on income and income inequality is difficult to predict based on the lack of literature or easily observable trends, but the presence of some significant indirect associations can be anticipated.

Population Size

Trends

A distinguishing characteristic of gateway communities is their relatively small population sizes and their distance from metropolitan areas. Growing populations are a

concern voiced by many gateway residents, as it may lead to a loss of community character, higher housing costs, and traffic congestion. Many gateway communities are seeing higher population growth rates relative to other rural communities. A study of 311 counties from 1990-2000 found the growth rate was 20.2% in recreation-dependent counties, which was almost three times the growth rate of other non-metro counties (Reeder & Brown, 2005).

Population Size in Relation to Income and Income Inequality

The literature on rural community development is replete with examples of how out-migration and low population density negatively impacts economic indicators such as number of jobs, income, and earnings. For example, survey respondents in rural areas with declining populations have cited stagnant economic growth due to long-term out-migration trends as a significant concern (Stockdale, 2004).

The inverse of this relationship, that in-migration and population growth fuel economic development, is also well documented. Deller et al. (2001) found a higher population appears to be correlated with higher growth levels in per capita income. Similarly, Vias (2005) documents how population growth is driving employment in rural counties across the American West. Larger populations are also associated with greater participation in outdoor recreation and tourism visitation (Brooks & Champ, 2006), which can be a large source of revenues in gateway communities. Given this, population size may indirectly impact income and income inequality through increasing the proportion of jobs in the leisure and hospitality industry. Given this literature, I expect gateway communities with smaller populations will have lower incomes relative to their more populous counterparts. The influence of population growth on income inequality

has yet to be empirically quantified, so I am unable to make any hypotheses about this potential relationship.

Migration Rate

Trends

Population growth in gateway communities is largely attributable to in-migration as opposed to natural growth. Amenity migration is often cited as one of the distinguishing factors causing the restructuring of the West. Many migrants are motivated to move to gateway communities for the quality of life offered within these communities, as opposed to economic factors such as the presence of jobs or lower real estate costs (Winkler et al., 2007). The migration phenomenon observed in the American West is largely attributed to higher valuation of the natural environment, recreation opportunities, cultural differentiation, and greater attention to leisure, learning, and spirituality (Beyers & Nelson, 2000; Moss, 1994). Amenity-based in-migration has been concentrated in communities with "New West" characteristics (Deller et al, 2001; Shumway & Otterstrom, 2001. Proximity to national parks and protected areas, proximity to resort development, and accessibility have all been positively correlated with attracting amenity migrants (Hjerp et al., 2020).

Higher community satisfaction and increasing desirability have been reported in communities with higher rates of amenity migration. This has led some scholars to advocate for increasing amenity migration as a more sustainable development strategy relative to resource extraction (Power & Barret 2001; Beyers & Nelson, 2000). However, residents of areas more affected by amenity-related growth are more likely to be concerned about additional population growth, increased tourism, and becoming a tourism-based economy (Krannich et al., 2006).

Although literature surrounding migration to gateway communities focuses almost exclusively on retirees and amenity migration, it is important to mention the segment of labor migrants who seek the relatively high number of leisure and hospitality jobs within gateway communities. While the migrant worker demographic of gateway communities is understudied, it is generally considered that migrant workers are associated with lower-paying jobs.

Migration in Relation to Income and Income Inequality

Amenity migrants are primarily comprised of retirees, remote workers, and urban refugees. “New West” amenity migrants typically have higher levels of educational attainment (Winkler et al., 2007) and incomes (Shumway & Otterstrom, 2010). Older adults tend to make up a large percentage of these migrants, which has been tied to new income and employment opportunities in gateway communities (Glasgow & Reeder, 1990) as retired amenity migrants bring in significant financial capital as well as human capital such as business knowledge, experience, and skills (Beyers & Nelson, 2000).

Literature surrounding migration to gateway communities focuses almost exclusively on amenity migration. However, migrants can also be attracted by the large number of jobs in the leisure and hospitality industries. While greater rates of amenity migration may increase the median incomes of gateway communities, greater rates of non-amenity in-migration may have the opposite effect, as non-amenity in-migration tends to be associated with low-wage and seasonal jobs. Consequently, the relationship between in-migration and income in gateway communities is not clear.

As for income inequality, Deller et al. (2001) found population growth rates in rural communities to be negatively correlated with income inequality. In other words,

populations growing more quickly tend to have less income inequality. However, this conflicts with the findings of Stoker et al. who reported city planners in gateway communities believed income inequality was most problematic in gateway communities with high growth rates (2021).

Overall, there is some evidence for a positive association between amenity migration and income (although the potential negative association due to migrant workers is not accounted for in the literature) and limited evidence supporting a negative association between in-migration rates and income inequality.

Seasonal Residence

Another characteristic of gateway communities likely to influence the generation and distribution of income is the seasonality of residents (Lee & Kang, 1998; Seckelmann, 2002).

Trends

In many gateway communities outside of national parks, such as Estes Park, Colorado for example, seasonal residents often double the number of residents from May to October (Huiliang, 2016). There are many studies focused on the differences in attitudes between seasonal and non-seasonal residents (e.g., Green et al., 1996; Graber, 1974; Krannich et al., 2006; Marcouiller et al., 2004). However, there is a limited body of work focusing on economic impacts of seasonal versus year-round residents.

It is important to note the distinction between two contrasting groups of seasonal residents. Some high-earning residents are seasonal due to second home ownership, while others are not permanent residents due to the nature of their jobs. For example, a good portion of the labor force in ‘ski towns’ during the winter consists of individuals who

only live in the community during the winter to support the operations of ski resorts and the service sector businesses that depend on ski tourism (e.g., restaurants, bars, etc.). Most research to date has focused on the high-earning, second home owning seasonal residents. While a significant amount of literature notes an increase in low-paying, seasonal jobs in gateway communities, there is very little research studying seasonal employees directly.

Seasonality in Relation to Income and Income Inequality

The literature suggests a positive correlation between the amount of seasonal residents in a community and the community's average income. Green et al. (1996) found 50% of recreational homeowners in one Wisconsin county reported incomes above $50,000, while only 13.5% of year-round residents reported incomes that high. Additionally, Matarrita-Cascante et al. (2006) found seasonal residents reported statistically significant higher household income than permanent residents in five rapidly growing amenity rich Utah counties.

Previous researchers have argued recreational and seasonal housing can bring in jobs and incomes and can diversify the economy (Green, 1996). Higher-earning seasonal residents can bring wealth into a community, but the fact that they are not present for large portions of the year may result in their overall contribution to aggregate income levels being relatively marginal. A study found that in four Colorado counties (Eagle, Grand, Pitkin, and Summit) full-time household equivalency for second homeowners was 29% for a house and 23% for a condominium (Long et al. p 151 in Hsu & Gartner, 2012). Therefore, it can be assumed these residents are only contributing 20 - 30% of the economic contributions they would as year-round residents. Importantly, if a large

proportion of amenity migrants are retired (Shumway & Otterstrom, 2001), the little (if any) income these individuals do have may be so small that it biases community-wide income levels downward. Relative to their higher-earning counterparts, low-wage seasonal residents, and their influence on gateway community economic outcomes is understudied. In a review of literature on transient seasonal workers, Wilson (2002) noted the literature is limited to brief mentions, generalizations, and news articles regarding housing, crime, and lack of sufficient seasonal employees. Collectively, these findings suggest the influence of seasonal residence on income and income inequality will likely depend upon the type of seasonal resident that is being measured. The data on more wealthy seasonal residents suggest these individuals may have a marginally positive effect on income. However, there is a lack of literature and data surrounding low-income seasonal residents who would likely bias community-wide income levels downward. While the dichotomy between wealthy seasonal residents and transient seasonal employees calls into question the directionality of any relationship between seasonal residence on income, it is likely that greater proportions of seasonal residents, regardless of their ilk, will have a strong and positive correlation with income inequality as both types of seasonal residents are likely to be on the tail ends of a community's income distribution.

Proportion of Jobs in the Leisure and Hospitality Industries

Trends

A shift towards more jobs in the leisure and hospitality industries has been heralded by many as a way to grow the economies of many gateway communities. Many communities see the leisure and hospitality industries as a relatively easy way to grow

economically, and the data suggest this may be the case. In 2012, National Park visitor spending created 40 thousand jobs in the lodging sector and 51 thousand jobs in the restaurants and bars sector in gateway communities. While these numbers are impressive, economic growth in the leisure and hospitality industry can quickly dominate a regional economy. Garfield and Kane Counties in southern Utah, for example, experienced 75 and 59% growth rates, respectively, in leisure and hospitality employment from 1990 to 2010 (Jakus & Akhundjanov, 2018).

While tourism is known to generate numerous jobs, the quality of those jobs is often below average (Lee & Kang, 1998; Seckelman, 2002). There are several other difficulties that come with relying heavily on the leisure and hospitality industries; these include increased vulnerability to economic downturns, employment fluctuations due to seasonality, increased tax burden for public facilities, greater burdens on local health care systems (as jobs in this industry are less likely to include employer-provided medical insurance), and loss of community character (Krannich et al., 2006; Kurtz, 2010; Marcouiller & Green, 2000).

Proportion of Jobs in the Leisure and Hospitality Industries in Relation to Income and Income Inequality

Despite a substantive body of literature pushing for an increased focus on economic growth in the leisure and hospitality industries, or warning of the dangers of dependence on these industries, there are relatively few studies examining the impacts of tourism and hospitality jobs on income and income inequality in gateway communities; those studies which do exist have reached different conclusions.

According to the Bureau of Labor Statistics, leisure and hospitality sector wages in 2017 were less than 50% of mining and logging sector hourly wages in the area of southern Utah and Arizona known as the "Grand Circle of National Parks" (Jakus & Akhundjanov, 2018). A small-scale study of three coastal regions in South Carolina found jobs generated by tourism had a lower income distribution than the overall income distribution in the regions (Lacher & Oh, 2012). In Southwest Wisconsin, tourism was found to increase income inequality by "hollowing out" the middle class (Green et al., 1996). Very relevant to my analysis is a study of United States counties spanning 1990-2000, which revealed higher income inequality in counties dependent on tourism services compared to those dependent on manufacturing. They also noted faster growth in income inequality when compared to the national average. Contrary to the aforementioned small-scale studies, they also found tourism-dependent counties had higher median household incomes than manufacturing-dependent counties (Lee, 2009). These findings suggest median income levels will be negatively related to the proportion of jobs in the leisure and hospitality industries, while income inequality will be positively related to the concentration of jobs within these industries.

Despite the research indicating the negative consequences of increased dependence on the leisure and hospitality industries, several studies have found the opposite. In order to measure the economic impacts caused by the shift from extractive industries, Deller and colleagues measured 54 "amenity attributes" including recreational infrastructure, guiding services, and land available for particular recreation activities. They found the development of amenity attributes (specifically those which supported winter recreational activities) to be positively associated with growth rates in population,

employment, and per capita income. This led the authors to conclude "the concern expressed about the quality of jobs created, as measured by changes in per capita income, appears to be misplaced (2001, pp. 363)." Similarly, a 2005 study by Reeder and Brown (2005) examined the impacts of tourism and recreation development on socioeconomic indicators both in the 1990s and for the year 2000. The authors found a positive association between recreation dependence[6] and employment rate (both during the 1990s and in the year 2000), no association between recreation dependence and earnings in 2000, a positive relationship between recreation dependence and growth in earnings in the 1990s, and a negative association between recreation dependence and poverty rates, especially during the 1990s. This work did not examine income inequality explicitly. It is also notable that this study uses eleven different categories of recreation-dependent counties with only 18 of the 311 counties in the "National Park" category.[7] Although the parameters of this study are significantly broader than just gateway communities, it does provide evidence that increases in recreation dependence and development may lead to higher incomes.

It is important to note individual communities may vary in how their local concentration of jobs in the leisure and hospitality industry is affecting income and income inequality. For example, Lee (2009) found that while income inequality was

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[6] Selection of recreation dependent counties included the following (Johnson & Beale, 2002): (1) wage and salary employment in entertainment and recreation, accommodations, eating and drinking places, and real estate as a percentage of all employment reported in the Census Bureau's County Business Patterns for 1999; (2) percentage of total personal income reported for these same categories by the Bureau of Economic Analysis; (3) percentage of housing units intended for seasonal or occasional use reported in the 2000 Census; and (4) per capita receipts from motels and hotels as reported in the 1997 Census of Business.

[7] Full list of categories: Midwest Lake and Second Home, Northeast Mountain, Lake and Second Home, Costal Ocean Resort, Reservoir Lake, Ski Resort, Other Mountain (with ski resorts), West Mountain (excluding ski resorts and national parks), South Appalachian Mountain Resort, Casino, National Park, Miscellaneous.

relatively low in certain tourism-dependent counties[8], it was relatively high in others. Notably, Lee found income inequality in counties with a national park was much lower than other tourism-dependent counties. Some of the studies covered in this review suggest mixed results related to the influence of the concentration of jobs in the tourism and hospitality industries and median incomes and income inequality within gateway communities. The differing results may be due to variation in how gateway communities are being defined and measured (e.g., is it the municipality itself or an entire county) as well as how tourism and recreation dependence are defined. Additionally, there are other differences such as the geographic scope of the study and the time period over which the study was conducted, which may lead to mixed results. The literature is too divergent to suggest a predictable relationship between the concentration of jobs in the tourism and hospitality industry and median income. However, the balance of evidence seems to suggest an increase in dependence on the leisure and hospitality industries will increase income inequality.

Conclusion

The literature covered in this review suggested several expected relationships; these have been documented in Table 1 and are illustrated in Figure 1. Based on the literature, I expect incomes within gateway communities to be positively related to park visitation, proximity to a park's visitor center, migration, and population. There was conflicting evidence regarding the effect of seasonal residence and proportion of jobs in the leisure and hospitality industry on income and no evidence regarding the effect of number of proximate gateway communities on income. For income inequality, one study

[8] Selection of tourism-dependent counties based on Johnson and Beale (2002). See footnote 6.

indicated a negative relationship with migration rate. Proportion of jobs in the leisure and hospitality industry have also been positively correlated with income inequality. There was not sufficient evidence in the literature to suggest a relationship between park visitation, population, the number of proximate gateway communities, proximity to national parks, or the proportion of seasonal residences on income inequality. However, a positive relationship between seasonal residential units could be inferred due to the literature on the positive effects of second-home seasonal residential units on income and the lack of literature surrounding the impacts of low-wage seasonal residential units on income.

The literature also suggests several of the key independent variables I have identified may be associated in a meaningful and statistically significant way with other independent variables. I have documented these interactions and their expected relationships in Figure 1. These interactions may compound or mitigate the effects of any one individual variable on income and income inequality in gateway communities. As the literature reviewed above suggests, there is likely to be a positive relationship between proximity to national parks, population size, migration rate, and number of proximate gateway communities on the concentration of leisure and hospitality jobs within a gateway community. Additionally, the number of proximate gateway communities, national park visitation, migration rate, and proximity to national parks are likely to be positively associated with the proportion of seasonal residences. Finally, migration rate is expected to have a positive impact on population size, and proximity to national parks and number of proximate gateway communities is expected to have a positive correlation with migration rate.

