

2023

City of Punta Gorda Seasonal Population Estimate

Regional Economic Research Institute
Florida Gulf Coast University

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About the Regional Economic Research