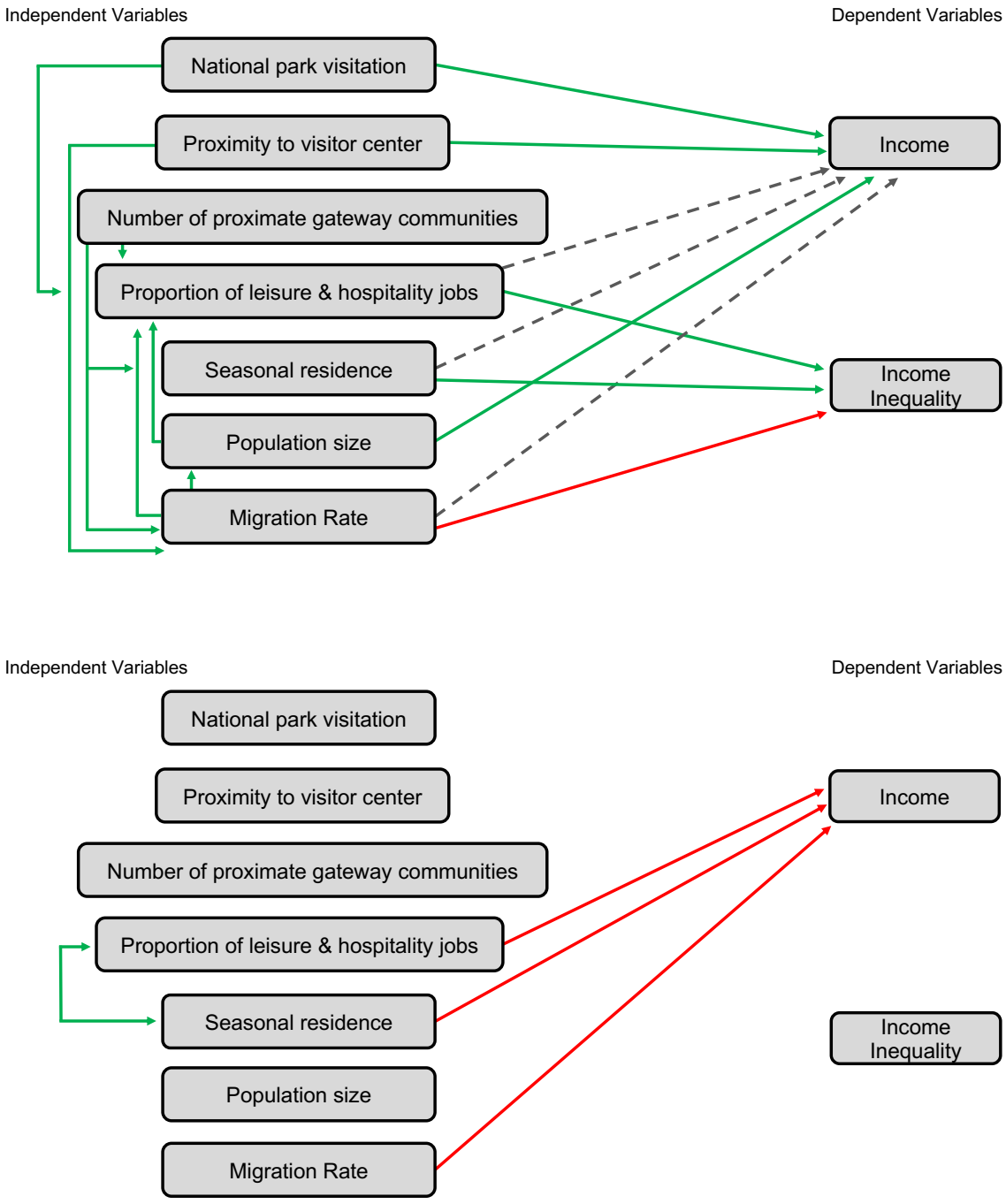
Table
Literature Review Findings

Response	Predictor	Value measured	Study	Findings
Income	Park visitation	Tourism-related sales[1]	Gabe, 2016	A 76% decrease in visitation to Acadia National Park due to a 16-day shutdown resulted in a 13% loss of tourism-related sales to the gateway community Bar Harbor
	Park visitation	Trip-specific expenditures	Donnelly, 1998	Total visitor expenditures increase as park visitation rises
	Park visitation	Trip-specific expenditures	Koontz & Meldrum, 2014	A loss of 7.88 million park visits resulted in an estimated loss of $414 million in NPS visitor spending
	Park visitation	Trip-specific expenditures	Sage et al., 2018	A proposed price increase to national park visitor passes was projected to cost gateway communities $3.4 million annually due to decreased visitation
	Population size	Per capita Income	Deller et al., 2001	Higher initial population leads to higher growth levels in per capita income
	Seasonal residence	Annual household income	Green et al., 1996	50% of recreational homeowners reported incomes above $50,000, while only 13.5% of year-round residents reported incomes that high
	Seasonal residence	Annual household income	Matarrita- Cascante et al., 2006	Seasonal residents reported statistically significant higher household income than permanent residents
	Proportion of leisure and hospitality jobs	Hourly wages	Jakus & Akhundjanov, 2018	Leisure and hospitality sector wages in 2017 were less than 50% of mining and logging sector hourly wages the Grand Circle of National Parks
	Proportion of leisure and hospitality jobs	Mean income per occupation	Lacher & Oh, 2012	Tourism generated jobs on the South Carolina coast were lower paying than the average regional jobs
	Proportion of leisure and hospitality jobs	Per capita income	Deller et al., 2001	Development of amenity attributes supporting tourism and recreation are positively associated with per capita income
	Proportion of leisure and hospitality jobs	Average annual earnings per job	Reeder & Brown, 2005	In a study of 311 recreation dependent counties, growth in earnings by job was higher than in similar non-recreation dependent counties in the 1990s
Income Inequality	Migration	Income equality	Deller et al., 2001	Population growth rates in rural communities are negatively correlated with income inequality
	Proportion of leisure and hospitality jobs	GINI coefficient	Lee, 2009	GINI coefficient of tourism services dependent counties (0.4347) was higher than that of manufacturing-dependent counties (.4219) in 2020. Income inequality increased at a greater rate in tourism-service dependent counties than in the nation as a whole
	Proportion of leisure and hospitality jobs[2]	Personal Income	Leatherman and Marcuiller, 1996	In Southwest Wisconsin, tourism was found to increase income inequality by "hollowing out" the middle class

[1] Occurring at lodging establishments, restaurants and bars, and retail stores in the Bar Harbor Economic Summary Area.
[2] Measured by businesses in hospitality, recreation and tourism.

Figure 1

Expected (top) and Observed (bottom) Impacts of Independent Variables on Income and Income Inequality in Western Gateway Communities



METHODS

Community Identification

Given the research questions and literature reviewed above, I selected gateway communities proximate to national parks using a combination of Census and geospatial data. I identified all gateway communities in the U.S. using the criteria established by Stoker and colleagues (2021). These criteria include:

- Having a population of 150-25,000 people[9];
- Being further than 15 miles (24.1 km) from a Census designated urbanized area by road; and
- Being within 10 linear miles (16.1 km) from the boundary of federally or state-managed public lands accessible for outdoor recreation.

These criteria yielded a total of 2,611 gateway communities. I further refined this list to include only communities within 16.1 km of a national park. I selected national parks specifically because the National Park Service collects annual visitation data for each national park unit; these data allow us to examine the relationship between park visitation and the growth and distribution of local incomes. This process of community identification resulted in 80 national park proximate gateway communities; each community and their associated national park(s) are listed in Table 2.

Table 1
Selected Gateway Communities and Locations

Gateway Community	National Park	State
Allenspark CDP[1]	Rocky Mountain	CO
Anaktuvuk Pass city	Gates of the Arctic	AK
Apple Valley town	Zion	UT
Babb CDP	Glacier	MT
Bertsch-Oceanview CDP	Redwood	CA

[9] Based on population estimates from the 2019 American Community Survey.

Table 2 ***cont.***

Gateway Community	National Park	State
Bitter Springs CDP	Grand Canyon	AZ
Bryce Canyon City town	Bryce Canyon	UT
Cannonville town	Bryce Canyon	UT
Cantwell CDP	Denali	AK
Castle Valley town	Arches	UT
Coram CDP	Glacier	MT
Cortez city	Mesa Verde	CO
Crawford town	Black Canyon of the Gunnison	CO
Crescent City city	Redwood	CA
Denali Park CDP (formerly McKinley Park)	Denali	AK
Desert Center CDP	Joshua Tree	CA
East Glacier Park Village CDP	Glacier	MT
El Portal CDP	Yosemite	CA
Estes Park town	Rocky Mountain	CO
Forks city	Olympic	WA
Fort Dick CDP	Redwood	CA
Gardiner CDP	Yellowstone	MT
Gasquet CDP	Redwood	CA
Grand Canyon Village	Grand Canyon	AZ
Grand Lake town	Rocky Mountain	CO
Greenfield city	Pinnacles	CA
Gustavus city	Glacier Bay	AK
Henrieville town	Bryce Canyon	UT
Hiouchi CDP	Redwood	CA
Holbrook city	Petrified Forest	AZ
Holloman AFB CDP	White Sands	NM
Hungry Horse CDP	Glacier	MT
Jackson town	Grand Teton	WY
Joshua Tree CDP	Joshua Tree	CA
June Lake CDP	Yosemite	CA
Kanarraville town	Zion	UT
King Salmon CDP	Katmai	AK
Klamath CDP	Redwood	CA
La Verkin city	Zion	UT
Lowell Point CDP	Kenai Fjords	AK
Mancos town	Mesa Verde	CO
Martin City CDP	Glacier	MT
Meadview CDP	Grand Canyon	AZ
Mineral CDP	Lassen Volcanic	CA
Mineral CDP	Mount Rainier	WA
Moab City	Arches	UT
Montrose city	Black Canyon of the Gunnison	CO
Moose Wilson Road CDP	Grand Teton	WY
Morongo Valley CDP	Joshua Tree	CA
Neah Bay CDP	Olympic	WA
Neilton CDP	Olympic	WA
Nelson CDP	Saguaro	AZ
New Harmony town	Zion	UT
Nipinnawasee CDP	Yosemite	CA
Orick CDP	Redwood	CA
Page city	Grand Canyon	AZ
Port Alsworth CDP	Lake Clark	AK
Port Angeles city	Olympic	WA

Table 2 ***cont.***

Gateway Community	National Park	State
Port Angeles East CDP	Olympic	WA
Queets CDP	Olympic	WA
Rockville town	Zion	UT
Seward city	Kenai Fjords	AK
Smith River CDP	Redwood	CA
Springdale town	Zion	UT
Sun Valley CDP	Petrified Forest	AZ
Teasdale CDP	Capitol Reef	UT
Teton Village CDP	Grand Teton	WY
Three Rivers CDP	Sequoia	CA
Torrey town	Capitol Reef	UT
Tropic town	Bryce Canyon	UT
Tusayan town	Grand Canyon	AZ
Virgin town	Zion	UT
Wawona CDP	Yosemite	CA
West Glacier CDP	Glacier	MT
West Yellowstone town	Yellowstone	MT
Whites City CDP	Carlsbad Caverns	NM
Wilson CDP	Grand Teton	WY
Woodruff CDP	Petrified Forest	AZ
Yosemite Valley CDP	Yosemite	CA
Yucca Valley town	Joshua Tree	CA

[1] CDP = Census Designated Place

Data Collection

Data characterizing income and income inequality of national park proximate gateway communities between 2010 and 2019 were obtained from the American Community Survey (Table 3).[10] I also collected data relevant to the seven key measures detailed in the literature review (Table 3). These data also span 2010-2019.[11]

National Park Service visitor center data was compiled from Open Street Maps (openstreetmap.org). Geospatial variables (proximity to park visitor center and number of other

[10] I obtained data from the American Community Survey using the ACS API. The specific ACS variable names for the data used in the analysis, as well as the code to obtain these data are provided in Appendices A, B, and C for readers interested in compiling the same, or similar, data to address related research questions to the ones I address here.

[11] I also obtained data on industry and sector specific earnings, but found these data were missing for a substantial proportion of the communities in my sample; this prevented me from using these data for further analyses.

gateway communities within 16.1 km of the national park closest to the community) were computed using the spatial analyses tools described in Table 3.

Table 3
Variables and Data Sources

Variable	Data Source
Income (median earnings)	American Community Survey
Income inequality (GINI coefficient, quintiles)	American Community Survey
Park Recreation Visitation	National Park Service Visitor Use Statistics[a]
Proximity to Park Visitor Center[b]	Open Street Maps[c]
Number of other gateway communities within 16.1 km of the park[d]	Census TIGER/line shapefile (US Census, 2020)
Population size	American Community Survey
Migration rate	American Community Survey
Proportion of seasonal residential units	American Community Survey
Proportion of jobs in arts, entertainment, recreation, accommodation and food services	American Community Survey

Note. See Appendices A & B for specific American Community Survey variable names.
[a] National Park Service. (n.d.). *Park Reports*. Retrieved May 3, 2021 from https://irma.nps.gov/STATS/: Park reports- Annual Park Recreation Visits
[b] Analysis used to derive variable: ARC GIS Pro: OD Cost Matrix-Network, Analyst Tool
[c] OpenStreetMap. Retrieved May 13, 2021 from https://www.openstreetmap.org
[d] Analysis used to derive variable: ARC GIS Pro: Buffer, Analyst Tool

Data Compilation and Standardization

All data from the American Community Survey were downloaded as .json files, batch converted to .csv files, and appended together using a Python script. These data were subsequently exported as an aggregate .csv, imported into ArcGIS, and joined with the shapefiles created through the community selection process described above. The final data (attribute) table, complete with both socioeconomic and geospatial variables, was subsequently exported as a .csv file and read into SPSS for the statistical analysis.

In SPSS, the migration variable was turned into a proportion by dividing the value for each community-year by the community's total population for that year. Seasonal residential units were turned into a proportion by dividing the value for each community-year by the community's total units for that year. As an estimate for the proportion of seasonal residence in

each community, the accuracy of the "proportion of seasonal residential units" variable may be impacted by the fact it is only a percentage of residential units used seasonally. There was no variable available through the American Community Survey that provides the proportion of seasonal residents in a community. Earnings were adjusted for inflation using the Consumer Price Index Research Series (CPI-U-RS).[12]

Skewness of all dependent and independent variables were analyzed. Variables with a skewness outside of the range of -2.00 to 2.00 were adjusted by square root transformation (total population, migration proportion) and using log10 if the resulting skewness was outside of that range (km to nearest visitor center).[13]

Comparable Non-gateway Communities

In order to compare the growth and distribution of incomes in gateway communities with similar non-gateway communities, I also identified Census designated places not meeting my community selection criteria, but with populations between 150 and 25,000 in 2019. This process yielded 3,908 comparison communities, which will be referred to as "benchmark communities."

Data Analysis

To answer the first part of research question 1(*Are there significant trends in the income profiles of gateway communities?)* I ran a linear regression in SPSS using year and community ID as the independent variables and earnings as the dependent variable. The same process was done for income inequality by using year and community ID as the independent variables and GINI index as the dependent variable.[14] To answer part two of research question 1 (*do these trends in income profiles differ from comparable non-gateway communities?)* a difference in

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[12] Inflation-adjusted estimate = 2010 estimate * (2019 CPI-U-RS / 2010 CPI-U-RS) = 2010 estimate * (376.5 / 225.3). https://www.census.gov/topics/income-poverty/income/guidance/current-vs-constant-dollars.htm

[13] See Appendix F: Skewness and Kurtosis of Gateway Community Variables

[14] See Appendix H: Research Question One SPSS Outputs and Appendix E: Gateway and Benchmark Comparisons

means test was run comparing gateway community earnings and GINI index with benchmark community earnings and GINI index.

To answer research question 2 (*Are there significant relationships between the unique characteristics of gateway communities and the income generation and distribution within that community?)* two generalized linear models were run using the seven predictor variables as the independent variables and GINI and full-time year round earnings as the dependent variables. In order to control for within subject variation, dummy variables were created for each of the 80 gateway communities and included as factors in the model. The two time-invariant variables (proximity to national park visitor centers and the number of nearby gateway communities) were added to the model by interacting them with the Year variable.[15]

RESULTS

Descriptive Statistics

Recreation visitation to proximate national parks varied greatly between communities, ranging from 5,158 to 6,380,495 with a mean of 2.15 million. The average distance from gateway communities to the nearest visitor's center was 27.8 km and ranged from 0.5 km to 356.5 km. The mean number of other gateway communities near the national park was 3.2 and ranged from 0 to 7. As benchmark communities were not linked to a national park, the previous three variables were not calculated for benchmark communities.

Mean population was similar between gateway communities (2,371) and benchmark communities (3,431). This similarity was expected based on the use of population parameters to select both variables.[16] Minimum and maximum values ranged outside of the population parameters due to differing populations in years other than 2019. With a mean of 7.5%,

[15] See Appendix I: Research Question Two SPSS Outputs
[16] Communities with a population of 150 to 25,000 in 2019.

migration proportion was higher for gateway communities than for benchmark communities, which had an average in-migration rate of 5.8%. Proportion of seasonal residential units was notably higher in gateway communities (19.3%) than in benchmark communities (8.0%). At 22.4%, the proportion of jobs in the leisure and hospitality industries was double the 10.2% observed in benchmark communities. Mean full-time, year-round earnings were lower in gateway communities ($43,342) than in benchmark communities ($49,299). In other words, the average annual income was $5,957 lower in gateway communities relative to benchmark communities. Contrary to the common assumptions, the GINI index of gateway communities of 0.392 was comparable to that of benchmark communities at 0.397.

Table 4
Summary of Variables

	Min.	Max.	Mean	Std. Dev.
Park visitation (visits)	5,158	6,380,495	2,150,208	1,622,561
Proximity to park visitors center (km)	0.45	356.49	27.79	46.94
Number of other gateway communities within 16.1 km (10 miles) of park	0.00	7.00	3.24	2.23
Population size				
Gateway	0	21,622	2,371	4,408
Benchmark	0	35,174	3,431	4,854
Migration proportion[1]				
Gateway	0.00	0.58	0.08	0.08
Benchmark	0.00	1.00	0.06	0.06
Proportion of seasonal residential units[1]				
Gateway	0.00	1.00	0.19	0.21
Benchmark	0.00	1.00	0.08	0.15
Proportion of jobs in the leisure and hospitality industries[1]				
Gateway	0.00	1.00	0.22	0.19
Benchmark	0.00	1.00	0.10	0.10
Full-time year-round earnings				
Gateway	2,697	173,073	43,342	15,221
Benchmark	2,701	293,775	49,299	21,764
GINI Index				
Gateway	0.021	0.774	0.392	0.091
Benchmark	0.000	0.865	0.397	0.078

[1] Values of 0 or 1.00 were investigated and did not significantly change the mean.

Research Question 1

The linear regression model testing for a significant growth in the incomes revealed the effect of time on income was marginally significant and negative for gateway communities (coef. = -381.76, $p = 0.048$) and not significant for benchmark communities (coef. = -42.48, p = 0.276). Average incomes levels within Western gateway communities declined significantly between 2010 and 2019, while this decline was not present in comparable non-gateway communities. The effect of time on GINI index was not significant for gateway communities (coef. < .01, $p = 0.063$), but was significant and positive for benchmark communities (coef. < .002, $p < 0.001$). Income inequality did not change significantly in gateway communities between 2010 and 2019, while it did increase in comparable non-gateway communities.

A *t*-test indicates the mean difference of $5,957 in annual earnings between benchmark communities and gateway communities was significant ($t = -10.47$, $p < 0.001$). The differences in means between the GINI index in benchmark communities and gateway communities was not significant ($t = -1.49$, $p = .069$).[17]

Research Question 2

The results of the linear regression model predicting incomes in gateway communities are presented in Table 5. I fit this model with just the main effects first before including interactions between significant predictor variables; only the full model with interactions is interpreted.

The model revealed a significant negative effect of migration proportion (coef. = -11,424.61, $p = 0.005$), seasonal residential units (coef. = -54,236.80, $p < 0.001$), and proportion of recreation industry jobs on full-time year-round earnings (coef. = -24,360.77, $p < 0.001$). For every percentage increase in seasonal residential units, there was a loss of $542.36 in full time year-round earnings. For every percentage increase in jobs in the leisure and hospitality industries, there is a decrease in full time year-round earnings of $243.61. National park visitation, kilometers to the nearest visitor center, number of nearby gateway communities, and total population were not statistically significant.

I also observed a significant interaction between seasonal residential units and proportion of jobs in the leisure and hospitality industries (coef. = 47,990.32, $p = 0.002$); this indicates seasonal residential units and proportion of jobs in the leisure and hospitality industry together create a stronger impact on earnings.

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[17] For detailed descriptives by year see Appendix E: Gateway Community Descriptives and Appendix E: Gateway and Benchmark Comparison.

Table 5
Impacts of Predictor Variables on Full-Time Year-Round Earnings

	Main Effects Only Model			Full Model with Significant Interaction		
Independent Variable	**Coef.**	**Std. Err.**	***p*-value**	**Coef.**	**Std. Err.**	***p*-value**
Park visitation *(thousands)*	0.13	1.31	0.924	0.18	1.30	0.889
Km to Nearest Visitors Center *(log10)*	-202.71	178.39	0.256	-250.26	177.82	0.159
Number of Nearby Gateway Communities	32.43	54.95	0.555	51.72	54.91	0.346
Total Population *(square root)*	-238.00	179.36	0.185	-262.90	178.32	0.140
Migration Proportion *(square root)*	-11,067.88	4,093.10	**0.007**	-11,424.61	4,067.93	**0.005**
Seasonal Residential Units	-38,444.57	7,056.44	**< 0.001**	-54,236.80	8,604.58	**< 0.001**
Proportion of Recreation Industry Jobs	-10,034.53	4,777.13	**0.036**	-24,360.77	6,558.82	**< 0.001**
Seasonal Residential Units * Proportion of Recreation Industry Jobs				47,990.32	15,168.53	**0.002**

The results of the linear regression model predicting income inequality in gateway communities are presented in Table 6; none of the predictor variables had a significant impact on GINI index.

Table 6
Impacts of Independent Variables on GINI Index

Predictor Variable	**Coef.**	**Std. Err.**	***p*-value**
National Park Visitation *(thousands)*	<.001	<.001	0.840
Km to Nearest Visitor's Center *(log 10)*	0.001	0.001	0.178
Number of Nearby Gateway Communities	0.000	<0.001	0.577
Total Population *(square root)*	0.001	0.001	0.192
Migration Proportion	-0.001	0.022	0.951
Seasonal Residential Units	0.050	0.041	0.223
Proportion of Recreation Industry Jobs	0.023	0.025	0.342

DISCUSSION

Income

Mean annual earnings of gateway communities were significantly lower than their non-gateway counterparts. This confirms the concerns noted in the literature that many gateway communities are typified by low earning jobs. Additionally, mean annual earnings in gateway communities did see a significant decline between 2010 and 2019 while they remained relatively stable in comparable non-gateway communities. With the continuing shift towards the "New West" occurring in many communities near National Parks, this result is unsurprising.

My inferential regression model revealed several variables do have a significant effect on income; these were: seasonal residential units, the proportion of jobs in the leisure and hospitality industries, migration rate, and the interaction between seasonal residential units and the proportion of jobs in the leisure and hospitality industries. These findings, compared to expected results, are shown in Figure 1. Due to the wide variations in gateway communities and limitations which will be discussed below, my research has more implications for future research aimed at providing a more comprehensive picture of the economies of gateway communities than it does for gateway community planners. With this in mind, I walk through each of the independent variables which had a significant influence on incomes.

Seasonal Residential Units

The negative relationship between the proportion of seasonal residential units and mean annual earnings suggests it may be beneficial for gateway community leaders to limit the number of seasonal residential units within their communities. This could be done through efforts targeted at either residential units which house seasonal employees (e.g., multi-unit dwellings, apartment complexes, etc.) or efforts targeted at second homes.

Limiting the Number of Residential Units for Seasonal Workers is Not an Option.

Restrictions on the number of residential units commonly used for seasonal employees is not a viable option for many gateway communities, particularly those with large proportions of their workforce employed in the leisure and hospitality industries. Many gateway communities find themselves in the position of not having enough housing to support the low-wage jobs within their communities. When this occurs, the local labor market does not appear to respond with an increase in earnings, as might be expected under a neoclassical economic perspective in which the increased demand for labor (presumably driven by smaller labor pools as workers seek jobs in more affordable locations) would drive up wages. Rather, the fact gateway communities are often surrounded by smaller satellite communities allows the labor pool to remain concentrated around the gateway community, with workers simply having to travel further to their jobs. Anecdotal evidence of the sprawling or spilling-over of gateway communities has been commonly reported in many gateway communities. For example, the community of Spanish Valley to the south of Moab, Utah has seen exceptional growth in the past decade as workers have been 'priced out' of Moab's housing and rental market.[18] Without altering the number of jobs in the leisure and hospitality industry to strategically diversify the local economy, it would be nearly impossible for a gateway community to reduce the demand for residential units to house those workers (this interaction between the number or seasonal residential units and the proportion of jobs in the leisure and hospitality industries was observed in my statistical model). Consequently, gateway community leaders are limited to restricting the number of second homes if they want to improve mean annual earnings of their local labor force.

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[18] Spanish Valley has seen an increase of 173.46% between 2010 and 2019 (US Census).

There is Some Precedent for Limiting the Number of Second Homes Within Gateway Communities. Second homeowners who spend a short amount of time in their residences within gateway communities decrease the local availability of used housing; they also do not contribute to the local economy (outside of property taxes) during the times of the year when they are not living within the community.[19] There are a few options gateway community leaders can consider if they wish to limit the proportion of second homes within their municipality. Vail, Colorado, for example, was the first gateway community to use deed restrictions to limit the number of unused residential units. Through the Vail InDEED program, homeowners are incentivized to deed restrict their properties, requiring ownership or occupation by residents who work at least 30 hours per week in the county (vailindeed.com; Ruther, 2021). This program has appeared to be a successful tool to manage Vail's housing crisis, with many communities following suit with similar programs such as Big Sky's Good Deeds program. In addition to working as an aid to decrease the proportion of the local housing stock that are second homes while also freeing up development potential for low-income housing units, deed restrictions could be beneficial in increasing the mean annual incomes of gateway communities.

Despite this significant relationship between seasonal residential units and income, and the potential benefits of limiting second home ownership, it is difficult to make recommendations to gateway community planners due to the lack of complete and disaggregated data. Although this research reveals mean income of permanent residents is negatively correlated with the number of seasonal residential units in a community, the findings do not shed any light onto the mean incomes of non-permanent residents, an important and growing portion of the

[19] Many localities have legislation in place to the use of second homes as short-term rentals (an issue beyond the scope of my analyses as short-term rental data is not consistently reported across communities), due to the negative impacts on the local housing market (i.e., inflated housing values) and community (i.e., a perceived loss of community) (Guttentag, 2015).

populations within many gateway communities. In addition, all types of seasonal units are recorded together within the ACS, which prohibits analysis like this from developing an understanding of which types of seasonal residential units are most significantly impacting income. More accurate data collection is necessary to make focused policy and planning recommendations.

Migration Proportion

Gateway community planners and leaders may want to carefully examine the significant and negative relationship between in-migration and mean annual earnings given in-migration to gateway communities is likely to increase in the years ahead. Recent estimates suggest between 14 – 23 million Americans are planning to move, and major cities will see the biggest out-migration (Ozimek, 2020b).

However, the impact of migration on income would depend on the type of migrants entering the community. A high proportion of seasonal worker migrants and retirees would likely decrease mean annual earnings while in-migration from individuals with high-paying jobs in professional industries such as financial, scientific, and administrative industries (sometimes called the 'creative class' (Florida, 2005)) would likely increase mean annual incomes. Unfortunately, I was unable to break down what type of in-migration is occurring within gateway communities based on ACS data. To more effectively react to the finding of a negative relationship between in-migration and mean annual earnings, it would be beneficial to disaggregate in-migrants and look at how different types of migrants effect a community's average earnings; this may only be possible through focused survey work.

Proportion of Jobs in the Leisure and Hospitality Industries

The negative relationship between the proportion of local jobs in the leisure and hospitality industries and mean annual income suggests it would be beneficial for gateway communities not to dedicate all their resources to supporting and growing these industries. Rather, they may see greater returns on local income levels if they diversify their economy. Many communities have seen the leisure and hospitality industries as the most logical way to capitalize on their assets (i.e., the presence of nearby public lands that people want to visit), without making significant investments to attract alternative industries. However, the rapid growth of remote work could change this. Due to the COVID-19 pandemic, the expected growth rate of full-time remote work over the next five years has doubled, from 30% to 65% (Ozimek, 2020a). This massive shift could increase the feasibility of attracting individuals with jobs outside the leisure and hospitality industries to gateway communities.

One way gateway communities may diversify their local economies is by leaning into the desire of those 'creative class' workers to move to these amenity rich destinations. Earnings in creative class industries are significantly higher than service industry jobs, but also represent a relatively small portion of jobs in most gateway communities. Communities could see increased economic diversification and resilience to fluctuations in tourism demand from strategic incentives to increase these types of jobs within gateway communities (Smith & Miller, 2020).

If gateway communities 'lean into' the creative class industries, it is important to note the demand for services from the leisure and hospitality industries is not likely to slow down. The demand for outdoor recreation and tourism opportunities is driven by many more factors than just the supply of supporting services provided at the destination. Global economic trends, fuel prices, and social/cultural preferences are just a few of the factors driving demand. And by all indications these forces are collectively driving demand up. Consequently, gateway community

leaders may be well advised to seek ways to ‘de-market’ local outdoor recreation opportunities and tourist attractions if they are sincerely pursuing a strategy of economic diversification. In many locations, ‘de-marketing’ strategies are already in place. The state of Utah, for example, has actively tried to direct regional and international visitors away from major destinations like national parks and towards lesser-known destinations with burgeoning leisure and hospitality industries (Drugova et al., 2021).

Collectively, all three of the variables I found to significantly affect mean annual earnings in gateway communities are strongly intertwined. If community planners and regional and state government focus on changing one of these driving factors they may also affect the others, and targeted efforts across all three fronts may see complementary effects. However, in order to make reliable recommendations to community planners, data collection efforts tailored to the unique economies of gateway communities are necessary. On the surface, the ACS provides the variables necessary for studying the economies of gateway-communities. However, through this analysis I have found that many of these variables such as seasonal residential units and migration rate are multifaceted. While different subsets of each variable can differently impact income and income inequality, they are recorded as aggregate measures in the ACS, prohibiting the development of focused policy and planning recommendations.

Non-significant Findings

It is important to mention the three variables, population size, proximity to visitor center, and national park visitation, which were not found to significantly impact income despite the expectations suggested through previous research.

Having “big city problems” with the limited resources of smaller populations is one of the characteristics which makes gateway communities unique. It was unexpected that total

population size was not positively associated with income given the literature regarding the positive impacts of larger populations on rural economies. It is possible that other variables such as housing availability, cost of living, availability of jobs, and economic diversity metrics may be mediating the relationship between total population size and incomes within gateway communities in ways not seen in other rural communities.

Measuring the distance from a visitor center was intended to account for the fact that while a community may be close to the border of a national park, they could be a far drive from any entrance point, which may limit the visitor time and expenditures in the gateway community. However, given the lack of findings regarding impact of national park visitation on income, the lack of findings for this variable is not surprising.

The non-finding regarding national park visitation was one of the more surprising results regarding income, specifically in light of the positive impacts of visitation increases on economic development and employment in rural areas noted in the literature review (Deller et al. 2001; Vias, 2005). The fact visitation numbers were not associated with the income of full-time gateway community residents could have implications regarding visitor management strategies such as timed entry systems. The regression analyses suggest planners should not be concerned about a negative impact on the mean income of primary residents of gateway communities due to decreasing park visitation numbers. However, it is important to note that this is just one economic metric. Particularly in light of the results noted in the literature review, there is a distinct possibility that decreasing visitation numbers could have negative impacts on specific industries (such as the leisure and hospitality industry) and on non-primary residents.

Income Inequality

To quickly recap my findings with regard to income inequality, there is no significant difference between the mean level of income inequality in gateway communities relative to benchmark communities. Additionally, there has been no statistically significant increase in the income inequalities within gateway communities between 2010 and 2019. These findings are unexpected, as both the literature and anecdotal evidence indicate high income inequality often exists in gateway communities. As mentioned in the literature review, a survey of over 300 western gateway community public officials revealed more than half believed income inequality was a moderate to severe concern for their community (Stoker et al., 2021). This adds to my concern that the ACS data does not accurately capture what is occurring in gateway communities.

My inferential regression analyses revealed none of the seven predictor variables had a significant effect on income inequality (Figure 1). Given previous academic research as well as anecdotal evidence, these findings were unexpected but can be partly explained through a more focused look at my sample of gateway communities.

Is Income Inequality Only Notably High in Some Gateway Communities?

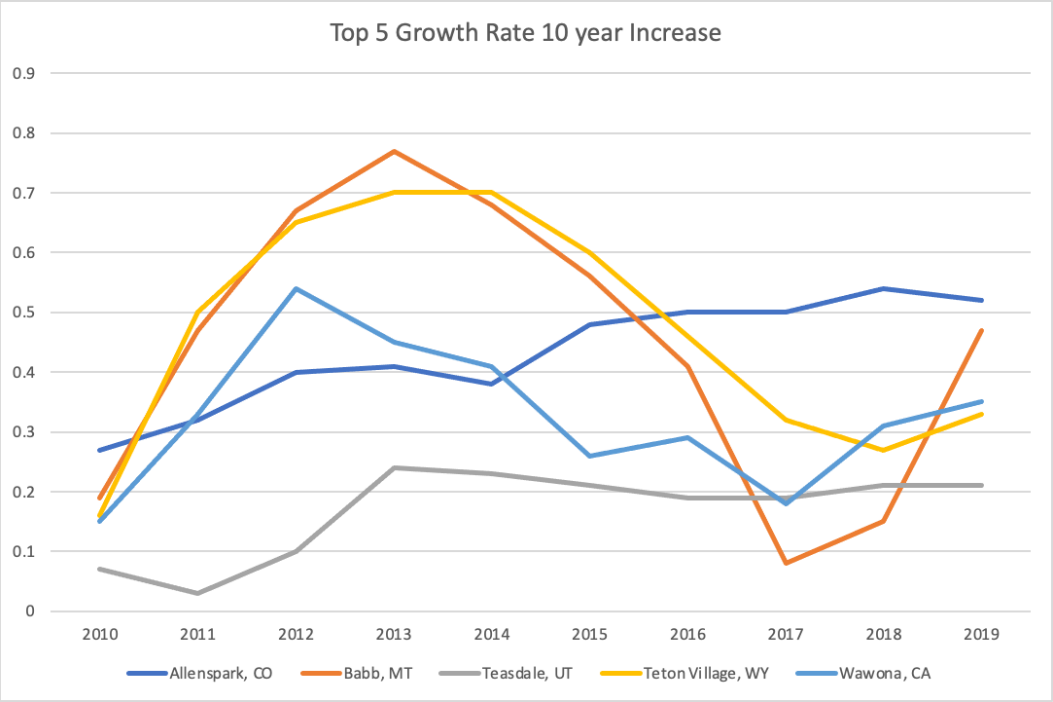
High levels of income inequality could exist only in certain gateway communities, or possibly certain types of gateway communities. Some gateway communities, such as Jackson, Wyoming, have been closely examined through case-study research (Farrell, 2020) and have undeniably high income disparities (the GINI Index in Jackson was 0.45 in 2019, more than 15% higher than the mean of other gateway communities in my study).

The GINI index in gateway communities in my dataset ranged from 0.02 to 0.77. Despite their basic similarities, there appear to be different factors driving the level of income inequality within each of these 80 communities. The communities with the highest growth rate in income

inequality between 2010 and 2019 were Teasdale, Utah (near Capitol Reef National Park) (200%), Babb, Montana (Yellowstone National Park) (147%), Wawona, California (Yosemite National Park) (133%), Teton Village, Wyoming (Grand Teton National Park) (106%), and Allenspark, Colorado (Rocky Mountain National Park) (93%) (Figure 2).

Figure 2

Gateway communities with the highest mean annual growth rate in income inequality (2010-2019).



What is it about cities and towns like these that lead to exceptionally high levels of income inequality? Variable state income tax rates and the increasing ability of individuals to 'remotely' work in gateway communities may be a large factor driving the income inequality in some regions. Wyoming, as well as several other states in the western U.S. (Alaska, Nevada, and Washington), have no state income taxes which make them an appealing location for employees in high-paying industries to relocate to. Some evidence from the past several years suggests many employees who work in the financial services industry (e.g., day traders) as well as those who work in the professional and technical services industries (e.g., software developers,

engineers, etc.) have been actively seeking out and migrating to gateway communities because of the COVID-19 pandemic and the sudden need/opportunity for working remotely (Ozimek, 2020a). State income tax rates likely play some role in these individuals' decision making and, subsequently, the levels of income inequality in certain gateway communities. In addition to state tax rates, other possible factors for why income inequality levels are not consistently higher in gateway communities relative to comparable communities include the diversity of the local economy, the availability of affordable housing for low-wage service sector employees, and perhaps even dominant local political ideologies.

How Does the Way Income is Reported Affect Income Inequality Measures?

Another factor explaining the difference between expected and observed results surrounding income inequality is the fact income is only reported for primary residents of each community. Whether due to seasonal jobs or multiple home ownership, many residents of gateway communities do not *primarily* reside in gateway communities. Although some seasonal workers and multi-homeowners reside in a gateway community, much of the actual wealth disparity present at any given time may not be reflected in official statistics like the GINI Index.

Another notable factor which may explain why income inequality is not significantly different in gateway communities relative to comparable non-gateway communities is that retirees form a large portion of amenity migrants (Shumway & Otterstrom, 2001; Lawson et al., 2014) and despite their relatively high levels of spending power (from non-labor sources of income such as pensions and retirement accounts), may have low or even no reported income. This further increases the actual wealth difference in gateway communities without impacting the official statistics documenting income inequality. While income and GINI index are beneficial economic metrics for studying working residents of gateway communities, using

wealth as a metric includes all accumulated assets and can capture the impacts of retirees and those with inherited resources. For this reason, some recent research has focused on wealth instead of income (Farrell, 2020).

Is Income Inequality More Visible in Gateway Communities?

A final contributing factor to the disparity between expected and observed results could simply be that income inequality can be more 'apparent,' 'observable,' or 'salient' in gateway communities than in other municipalities. These communities are small, with economic activity geographically concentrated around areas where recreationists participate in high-cost activities supported by low-wage service sector positions. As noted in the results, the proportion of jobs in the leisure and hospitality industry is over double that of the benchmark communities (22.4% vs 10.2%). By their nature, jobs in the leisure and hospitality industry involve more interactions between individuals with high incomes and those with low incomes, which could increase the perception of income inequality in gateway communities. This, combined with other reasons noted above, could cause a significant difference between the reality of income inequality in gateway communities, how it is officially tracked, and how it is experienced on a day-to-day basis.

In sum, further and more detailed research into the factors contributing to both real and perceived income inequality in gateway communities is needed. Work focused on defining and categorizing subsets of gateway communities may be a valuable first step in this area of inquiry. Surveys of individual, or groups of, gateway communities would also allow researchers to collect socioeconomic and demographic data in such a way that acknowledges the relatively unique economies and residents of gateway communities.

Limitations

One of the major problems encountered in this work was the limitations of ACS data. Despite the benefits of capturing a large sample size which was provided by using the ACS, I was unable to disaggregate some measures (e.g., seasonal residential units) in ways that, if possible, would have allowed for more meaningful interpretation and policy/planning recommendations. Without being able to differentiate between seasonal work migration and amenity migration, or seasonal worker units and second home units, it was difficult to tell which factors are truly driving the incomes within gateway communities.

In addition, I was unable to capture the income of non-primary residents. This lack of reporting on income would also impact the GINI index. While it is important to focus on the permanent residents of gateway communities as those most heavily impacted by gateway-community specific challenges, second homeowners and seasonal residents can make up a high number of individuals within the community at any given time. The ACS is not capable of capturing these individuals.

I was also unable to break down income by industry. Many gateway communities have small enough populations that earnings by industry are not reported by the ACS due potential breaches of anonymity. Consequently, I focused my analyses on mean annual earnings across all industries within the community.

In addition, my research only measures mean income and GINI index. There is a wide range of other metrics which can have significant implications for gateway communities such as wealth, wealth inequality, housing cost and availability, number of jobs, cost of living, unemployment rate, wage growth, and upward mobility rate. Although these and other economic metrics were outside the scope of this research, they would be a beneficial focus for future research given the distinct insights they could provide.

Finally, I only looked at one type of gateway community (Western gateway communities near national parks). Future research is certainly needed on both more diverse types of gateway communities (e.g., ski towns surrounded by public land managed by the USDA Forest Service) and communities across a broader geography (e.g., gateway communities in the eastern U.S. and those outside the U.S.) Related to researching diverse types of gateway communities, it would be beneficial to investigate the effect of the seasonality of the "tourism season" on gateway communities. Some communities only have high visitation during one portion of the year, such as during the ski season, while others experience year-round tourism. Income generation and distribution would likely be impacted differently by a sustained reliance on the leisure and hospitality industry than by experiencing ebbs and flows in tourism.

CONCLUSION

In contrast to many of the small-scale studies on the economies of gateway communities (discussed in the literature review), I aimed to provide a large-scale, empirical analysis of gateway communities through use of the ACS. As a regional analysis of the impacts of community-specific variables on the incomes and income distributions within gateway communities, this work was intended to provided actionable guidance for planners and managers in these types of communities. However, given the limitations of the ACS data, the implications of the research laid out above regarding economic diversification, housing, etc., cannot be given without reservation.

Specifically, in light of the unique and increasing challenges that gateway communities face, the inability of the ACS to accurately capture the economic metrics in gateway communities indicates a severe need to establish better methods of gathering and reporting comprehensive information about the economies of gateway communities. The limits of the ACS

in relation to gateway communities can be considered a notable finding of this work. With more complete and disaggregated data, recommendations could be used by community planners in their efforts to overcome the "big city problems" they find themselves confronted with. It is important for gateway communities that are fully immersed in tourism, amenity migration, and seasonal work, to proactively plan for the future using both the lessons learned from other gateway communities as well as the general trends observable through retrospective research like this. Without thoughtful planning and sound research, the gateway communities that have become iconic locales of the American West are likely to look much different in the decades ahead. My hope is that community leaders, elected officials, planners, and resource managers can think strategically about what they want to become, and that they can use data and research to help them chart a path to achieve their visions. In order to most effectively accomplish this however, detailed data recording and reporting is necessary. In this relatively sparse field of study, there is significant need for further investigation. Areas for future research indicated in this work include further categorization of gateway communities, investigation of what characteristics are shared by those gateway communities with the highest income inequality, and examinations of a wider array of economic indicators in gateway communities. Most pressing is the need for data characterizing the unique characteristics of the economies of gateway communities. These data need to be both large enough in scale to include multiple geographic areas (e.g., the entire Western U.S.) and specific enough to capture the intricacies of the characteristics which make gateway communities so unique.

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APPENDICES

APPENDIX A

AMERICAN COMMUNITY SURVEY VARIABLES – RESPONSE METRICS

ACS Variable Description	ACS Variable Name
Estimate!!Median earnings (dollars)!!Full-time, year-round civilian employed population 16 years and over with earnings	S2414_C01_001E
Estimate!!Gini Index	B19083_001E
Estimate!!Quintile Upper Limits:!!Lowest Quintile	B19080_001E
Estimate!!Quintile Upper Limits:!!Second Quintile	B19080_002E
Estimate!!Quintile Upper Limits:!!Third Quintile	B19080_003E
Estimate!!Quintile Upper Limits:!!Fourth Quintile	B19080_004E
Estimate!!Lower Limit of Top 5 Percent	B19080_005E

APPENDIX B

AMERICAN COMMUNITY SURVEY VARIABLES – INDEPENDENT VARIABLES

ACS Variable Description	ACS Variable Label
Estimate!!SEX AND AGE!!Total population	DP05_0001E
Estimate!!RESIDENCE 1 YEAR AGO!!Population 1 year and over!!Different house in the U.S.!!Different county	DP02_0082E
Estimate!!Total!!For seasonal, recreational, or occasional use[a]	B25004_006E
Estimate!!Total	B25001_001E
Percent Estimate!!INDUSTRY!!Civilian employed population 16 years and over!!Arts, entertainment, and recreation, and accommodation and food services	DP03_0043PE
Percent Margin of Error!!INDUSTRY!!Civilian employed population 16 years and over!!Arts, entertainment, and recreation, and accommodation and food services	DP03_0043PM

[a] For Seasonal, Recreational, or Occasional Use – These are vacant units used or intended for use only in certain seasons or for weekends or other occasional use throughout the year. Seasonal units include those used for summer or winter sports or recreation, such as beach cottages and hunting cabins. Seasonal units also may include quarters for such workers as herders and loggers. Interval ownership units, sometimes called shared-ownership or timesharing condominiums, also are included here (American Community Survey and Puerto Rico Community Survey 2019 Subject Definitions).

APENDIX C

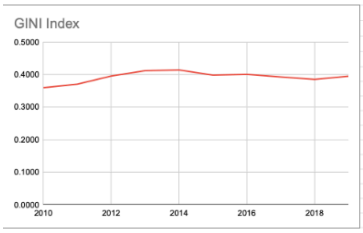
API CALLS

Variable Type	API Call
Detailed Tables variables	https://api.census.gov/data/2010/acs/acs5?get=B19080_001E, B19080_002E, B19080_003E, B19080_005E, B25004_006E,B19083_001E,B19080_004E, B25001_001E,NAME&for=place:*&in=state:02,04,06,08,16,30,32,35,41,49,53,56&key=aa6a45f29d73cec19281fde4a0d9b815fd751298
Subject Tables variables	https://api.census.gov/data/2010/acs/acs5/subject?get=S2413_C01_001E, S2414_C01_001E,NAME&for=place:*&in=state:02,04,06,08,16,30,32,35,41,49,53,56&key=aa6a45f29d73cec19281fde4a0d9b815fd751298
Data Profile Variables	https://api.census.gov/data/2010/acs/acs5/profile?get=DP05_0001E, DP02_0082E, DP03_0043PE, DP03_0043PM,NAME&for=place:*&in=state:02,04,06,08,16,30,32,35,41,49,53,56&key=aa6a45f29d73cec19281fde4a0d9b815fd751298

APENDIX D

GATEWAY DESCRIPTIVES[20]

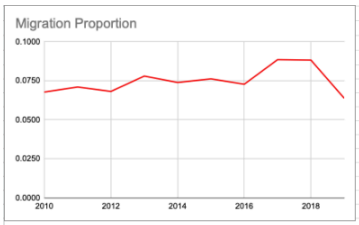
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mean	$47,885.00	$47,260.91	$42,528.44	$41,241.12	$41,667.21	$41,553.38	$41,842.69	$42,512.17	$42,570.36	$44,422.15
Standard Deviation	$17,645.08	$17,870.47	$15,834.98	$14,216.47	$13,405.46	$13,917.89	$12,426.93	$11,763.30	$13,581.55	$18,968.18
N	75	73	75	74	73	77	74	74	75	74
Annual Growth Rate		-0.01	-0.10	-0.03	0.01	0.00	0.01	0.02	0.00	0.04
10 year Growth Rate										-0.07



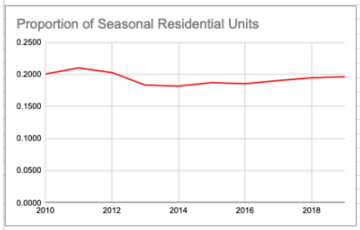
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mean	0.3593	0.3701	0.3951	0.4115	0.4137	0.3979	0.4003	0.3923	0.3848	0.3946
Standard Deviation	0.0987	0.0920	0.0980	0.0984	0.0848	0.0839	0.0775	0.0875	0.0875	0.0893
N	76	76	76	76	76	80	80	80	79	77

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mean	1,824,735.59	1,809,957.53	1,848,880.09	1,840,343.14	1,991,353.75	2,198,170.85	2,481,718.39	2,524,604.80	2,479,656.14	2,488,948.49
Standard Deviation	1,354,735.11	1,364,808.87	1,384,323.62	1,371,424.31	1,455,493.16	1,637,981.18	1,840,595.60	1,851,246.86	1,820,477.88	1,802,833.87
N	79	79	79	79	79	80	80	80	80	79
Yearly Growth Rate		-0.01	0.02	0.00	0.08	0.10	0.13	0.02	-0.02	0.00
10 year Growth Rate										0.36

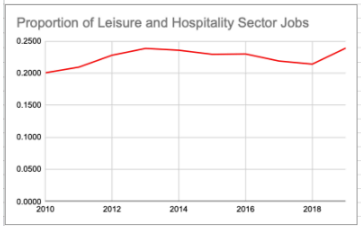
[20] Appendices D-I available at: https://docs.google.com/spreadsheets/d/1sQ9JvLdC-wYeHNOvrfmfwEVpQOfMApA0-SKUeLGcoYM/edit?usp=sharing



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mean	0.0676	0.0708	0.0680	0.0778	0.0737	0.0760	0.0726	0.0883	0.0880	0.0636
Standard Deviation	0.0701	0.0713	0.0642	0.0697	0.0734	0.0854	0.0722	0.1094	0.1052	0.0768
N	77	76	76	77	79	80	80	80	80	79



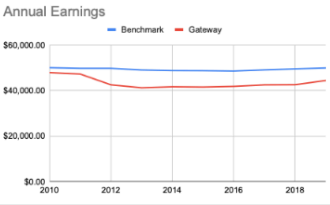
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mean	0.2005	0.2099	0.2027	0.1831	0.1816	0.1870	0.1853	0.1903	0.1945	0.1962
Standard Deviation	0.2273	0.2371	0.2307	0.2061	0.2050	0.2092	0.2041	0.2011	0.1978	0.2034
N	77	77	77	78	79	80	80	80	80	79



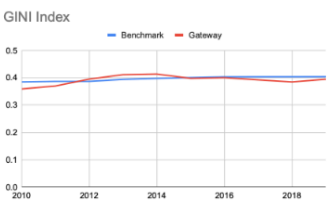
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mean	0.2005	0.2092	0.2279	0.2384	0.2356	0.2293	0.2298	0.2188	0.2140	0.2389
Standard Deviation	0.1858	0.1859	0.1987	0.2165	0.2111	0.1922	0.1924	0.1784	0.1719	0.1985
N	77	76	76	77	79	80	80	80	80	79

APPENDIX E

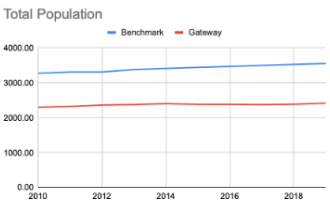
GATEWAY AND BENCHMARK COMPARISON



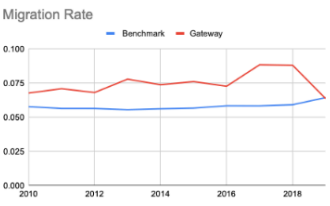
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Benchmark Mean	$50,031.99	$49,750.54	$49,750.54	$49,030.35	$48,773.00	$48,721.66	$48,572.14	$49,062.02	$49,509.70	$49,914.27
Yearly Growth Rate		-$0.01	$0.00	-$0.01	-$0.01	$0.00	$0.00	$0.01	$0.01	$0.01
10 Year Growth Rate										$0.00
Gateway Mean	$47,885.00	$47,260.91	$42,528.44	$41,241.12	$41,667.21	$41,553.38	$41,842.69	$42,512.17	$42,570.36	$44,422.15
Yearly Growth Rate		-$0.01	-$0.10	-$0.03	$0.01	$0.00	$0.01	$0.02	$0.00	$0.04
10 Year Growth Rate										-$0.07



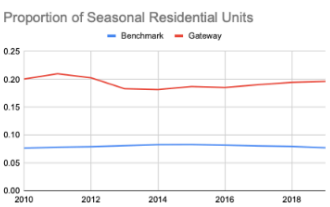
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Benchmark Mean	0.38	0.39	0.39	0.39	0.40	0.40	0.40	0.40	0.40	0.40
Gateway Mean	0.3593	0.3701	0.3951	0.4115	0.4137	0.3979	0.4003	0.3923	0.3848	0.3946



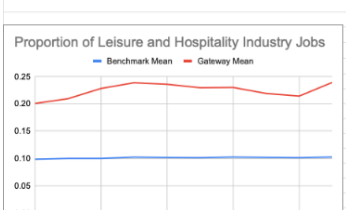
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Benchmark Mean	3276.89	3311.52	3311.52	3379.92	3414.11	3443.87	3470.83	3501.43	3528.73	3555.13
Gateway Mean	2298.73	2324.25	2362.39	2377.39	2402.51	2383.43	2382.54	2376.49	2385.77	2417.09
Annual Growth Rate Gateway		0.01	0.02	0.01	0.01	-0.01	0.00	0.00	0.00	0.01
10 Year Growth Rate Gateway										0.05
Annual Growth Rate Benchmark		0.01	0.00	0.02	0.01	0.01	0.01	0.01	0.01	0.01
10 Year Growth Rate Benchmark										0.08



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Benchmark Mean	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Gateway Mean	0.0676	0.0708	0.0680	0.0778	0.0737	0.0760	0.0726	0.0883	0.0880	0.0636



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Benchmark Mean	0.076616	0.078277	0.079155	0.081011	0.082828	0.082995	0.081946	0.080579	0.079609	0.077343
Gateway Mean	0.2005	0.2099	0.2027	0.1831	0.1816	0.1870	0.1853	0.1903	0.1945	0.1962



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Benchmark Mean	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Gateway Mean	0.2005	0.2092	0.2279	0.2384	0.2356	0.2293	0.2298	0.2188	0.2140	0.2389

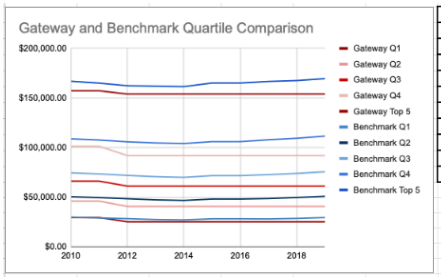
APPENDIX F

SKEWNESS AND KURTOSIS OF GATEWAY COMMUNITY VARIABLES

	N	Mean	Skewness	Standard Error	Kurtosis	Standard Error
PE Recreation Job	775	22.36	1.48	0.09	2.29	0.18
PME Recreation Job	775	14.30	2.09	0.09	6.85	0.18
Total Population	794	2371.11	2.89	0.09	8.09	0.17
Total Population Square Root	794	36.54	1.81	0.09	2.75	0.17
Km to Visitor Center	785	27.83	5.05	0.09	29.95	0.17
Km to Visitor Center Square Root	785	4.47	2.38	0.09	8.69	0.17
Km to Visitor Center Log10	785	1.16	-0.43	0.09	0.99	0.17
Number of Proximate Gateway Communities	770	3.22	0.10	0.09	-1.15	0.18
Earnings	740	43126.22	1.28	0.09	9.87	0.18
Migration Proportion	784	0.07	2.33	0.09	8.43	0.17
Migration Proportion Square Root	784	0.23	0.29	0.09	0.12	0.17
Seasonal Residential Units	787	0.19	1.27	0.09	0.83	0.17
GINI	776	0.39	-0.30	0.09	1.82	0.18
Top Five Percent	383	17.83	0.76	0.13	0.83	0.25
Fifth Quartile	383	45.92	0.07	0.13	0.08	0.25
Fourt Quartile	383	24.03	-0.54	0.13	0.97	0.25
Third Quartile	383	15.85	0.11	0.13	0.76	0.25
Second Quartile	383	9.90	0.37	0.13	0.32	0.25
First Quartile	383	4.31	1.13	0.13	4.44	0.25
National Park Visitation	795	2153149.12	0.42	0.09	-0.85	0.17

APPENDIX G

QUARTILE COMPARISON



	Gateway Q1	Gateway Q2	Gateway Q3	Gateway Q4	Gateway Top 5	Benchmark Q1	Benchmark Q2	Benchmark Q3	Benchmark Q4	Benchmark Top 5
2010	$29,472.28	$46,058.49	$66,167.31	$101,315.96	$157,266.51	$29,868.60	$50,451.52	$74,527.99	$108,808.42	$166,909.73
2011	$29,472.28	$46,058.49	$66,167.31	$101,315.96	$157,266.51	$29,105.88	$49,568.51	$73,441.38	$107,647.71	$165,020.03
2012	$25,207.70	$40,645.94	$61,192.76	$91,973.53	$153,996.18	$28,361.58	$48,423.05	$71,920.76	$105,813.73	$162,382.92
2013	$25,207.70	$40,645.94	$61,192.76	$91,973.53	$153,996.18	$27,450.70	$47,307.81	$70,678.24	$104,708.46	$161,959.43
2014	$25,207.70	$40,645.94	$61,192.76	$91,973.53	$153,996.18	$27,093.83	$46,731.05	$69,991.09	$104,120.12	$161,511.97
2015	$25,207.70	$40,645.94	$61,192.76	$91,973.53	$153,996.18	$28,202.82	$48,116.40	$71,716.11	$105,999.37	$165,115.97
2016	$25,207.70	$40,645.94	$61,192.76	$91,973.53	$153,996.18	$28,202.82	$48,116.40	$71,716.11	$105,999.37	$165,115.97
2017	$25,207.70	$40,645.94	$61,192.76	$91,973.53	$153,996.18	$28,067.76	$48,632.86	$72,694.49	$107,886.71	$166,695.28
2018	$25,207.70	$40,645.94	$61,192.76	$91,973.53	$153,996.18	$28,596.26	$49,673.41	$73,943.17	$109,391.82	$167,591.78
2019	$25,207.70	$40,645.94	$61,192.76	$91,973.53	$153,996.18	$29,460.69	$50,882.62	$75,594.76	$111,555.69	$169,514.28

APPENDIX H

RESEARCH QUESTION ONE SPSS OUTPUTS

Linear regression gateway earnings

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	814363.382	388508.710		2.096	.036
	year	-381.763	192.854	-.072	-1.980	.048
	id	-.001	.000	-.115	-3.155	.002

a. Dependent Variable: inf_ernft_tot

Linear regression Gateway GINI

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-3.867	2.288		-1.690	.091
	year	.002	.001	.067	1.864	.063
	id	-2.102E-9	.000	-.049	-1.371	.171

a. Dependent Variable: gini

Linear regression benchmark earnings

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	136017.159	78556.751		1.731	.083
	year	-42.476	38.995	-.006	-1.089	.276
	id	.000	.000	-.043	-8.334	<.001

a. Dependent Variable: inf_ernft_tot

Linear regression Benchmark GINI

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-4.400	.274		-16.035	<.001
	year	.002	.000	.088	17.525	<.001
	id	-4.997E-9	.000	-.126	-25.117	<.001

a. Dependent Variable: gini

T-test earnings gateway vs benchmark

T-Test

Group Statistics

	gnar_benchmark	N	Mean	Std. Deviation	Std. Error Mean
inf_ernft_tot	1	744	43342.0564	15220.9901	558.02857
	2	37632	49298.8724	21764.0949	112.19202

Independent Samples Test

		Levene's Test for Equality of Variances F	Levene's Test for Equality of Variances Sig.	t-test for Equality of Means t	df	Significance One-Sided p	Significance Two-Sided p	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper
inf_ernft_tot	Equal variances assumed	40.883	<.001	-7.430	38374	<.001	<.001	-5956.8160	801.76417	-7528.2940	-4385.3381
	Equal variances not assumed			-10.465	804.254	<.001	<.001	-5956.8160	569.19499	-7074.0991	-4839.5329

T test GINI gateway and benchmark

T-Test

Group Statistics

	gnar3_max	N	Mean	Std. Deviation	Std. Error Mean
gini	1.00	776	.3938	.08851	.00318
	2.00	38784	.3969	.07793	.00040

Independent Samples Test

		Levene's Test for Equality of Variances F	Levene's Test for Equality of Variances Sig.	t-test for Equality of Means t	df	Significance One-Sided p	Significance Two-Sided p	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper
gini	Equal variances assumed	21.224	<.001	-1.095	39558	.137	.273	-.00310	.00283	-.00866	.00245
	Equal variances not assumed			-.969	799.226	.166	.333	-.00310	.00320	-.00939	.00318

Independent Samples Effect Sizes

		Standardizer[a]	Point Estimate	95% Confidence Interval Lower	95% Confidence Interval Upper
gini	Cohen's d	.07816	-.040	-.111	.031
	Hedges' correction	.07816	-.040	-.111	.031
	Glass's delta	.07793	-.040	-.111	.031

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control group.

APPENDIX I

RESEARCH QUESTION TWO SPSS OUTPUTS

Parameter Estimates

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-14910204.1	12512274.65	-39433811.78	9613403.569	1.42	1	0.233
[d2=0]	-194238.473	256061.8918	-696110.559	307633.612	0.575	1	0.448
[d2=1]	0a						
[d3=0]	-11752.862	187340.171	-378932.85	355427.126	0.004	1	0.95
[d3=1]	0a						
[d4=0]	-35026.957	282153.4546	-588037.566	517983.652	0.015	1	0.901
[d4=1]	0a						
[d5=0]	8870.339	280020.5142	-539959.784	557700.462	0.001	1	0.975
[d5=1]	0a						
[d6=0]	180030.026	238335.286	-287098.55	647158.603	0.571	1	0.45
[d6=1]	0a						
[d7=0]	576499.956	578446.9706	-557235.273	1710235.186	0.993	1	0.319
[d7=1]	0a						
[d8=0]	171738.856	233285.6758	-285492.666	628970.379	0.542	1	0.462
[d8=1]	0a						

[d9=0]	-152319.321	180566.6469	-506223.445	201584.804	0.712	1	0.399
[d9=1]	0a						
[d10=0]	432040.488	370140.8849	-293422.316	1157503.292	1.362	1	0.243
[d10=1]	0a						
[d11=0]	-42910.139	105141.4597	-248983.613	163163.336	0.167	1	0.683
[d11=1]	0a						
[d12=0]	-315540.86	313254.8593	-929509.102	298427.382	1.015	1	0.314
[d12=1]	0a						
[d13=0]	-105751.951	303934.9208	-701453.449	489949.548	0.121	1	0.728
[d13=1]	0a						
[d14=0]	-216728.954	213138.1113	-634471.976	201014.067	1.034	1	0.309
[d14=1]	0a						
[d15=0]	253001.767	220676.4548	-179516.136	685519.671	1.314	1	0.252
[d15=1]	0a						
[d16=0]	-97939.562	152143.6544	-396135.645	200256.521	0.414	1	0.52
[d16=1]	0a						
[d17=0]	130446.175	298745.0082	-455083.282	715975.632	0.191	1	0.662
[d17=1]	0a						
[d18=0]	682076.478	700762.4653	-691392.716	2055545.672	0.947	1	0.33
[d18=1]	0a						

[d19=0]	993630.519	947203.8276	-862854.87	2850115.907	1.1	1	0.294
[d19=1]	0a						
[d20=0]	-48509.554	64134.2287	-174210.332	77191.225	0.572	1	0.449
[d20=1]	0a						
[d21=0]	136345.096	144643.6356	-147151.221	419841.412	0.889	1	0.346
[d21=1]	0a						
[d22=0]	431779.242	532912.3842	-612709.838	1476268.322	0.656	1	0.418
[d22=1]	0a						
[d23=0]	444375.674	532015.6662	-598355.871	1487107.218	0.698	1	0.404
[d23=1]	0a						
[d24=0]	-144936.199	310471.0238	-753448.224	463575.826	0.218	1	0.641
[d24=1]	0a						
[d25=0]	813923.149	811498.951	-776585.568	2404431.867	1.006	1	0.316
[d25=1]	0a						
[d26=0]	581113.521	509996.6478	-418461.541	1580688.583	1.298	1	0.255
[d26=1]	0a						
[d27=0]	104819.987	141279.3448	-172082.441	381722.414	0.55	1	0.458
[d27=1]	0a						
[d28=0]	369377.521	483554.8267	-578372.524	1317127.566	0.584	1	0.445
[d28=1]	0a						

[d29=0]	-219027.251	339253.6159	-883952.12	445897.618	0.417	1	0.519
[d29=1]	0a						
[d30=0]	61353.193	50631.2939	-37882.32	160588.705	1.468	1	0.226
[d30=1]	0a						
[d31=0]	28742.788	95054.0086	-157559.646	215045.221	0.091	1	0.762
[d31=1]	0a						
[d32=0]	638992.77	665876.5759	-666101.337	1944086.877	0.921	1	0.337
[d32=1]	0a						
[d33=0]	420097.274	510038.4012	-579559.623	1419754.171	0.678	1	0.41
[d33=1]	0a						
[d34=0]	-23272.523	280304.4821	-572659.213	526114.167	0.007	1	0.934
[d34=1]	0a						
[d35=0]	494378.602	442723.0482	-373342.628	1362099.831	1.247	1	0.264
[d35=1]	0a						
[d36=0]	580173.818	495566.8808	-391119.42	1551467.056	1.371	1	0.242
[d36=1]	0a						
[d37=0]	207362.233	195058.2183	-174944.849	589669.316	1.13	1	0.288
[d37=1]	0a						
[d38=0]	6163.774	95739.493	-181482.185	193809.732	0.004	1	0.949
[d38=1]	0a						
[d39=0]	17006.989	184866.2825	-345324.26	379338.244	0.008	1	0.927

			7				
[d39=1]	0a						
[d40=0]	-234322.119	251285.6783	-726832.998	258188.761	0.87	1	0.351
[d40=1]	0a						
[d41=0]	307389.317	286871.6449	-254868.775	869647.409	1.148	1	0.284
[d41=1]	0a						
[d42=0]	345439.187	322950.6516	-287532.459	978410.833	1.144	1	0.285
[d42=1]	0a						
[d43=0]	77299.542	191437.2065	-297910.488	452509.572	0.163	1	0.686
[d43=1]	0a						
[d44=0]	-54779.368	190129.1731	-427425.7	317866.964	0.083	1	0.773
[d44=1]	0a						
[d45=0]	309948.766	297153.395	-272461.186	892358.718	1.088	1	0.297
[d45=1]	0a						
[d46=0]	326663.877	331190.4693	-322457.515	975785.268	0.973	1	0.324
[d46=1]	0a						
[d47=0]	92478.234	198763.6585	-297091.378	482047.846	0.216	1	0.642
[d47=1]	0a						
[d48=0]	32984.453	189312.7941	-338061.805	404030.712	0.03	1	0.862
[d48=1]	0a						
[d49=0]	253728.705	280817.7004	-296663.87	804121.284	0.816	1	0.366

			4				
[d49=1]	0a						
[d50=0]	281540.156	288183.575	-283289.272	846369.583	0.954	1	0.329
[d50=1]	0a						
[d51=0]	482039.373	462154.1698	-423766.155	1387844.901	1.088	1	0.297
[d51=1]	0a						
[d52=0]	548065.269	496275.9482	-424617.716	1520748.254	1.22	1	0.269
[d52=1]	0a						
[d53=0]	-14238.916	94003.6529	-198482.69	170004.859	0.023	1	0.88
[d53=1]	0a						
[d54=0]	-36879.039	284529.1922	-594546.009	520787.93	0.017	1	0.897
[d54=1]	0a						
[d55=0]	44135.643	280362.8716	-505365.488	593636.774	0.025	1	0.875
[d55=1]	0a						
[d56=0]	383117.202	312459.7843	-229292.722	995527.126	1.503	1	0.22
[d56=1]	0a						
[d57=0]	72550.204	50503.6525	-26435.136	171535.544	2.064	1	0.151
[d57=1]	0a						
[d58=0]	-118366.23	225583.8564	-560502.464	323770.004	0.275	1	0.6
[d58=1]	0a						
[d59=0]	51138.522	24020.1313	4059.93	98217.115	4.533	1	0.033
[d59=1]	0a						

[d60=0]	434804.288	457063.8575	-461024.411	1330632.987	0.905	1	0.341
[d60=1]	0a						
[d61=0]	244978.224	347221.1934	-435562.809	925519.258	0.498	1	0.48
[d61=1]	0a						
[d62=0]	119775.34	206902.3222	-285745.76	525296.44	0.335	1	0.563
[d62=1]	0a						
[d63=0]	401198.827	445374.2398	-471718.643	1274116.296	0.811	1	0.368
[d63=1]	0a						
[d64=0]	416611.374	453554.5185	-472339.147	1305561.895	0.844	1	0.358
[d64=1]	0a						
[d65=0]	629944.991	612314.8563	-570170.075	1830060.056	1.058	1	0.304
[d65=1]	0a						
[d66=0]	-15857.223	194603.4022	-397272.883	365558.436	0.007	1	0.935
[d66=1]	0a						
[d67=0]	-15315.1	187886.4318	-383565.74	352935.54	0.007	1	0.935
[d67=1]	0a						
[d68=0]	132605.74	96458.8129	-56450.059	321661.539	1.89	1	0.169
[d68=1]	0a						
[d69=0]	274856.3	361507.4058	-433685.195	983397.796	0.578	1	0.447
[d69=1]	0a						
[d70=0]	250482.599	280137.5278	-298576.86	799542.064	0.799	1	0.371

			7				
[d70=1]	0a						
[d71=0]	43849.605	280317.0785	-505561.773	593260.983	0.024	1	0.876
[d71=1]	0a						
[d72=0]	68653.08	191225.1147	-306141.258	443447.417	0.129	1	0.72
[d72=1]	0a						
[d73=0]	394202.609	374658.24	-340114.048	1128519.266	1.107	1	0.293
[d73=1]	0a						
[d74=0]	559481.61	535577.0947	-490230.207	1609193.427	1.091	1	0.296
[d74=1]	0a						
[d75=0]	474876.523	450346.371	-407786.144	1357539.191	1.112	1	0.292
[d75=1]	0a						
[d76=0]	415483.31	381156.867	-331570.422	1162537.041	1.188	1	0.276
[d76=1]	0a						
[d77=0]	85873.733	75203.5606	-61522.537	233270.004	1.304	1	0.254
[d77=1]	0a						
[d78=0]	92119.3	91130.9663	-86494.112	270732.712	1.022	1	0.312
[d78=1]	0a						
[d79=0]	111232.684	121672.2337	-127240.512	349705.88	0.836	1	0.361
[d79=1]	0a						
[d80=0]	0a						
[d80=1]	0a						

Visitation_1000	0.125	1.3091	-2.441	2.691	0.009	1	0.924
no_nearby_gnars * year	32.433	54.945	-75.257	140.123	0.348	1	0.555
year * km_vis_center_log10	-202.707	178.3894	-552.344	146.93	1.291	1	0.256
migration_proportion_sqrt	-11067.881	4093.9999	-19091.973	-3043.789	7.309	1	0.007
tot_pop_sqrt	-238	179.3588	-589.536	113.537	1.761	1	0.185
seasonal_res_units	-38444.565	7056.4425	-52274.938	-24614.191	29.682	1	0
pe_rec_job_proportion	-10034.531	4777.1291	-19397.532	-671.53	4.412	1	0.036
(Scale)	111069372.245b	5797774.038	10026790	123034434.1			
Dependent Variable: GINI							

Parameter Estimates

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	73.512	72.7816	-69.138	216.161	1.02	1	0.312
[d2=0]	-0.28	1.5074	-3.234	2.674	0.034	1	0.853
[d2=1]	0a						
[d3=0]	-1.485	1.1037	-3.648	0.678	1.811	1	0.178
[d3=1]	0a						
[d4=0]	-2.226	1.6631	-5.486	1.033	1.792	1	0.181
[d4=1]	0a						
[d5=0]	-2.554	1.6468	-5.781	0.674	2.405	1	0.121

[d5=1]	0a						
[d6=0]	-2.761	1.3835	-5.473	-0.05	3.983	1	0.046
[d6=1]	0a						
[d7=0]	-6.353	3.3419	-12.903	0.196	3.614	1	0.057
[d7=1]	0a						
[d8=0]	-2.798	1.3549	-5.453	-0.142	4.263	1	0.039
[d8=1]	0a						
[d9=0]	1.941	1.0431	-0.103	3.986	3.464	1	0.063
[d9=1]	0a						
[d10=0]	-1.947	2.1554	-6.172	2.277	0.816	1	0.366
[d10=1]	0a						
[d11=0]	-0.42	0.621	-1.637	0.797	0.458	1	0.499
[d11=1]	0a						
[d12=0]	3.124	1.81	-0.424	6.671	2.979	1	0.084
[d12=1]	0a						
[d13=0]	-1.558	1.7945	-5.075	1.959	0.754	1	0.385
[d13=1]	0a						
[d14=0]	2.389	1.2312	-0.024	4.803	3.767	1	0.052
[d14=1]	0a						
[d15=0]	-0.776	1.2904	-3.305	1.754	0.361	1	0.548
[d15=1]	0a						
[d16=0]	0.299	0.8938	-1.453	2.051	0.112	1	0.738
[d16=1]	0a						
[d17=0]	1.704	1.7638	-1.753	5.161	0.933	1	0.334
[d17=1]	0a						

[d18=0]	-1.41	4.1079	-9.461	6.641	0.118	1	0.731
[d18=1]	0a						
[d19=0]	-3.495	5.5336	-14.34	7.351	0.399	1	0.528
[d19=1]	0a						
[d20=0]	0.493	0.3713	-0.235	1.22	1.76	1	0.185
[d20=1]	0a						
[d21=0]	0.068	0.8503	-1.599	1.734	0.006	1	0.936
[d21=1]	0a						
[d22=0]	0.294	3.1367	-5.854	6.441	0.009	1	0.925
[d22=1]	0a						
[d23=0]	0.33	3.1314	-5.808	6.467	0.011	1	0.916
[d23=1]	0a						
[d24=0]	-1.227	1.834	-4.822	2.367	0.448	1	0.503
[d24=1]	0a						
[d25=0]	-2.419	4.7489	-11.726	6.889	0.259	1	0.611
[d25=1]	0a						
[d26=0]	-3.971	2.9548	-9.762	1.821	1.806	1	0.179
[d26=1]	0a						
[d27=0]	-0.009	0.831	-1.638	1.62	0	1	0.991
[d27=1]	0a						
[d28=0]	0.839	2.8504	-4.748	6.426	0.087	1	0.768
[d28=1]	0a						
[d29=0]	-0.944	2.0008	-4.866	2.977	0.223	1	0.637
[d29=1]	0a						
[d30=0]	-0.452	0.2933	-1.026	0.123	2.37	1	0.124

[d30=1]	0a						
[d31=0]	0.692	0.5607	-0.407	1.791	1.522	1	0.217
[d31=1]	0a						
[d32=0]	-1.207	3.9064	-8.864	6.449	0.096	1	0.757
[d32=1]	0a						
[d33=0]	0.587	3.0039	-5.301	6.474	0.038	1	0.845
[d33=1]	0a						
[d34=0]	-2.401	1.651	-5.637	0.835	2.115	1	0.146
[d34=1]	0a						
[d35=0]	-2.498	2.5757	-7.546	2.55	0.941	1	0.332
[d35=1]	0a						
[d36=0]	-2.958	2.882	-8.607	2.69	1.054	1	0.305
[d36=1]	0a						
[d37=0]	-1.4	1.1292	-3.614	0.813	1.538	1	0.215
[d37=1]	0a						
[d38=0]	-0.944	0.5623	-2.046	0.158	2.818	1	0.093
[d38=1]	0a						
[d39=0]	-1.632	1.0881	-3.765	0.5	2.25	1	0.134
[d39=1]	0a						
[d40=0]	0.924	1.4669	-1.951	3.799	0.397	1	0.529
[d40=1]	0a						
[d41=0]	-2.903	1.6568	-6.15	0.345	3.069	1	0.08
[d41=1]	0a						
[d42=0]	-3.22	1.866	-6.877	0.438	2.977	1	0.084
[d42=1]	0a						
[d43=0]	-2.055	1.1217	-4.253	0.144	3.355	1	0.06

							7
[d43=1]	0a						
[d44=0]	-1.166	1.1228	-3.366	1.035	1.077	1	0.299
[d44=1]	0a						
[d45=0]	-0.246	1.7463	-3.668	3.177	0.02	1	0.888
[d45=1]	0a						
[d46=0]	-0.506	1.9432	-4.315	3.302	0.068	1	0.794
[d46=1]	0a						
[d47=0]	1.077	1.1737	-1.224	3.377	0.841	1	0.359
[d47=1]	0a						
[d48=0]	-1.736	1.1129	-3.917	0.446	2.432	1	0.119
[d48=1]	0a						
[d49=0]	0.011	1.6515	-3.226	3.248	0	1	0.995
[d49=1]	0a						
[d50=0]	0.01	1.6942	-3.31	3.331	0	1	0.995
[d50=1]	0a						
[d51=0]	-1.606	2.7011	-6.9	3.688	0.354	1	0.552
[d51=1]	0a						
[d52=0]	-5.266	2.8665	-10.884	0.352	3.375	1	0.066
[d52=1]	0a						
[d53=0]	-0.736	0.553	-1.82	0.347	1.774	1	0.183
[d53=1]	0a						
[d54=0]	-1.953	1.6788	-5.244	1.337	1.354	1	0.245
[d54=1]	0a						
[d55=0]	-2.28	1.6508	-5.515	0.956	1.907	1	0.167

[d55=1]	0a						
[d56=0]	-2.494	1.8112	-6.044	1.056	1.896	1	0.169
[d56=1]	0a						
[d57=0]	-0.317	0.293	-0.891	0.257	1.171	1	0.279
[d57=1]	0a						
[d58=0]	-0.773	1.3306	-3.381	1.834	0.338	1	0.561
[d58=1]	0a						
[d59=0]	-0.153	0.1394	-0.426	0.121	1.198	1	0.274
[d59=1]	0a						
[d60=0]	-0.378	2.6845	-5.64	4.884	0.02	1	0.888
[d60=1]	0a						
[d61=0]	0.964	2.0474	-3.048	4.977	0.222	1	0.638
[d61=1]	0a						
[d62=0]	-2.303	1.2068	-4.668	0.062	3.641	1	0.056
[d62=1]	0a						
[d63=0]	-0.206	2.617	-5.335	4.924	0.006	1	0.937
[d63=1]	0a						
[d64=0]	-0.383	2.6644	-5.605	4.839	0.021	1	0.886
[d64=1]	0a						
[d65=0]	-1.875	3.5829	-8.897	5.148	0.274	1	0.601
[d65=1]	0a						
[d66=0]	-1.033	1.1484	-3.284	1.218	0.809	1	0.369
[d66=1]	0a						
[d67=0]	-1.513	1.1072	-3.683	0.657	1.867	1	0.172
[d67=1]	0a						

[d68=0]	-0.75	0.5592	-1.846	0.346	1.801	1	0.18
[d68=1]	0a						
[d69=0]	0.666	2.1309	-3.51	4.843	0.098	1	0.755
[d69=1]	0a						
[d70=0]	0.021	1.6471	-3.207	3.25	0	1	0.99
[d70=1]	0a						
[d71=0]	-2.502	1.6486	-5.733	0.73	2.303	1	0.129
[d71=1]	0a						
[d72=0]	1.247	1.1281	-0.964	3.458	1.222	1	0.269
[d72=1]	0a						
[d73=0]	-0.846	2.1944	-5.147	3.455	0.149	1	0.7
[d73=1]	0a						
[d74=0]	-2.154	3.1245	-8.277	3.97	0.475	1	0.491
[d74=1]	0a						
[d75=0]	-1.52	2.632	-6.679	3.638	0.334	1	0.564
[d75=1]	0a						
[d76=0]	-1.007	2.2323	-5.383	3.368	0.204	1	0.652
[d76=1]	0a						
[d77=0]	-0.509	0.4352	-1.362	0.344	1.368	1	0.242
[d77=1]	0a						
[d78=0]	-0.767	0.5281	-1.803	0.268	2.111	1	0.146
[d78=1]	0a						
[d79=0]	-1.033	0.7045	-2.414	0.348	2.15	1	0.143
[d79=1]	0a						
[d80=0]	0a						
[d80=1]	0a						
Visitation_1000	1.55E-06	7.67E-06	-1.35E-05	1.66E-05	0.041	1	0.84

no_nearby_gnars * year	0	0.0003	0	0.001	0.311	1	0.577
year * km_vis_center_log10	0.001	0.001	-0.001	0.003	1.813	1	0.178
migration_proportion_sqrt	-0.001	0.0223	-0.045	0.042	0.004	1	0.951
tot_pop_sqrt	0.001	0.001	-0.001	0.003	1.704	1	0.192
seasonal_res_units	0.05	0.0411	-0.03	0.131	1.484	1	0.223
pe_rec_job_proportion	0.023	0.0246	-0.025	0.072	0.904	1	0.342
(Scale)	.004b	0.0002	0.004	0.004			

Dependent Variable: gini
Model: (Intercept), d2, d3, d4, d5, d6, d7, d8, d9, d10, d11, d12, d13, d14, d15, d16, d17, d18, d19, d20, d21, d22, d23, d24, d25, d26, d27, d28, d29, d30, d31, d32, d33, d34, d35, d36, d37, d38, d39, d40, d41, d42, d43, d44, d45, d46, d47, d48, d49, d50, d51, d52, d53, d54, d55, d56, d57, d58, d59, d60, d61, d62, d63, d64, d65, d66, d67, d68, d69, d70, d71, d72, d73, d74, d75, d76, d77, d78, d79, d80, Visitation_1000, no_nearby_gnars * year, year * km_vis_center_log10, migration_proportion_sqrt, tot_pop_sqrt, seasonal_res_units, pe_rec_job_proportion

a. Set to zero because this parameter is redundant.

b. Maximum likelihood estimate.

Interaction Effect of Significant Predictor Variables on Earnings

Parameter Estimates

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-18090487.3	12454415.15	-42500692.45	6319717.851	2.11	1	0.146
[d2=0]	-249032.503	255878.9809	-750546.09	252481.083	0.947	1	0.33
[d2=1]	0a						

[d3=0]	-25073.366	186830.5693	-391254.553	341107.821	0.018	1	0.893
[d3=1]	0a						
[d4=0]	-62265.968	281679.8041	-614348.24	489816.303	0.049	1	0.825
[d4=1]	0a						
[d5=0]	-6302.717	279283.0601	-553687.457	541082.022	0.001	1	0.982
[d5=1]	0a						
[d6=0]	201197.358	236533.093	-262398.986	664793.701	0.724	1	0.395
[d6=1]	0a						
[d7=0]	681419.114	573511.2551	-442642.291	1805480.518	1.412	1	0.235
[d7=1]	0a						
[d8=0]	192712.273	231512.8894	-261044.652	646469.198	0.693	1	0.405
[d8=1]	0a						
[d9=0]	-183201.383	179006.603	-534047.878	167645.112	1.047	1	0.306
[d9=1]	0a						
[d10=0]	518036.713	368491.355	-204193.072	1240266.497	1.976	1	0.16
[d10=1]	0a						
[d11=0]	-61959.003	105034.1917	-267822.236	143904.23	0.348	1	0.555
[d11=1]	0a						
[d12=0]	-383143.202	310754.0467	-992209.941	225923.538	1.52	1	0.218
[d12=1]	0a						

[d13=0]	-150300.709	303600.9502	-745347.638	444746.219	0.245	1	0.621
[d13=1]	0a						
[d14=0]	-258642.56	211363.7019	-672907.804	155622.683	1.497	1	0.221
[d14=1]	0a						
[d15=0]	303928.991	220035.1149	-127331.909	735189.892	1.908	1	0.167
[d15=1]	0a						
[d16=0]	-128564.409	151699.9782	-425890.902	168762.085	0.718	1	0.397
[d16=1]	0a						
[d17=0]	176173.461	298620.5326	-409112.028	761458.949	0.348	1	0.555
[d17=1]	0a						
[d18=0]	853479.476	699444.2187	-517406.001	2224364.954	1.489	1	0.222
[d18=1]	0a						
[d19=0]	1229008.672	944262.8793	-621712.564	3079729.907	1.694	1	0.193
[d19=1]	0a						
[d20=0]	-63098.289	63740.9362	-188028.229	61831.65	0.98	1	0.322
[d20=1]	0a						
[d21=0]	171121.27	144538.0994	-112168.199	454410.739	1.402	1	0.236
[d21=1]	0a						
[d22=0]	552203.351	532594.8818	-491663.436	1596070.137	1.075	1	0.3
[d22=1]	0a						

[d23=0]	563302.716	531631.1725	-478675.235	1605280.667	1.123	1	0.289
[d23=1]	0a						
[d24=0]	-197961.936	310249.0961	-806038.991	410115.119	0.407	1	0.523
[d24=1]	0a						
[d25=0]	1016527.277	809440.1163	-569946.199	2603000.752	1.577	1	0.209
[d25=1]	0a						
[d26=0]	704668.457	506745.4542	-288534.382	1697871.297	1.934	1	0.164
[d26=1]	0a						
[d27=0]	137665.435	141097.5859	-138880.752	414211.621	0.952	1	0.329
[d27=1]	0a						
[d28=0]	469375.27	483316.2335	-477907.141	1416657.681	0.943	1	0.331
[d28=1]	0a						
[d29=0]	-284605.944	339257.4499	-949538.327	380326.439	0.704	1	0.402
[d29=1]	0a						
[d30=0]	74318.021	50342.6217	-24351.704	172987.747	2.179	1	0.14
[d30=1]	0a						
[d31=0]	43703.573	95059.6639	-142609.945	230017.09	0.211	1	0.646
[d31=1]	0a						
[d32=0]	801051.606	664782.7714	-501898.683	2104001.895	1.452	1	0.228
[d32=1]	0a						

[d33=0]	532928.866	509809.2753	-466278.952	1532136.685	1.093	1	0.296
[d33=1]	0a						
[d34=0]	-45520.214	279649.7784	-593623.708	502583.28	0.026	1	0.871
[d34=1]	0a						
[d35=0]	608521.985	440634.5781	-255105.918	1472149.889	1.907	1	0.167
[d35=1]	0a						
[d36=0]	696038.691	493016.7153	-270256.315	1662333.696	1.993	1	0.158
[d36=1]	0a						
[d37=0]	252365.034	193784.8945	-127446.38	632176.448	1.696	1	0.193
[d37=1]	0a						
[d38=0]	611.726	95506.3578	-186577.295	187800.748	0	1	0.995
[d38=1]	0a						
[d39=0]	4297.459	184304.7435	-356933.2	365528.119	0.001	1	0.981
[d39=1]	0a						
[d40=0]	-295428.877	250362.6687	-786130.69	195272.937	1.392	1	0.238
[d40=1]	0a						
[d41=0]	365572.058	284481.0728	-192000.599	923144.715	1.651	1	0.199
[d41=1]	0a						
[d42=0]	414608.679	320370.0819	-213305.143	1042522.502	1.675	1	0.196
[d42=1]	0a						
[d43=0]	77190.25	190525.9546	-296233.75	450614.26	0.164	1	0.685

			9				
[d43=1]	0a						
[d44=0]	-80744.702	189869.6397	-452882.357	291392.954	0.181	1	0.671
[d44=1]	0a						
[d45=0]	376624.45	296795.6057	-205084.248	958333.148	1.61	1	0.204
[d45=1]	0a						
[d46=0]	406396.946	330633.4563	-241632.72	1054426.613	1.511	1	0.219
[d46=1]	0a						
[d47=0]	121183.907	198645.2152	-268153.561	510521.374	0.372	1	0.542
[d47=1]	0a						
[d48=0]	22719.781	188702.5493	-347130.419	392569.981	0.014	1	0.904
[d48=1]	0a						
[d49=0]	317349.88	280490.4191	-232401.239	867101	1.28	1	0.258
[d49=1]	0a						
[d50=0]	348485.508	287729.5992	-215454.144	912425.16	1.467	1	0.226
[d50=1]	0a						
[d51=0]	599785.749	460750.2887	-303268.223	1502839.72	1.695	1	0.193
[d51=1]	0a						
[d52=0]	645126.236	492089.6575	-319351.77	1609604.241	1.719	1	0.19
[d52=1]	0a						
[d53=0]	-19643.821	93746.0799	-203382.761	164095.119	0.044	1	0.834

[d53=1]	0a						
[d54=0]	-68495.314	284063.1313	-625248.821	488258.193	0.058	1	0.809
[d54=1]	0a						
[d55=0]	26594.901	279639.6119	-521488.667	574678.469	0.009	1	0.924
[d55=1]	0a						
[d56=0]	456228.527	310461.5225	-152264.876	1064721.93	2.159	1	0.142
[d56=1]	0a						
[d57=0]	85795.135	50175.4932	-12547.025	184137.294	2.924	1	0.087
[d57=1]	0a						
[d58=0]	-161555.128	225473.5381	-603475.143	280364.886	0.513	1	0.474
[d58=1]	0a						
[d59=0]	58565.476	23877.1723	11767.078	105363.874	6.016	1	0.014
[d59=1]	0a						
[d60=0]	545137.697	456559.3842	-349702.253	1439977.647	1.426	1	0.232
[d60=1]	0a						
[d61=0]	314297.194	347136.8503	-366078.53	994672.918	0.82	1	0.365
[d61=1]	0a						
[d62=0]	127595.722	205593.338	-275359.816	530551.26	0.385	1	0.535
[d62=1]	0a						
[d63=0]	506133.408	444859.6514	-365775.487	1378042.303	1.294	1	0.255
[d63=1]	0a						
[d64=0]	522816.474	452940.67	-	1410563.8	1.332	1	0.24

		05	364930.927	76			8
[d64=1]	0a						
[d65=0]	781971.31	610695.952	-414970.761	1978913.382	1.64	1	0.2
[d65=1]	0a						
[d66=0]	-43338.683	194412.3511	-424379.889	337702.523	0.05	1	0.824
[d66=1]	0a						
[d67=0]	-30829.699	187587.2821	-398494.016	336834.618	0.027	1	0.869
[d67=1]	0a						
[d68=0]	156256.191	95822.7093	-31552.868	344065.25	2.659	1	0.103
[d68=1]	0a						
[d69=0]	349581.973	361340.9121	-358633.201	1057797.147	0.936	1	0.333
[d69=1]	0a						
[d70=0]	315372.952	279945.0204	-233309.206	864055.109	1.269	1	0.26
[d70=1]	0a						
[d71=0]	30216.438	279376.6047	-517351.645	577784.521	0.012	1	0.914
[d71=1]	0a						
[d72=0]	93211.542	191082.2512	-281302.789	467725.872	0.238	1	0.626
[d72=1]	0a						
[d73=0]	488810.738	373897.5089	-244014.913	1221636.389	1.709	1	0.191
[d73=1]	0a						
[d74=0]	692282.613	533694.37	-	1738304.3	1.683	1	0.19

		49	353739.14	67			5
[d74=1]	0a						
[d75=0]	589051.648	449110.5778	-291188.91	1469292.206	1.72	1	0.19
[d75=1]	0a						
[d76=0]	510547.956	380363.3511	-234950.513	1256046.425	1.802	1	0.18
[d76=1]	0a						
[d77=0]	101363.537	74674.512	-44995.817	247722.891	1.843	1	0.175
[d77=1]	0a						
[d78=0]	113487.717	90530.2445	-63948.301	290923.736	1.571	1	0.21
[d78=1]	0a						
[d79=0]	139875.312	120915.5937	-97114.897	376865.521	1.338	1	0.247
[d79=1]	0a						
[d80=0]	0a						
[d80=1]	0a						
Visitation_1000	0.185	1.2966	-2.356	2.726	0.02	1	0.886
no_nearby_gnars * year	42.704	54.9213	-64.939	150.348	0.605	1	0.437
year * km_vis_center_log10	-246.097	177.2511	-593.502	101.309	1.928	1	0.165
tot_pop_sqrt	-267.536	178.4844	-617.359	82.287	2.247	1	0.134
migration_proportion_sqrt	-12467.882	7389.9777	-26951.972	2016.208	2.846	1	0.092
seasonal_res_units	-57833.556	9090.1175	-75649.858	-40017.253	40.478	1	0
pe_rec_job_proportion	-16387.274	8004.5007	-32075.808	-698.741	4.191	1	0.041
seasonal_res_units * migration_proportion_sqrt	28650.959	16497.5497	-3683.644	60985.563	3.016	1	0.082
seasonal_res_units * pe_rec_job_proportio	44656.633	15302.8311	14663.635	74649.631	8.516	1	0.004

n							
migration_proportion_sqrt * pe_rec_job_proportion	-29871.314	19138.0118	-67381.128	7638.5	2.436	1	0.119
(Scale)	108858284.391b	5682356.191	98271848.82	120585154.6			

Dependent Variable: inf_ernft_tot
Model: (Intercept), d2, d3, d4, d5, d6, d7, d8, d9, d10, d11, d12, d13, d14, d15, d16, d17, d18, d19, d20, d21, d22, d23, d24, d25, d26, d27, d28, d29, d30, d31, d32, d33, d34, d35, d36, d37, d38, d39, d40, d41, d42, d43, d44, d45, d46, d47, d48, d49, d50, d51, d52, d53, d54, d55, d56, d57, d58, d59, d60, d61, d62, d63, d64, d65, d66, d67, d68, d69, d70, d71, d72, d73, d74, d75, d76, d77, d78, d79, d80, Visitation_1000, no_nearby_gnars * year, year * km_vis_center_log10, tot_pop_sqrt, migration_proportion_sqrt, seasonal_res_units, pe_rec_job_proportion, seasonal_res_units * migration_proportion_sqrt, seasonal_res_units * pe_rec_job_proportion, migration_proportion_sqrt * pe_rec_job_proportion

Only significant interaction effect included- effects on earnings

Parameter Estimates

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-18857050.76	12490272.6	-43337535.21	5623433.689	2.279	1	0.131
[d2=0]	-286878.765	256013.5364	-788656.076	214898.546	1.256	1	0.262
[d2=1]	0a						
[d3=0]	-58813.881	186669.2839	-424678.954	307051.192	0.099	1	0.753
[d3=1]	0a						
[d4=0]	-113607.331	281347.47	-	437823.58	0.163	1	0.68

		12	665038.241				6
[d4=1]	0a						
[d5=0]	-57504.488	278920.5927	-604178.805	489169.828	0.043	1	0.837
[d5=1]	0a						
[d6=0]	172239.661	236739.4028	-291761.043	636240.364	0.529	1	0.467
[d6=1]	0a						
[d7=0]	642405.529	574920.0844	-484417.131	1769228.188	1.249	1	0.264
[d7=1]	0a						
[d8=0]	163787.448	231724.7006	-290384.62	617959.515	0.5	1	0.48
[d8=1]	0a						
[d9=0]	-170157.19	179436.4607	-521846.191	181531.81	0.899	1	0.343
[d9=1]	0a						
[d10=0]	547408.609	369446.4445	-176693.116	1271510.335	2.195	1	0.138
[d10=1]	0a						
[d11=0]	-78747.031	105044.28	-284630.037	127135.974	0.562	1	0.453
[d11=1]	0a						
[d12=0]	-375038.588	311708.2403	-985975.512	235898.337	1.448	1	0.229
[d12=1]	0a						
[d13=0]	-202645.897	303432.9391	-797363.53	392071.735	0.446	1	0.504
[d13=1]	0a						
[d14=0]	-245404.027	211893.3981	-660707.45	169899.402	1.341	1	0.247

			6				
[d14=1]	0a						
[d15=0]	327822.698	220459.0148	-104269.031	759914.427	2.211	1	0.137
[d15=1]	0a						
[d16=0]	-147626.119	151930.5607	-445404.546	150152.308	0.944	1	0.331
[d16=1]	0a						
[d17=0]	229254.856	298367.5789	-355534.852	814044.565	0.59	1	0.442
[d17=1]	0a						
[d18=0]	934883.264	700604.0598	-438275.461	2308041.989	1.781	1	0.182
[d18=1]	0a						
[d19=0]	1318455.872	946395.7682	-536445.749	3173357.492	1.941	1	0.164
[d19=1]	0a						
[d20=0]	-65863.485	63937.0479	-191177.796	59450.826	1.061	1	0.303
[d20=1]	0a						
[d21=0]	190834.407	144695.9494	-92764.442	474433.257	1.739	1	0.187
[d21=1]	0a						
[d22=0]	628959.777	532971.8168	-415645.789	1673565.343	1.393	1	0.238
[d22=1]	0a						
[d23=0]	639631.95	532016.3749	-403100.984	1682364.884	1.445	1	0.229
[d23=1]	0a						
[d24=0]	-250792.622	310185.2285	-858744.49	357159.255	0.654	1	0.419

			8				
[d24=1]	0a						
[d25=0]	1100331.717	811089.1303	-489373.766	2690037.201	1.84	1	0.175
[d25=1]	0a						
[d26=0]	717189.72	508376.8878	-279210.671	1713590.11	1.99	1	0.158
[d26=1]	0a						
[d27=0]	156388.081	141269.1763	-120494.417	433270.578	1.225	1	0.268
[d27=1]	0a						
[d28=0]	544177.604	483458.2968	-403383.246	1491738.453	1.267	1	0.26
[d28=1]	0a						
[d29=0]	-341347.268	339174.4759	-1006117.026	323422.489	1.013	1	0.314
[d29=1]	0a						
[d30=0]	76001.256	50502.212	-22981.261	174983.773	2.265	1	0.132
[d30=1]	0a						
[d31=0]	60319.047	94938.4821	-125756.959	246395.052	0.404	1	0.525
[d31=1]	0a						
[d32=0]	881323.231	665802.4208	-423625.534	2186271.997	1.752	1	0.186
[d32=1]	0a						
[d33=0]	608290.143	510075.9416	-391440.332	1608020.618	1.422	1	0.233
[d33=1]	0a						
[d34=0]	-95884.987	279356.9051	-643414.46	451644.485	0.118	1	0.731

[d34=1]	0a						
[d35=0]	633566.95	441929.9453	-232599.827	1499733.726	2.055	1	0.152
[d35=1]	0a						
[d36=0]	727547.433	494421.0186	-241499.956	1696594.823	2.165	1	0.141
[d36=1]	0a						
[d37=0]	258048.98	194402.859	-122973.623	639071.582	1.762	1	0.184
[d37=1]	0a						
[d38=0]	-17029.594	95375.4384	-203962.018	169902.83	0.032	1	0.858
[d38=1]	0a						
[d39=0]	-27969.384	184167.9817	-388931.996	332993.227	0.023	1	0.879
[d39=1]	0a						
[d40=0]	-317338.986	250965.0244	-809221.395	174543.423	1.599	1	0.206
[d40=1]	0a						
[d41=0]	355366.805	285338.5548	-203886.486	914620.096	1.551	1	0.213
[d41=1]	0a						
[d42=0]	404859.703	321320.143	-224916.205	1034635.611	1.588	1	0.208
[d42=1]	0a						
[d43=0]	45702.319	190407.173	-327488.882	418893.521	0.058	1	0.81
[d43=1]	0a						
[d44=0]	-113969.467	189770.2997	-485912.42	257973.485	0.361	1	0.548

[d44=1]	0a						
[d45=0]	417393.255	297095.0208	-164902.286	999688.795	1.974	1	0.16
[d45=1]	0a						
[d46=0]	446736.301	331137.0102	-202280.313	1095752.915	1.82	1	0.177
[d46=1]	0a						
[d47=0]	156939.804	198470.6468	-232055.515	545935.124	0.625	1	0.429
[d47=1]	0a						
[d48=0]	-10343.074	188533.0407	-379861.043	359174.896	0.003	1	0.956
[d48=1]	0a						
[d49=0]	355610.566	280774.9887	-194698.299	905919.432	1.604	1	0.205
[d49=1]	0a						
[d50=0]	385166.227	288106.2421	-179511.631	949844.086	1.787	1	0.181
[d50=1]	0a						
[d51=0]	642318.221	461821.6943	-262835.667	1547472.109	1.934	1	0.164
[d51=1]	0a						
[d52=0]	623165.706	493497.3903	-344071.406	1590402.817	1.595	1	0.207
[d52=1]	0a						
[d53=0]	-36368.804	93630.795	-219881.79	147144.182	0.151	1	0.698
[d53=1]	0a						
[d54=0]	-118640.184	283787.8179	-674854.086	437573.718	0.175	1	0.676

[d54=1]	0a						
[d55=0]	-24890.485	279323.8805	-572355.231	522574.261	0.008	1	0.929
[d55=1]	0a						
[d56=0]	465816.041	311449.5342	-144613.829	1076245.911	2.237	1	0.135
[d56=1]	0a						
[d57=0]	85775.909	50336.6397	-12882.092	184433.91	2.904	1	0.088
[d57=1]	0a						
[d58=0]	-197882.233	225466.3959	-639788.249	244023.783	0.77	1	0.38
[d58=1]	0a						
[d59=0]	57890.333	23953.2537	10942.818	104837.847	5.841	1	0.016
[d59=1]	0a						
[d60=0]	604313.535	457129.3627	-291643.553	1500270.622	1.748	1	0.186
[d60=1]	0a						
[d61=0]	369945.224	347132.0647	-310421.12	1050311.569	1.136	1	0.287
[d61=1]	0a						
[d62=0]	96922.828	205632.7033	-306109.865	499955.521	0.222	1	0.637
[d62=1]	0a						
[d63=0]	564844.216	445381.7033	-308087.882	1437776.314	1.608	1	0.205
[d63=1]	0a						
[d64=0]	581756.305	453507.077	-307101.233	1470613.842	1.646	1	0.2
[d64=1]	0a						
[d65=0]	844644.125	611956.05	-	2044055.9	1.905	1	0.16

		04	354767.694	44			8
[d65=1]	0a						
[d66=0]	-77022.774	194254.321	-457754.247	303708.699	0.157	1	0.692
[d66=1]	0a						
[d67=0]	-65820.084	187299.771	-432920.889	301280.722	0.123	1	0.725
[d67=1]	0a						
[d68=0]	157658.366	96134.4004	-30761.596	346078.329	2.69	1	0.101
[d68=1]	0a						
[d69=0]	405736.432	361442.4302	-302677.714	1114150.577	1.26	1	0.262
[d69=1]	0a						
[d70=0]	354546.495	280184.0038	-194604.062	903697.051	1.601	1	0.206
[d70=1]	0a						
[d71=0]	-19142.078	279136.012	-566238.608	527954.453	0.005	1	0.945
[d71=1]	0a						
[d72=0]	128197.749	190864.592	-245889.977	502285.475	0.451	1	0.502
[d72=1]	0a						
[d73=0]	529778.826	374588.5173	-204401.177	1263958.829	2	1	0.157
[d73=1]	0a						
[d74=0]	738779.828	534972.1888	-309746.394	1787306.051	1.907	1	0.167
[d74=1]	0a						
[d75=0]	632935.245	450087.78	-	1515091.0	1.978	1	0.16

		36	249220.601	91			
[d75=1]	0a						
[d76=0]	553020.613	381071.8325	-193866.454	1299907.681	2.106	1	0.147
[d76=1]	0a						
[d77=0]	103698.376	74908.1113	-43118.824	250515.577	1.916	1	0.166
[d77=1]	0a						
[d78=0]	115622.372	90820.1713	-62381.893	293626.637	1.621	1	0.203
[d78=1]	0a						
[d79=0]	143439.025	121278.929	-94263.307	381141.358	1.399	1	0.237
[d79=1]	0a						
[d80=0]	0a						
[d80=1]	0a						
Visitation_1000	0.181	1.3004	-2.368	2.73	0.019	1	0.889
no_nearby_gnars * year	51.719	54.9135	-55.91	159.347	0.887	1	0.346
year * km_vis_center_log10	-250.261	177.8217	-598.785	98.263	1.981	1	0.159
tot_pop_sqrt	-262.897	178.3219	-612.402	86.607	2.174	1	0.14
migration_proportion_sqrt	-11424.613	4067.9298	-19397.609	-3451.617	7.887	1	0.005
seasonal_res_units	-54236.802	8604.5809	-71101.471	-37372.134	39.731	1	0
pe_rec_job_proportion	-24360.766	6558.8238	-37215.824	-11505.707	13.795	1	0
seasonal_res_units * pe_rec_job_proportion	47990.32	15168.5251	18260.557	77720.083	10.01	1	0.002
(Scale)	109575077.384b	5719772.481	98918933.91	121379164.8			

Dependent Variable: inf_ernft_tot
Model: (Intercept), d2, d3, d4, d5, d6, d7, d8, d9, d10, d11, d12, d13, d14, d15, d16, d17, d18, d19, d20, d21, d22, d23, d24, d25, d26, d27, d28, d29, d30, d31, d32, d33,

d34, d35, d36, d37, d38, d39, d40, d41, d42, d43, d44, d45, d46, d47, d48, d49, d50, d51, d52, d53, d54, d55, d56, d57, d58, d59, d60, d61, d62, d63, d64, d65, d66, d67, d68, d69, d70, d71, d72, d73, d74, d75, d76, d77, d78, d79, d80, Visitation_1000, no_nearby_gnars * year, year * km_vis_center_log10, tot_pop_sqrt, migration_proportion_sqrt, seasonal_res_units, pe_rec_job_proportion, seasonal_res_units * pe_rec_job_proportion
a. Set to zero because this parameter is redundant.
b. Maximum likelihood estimate.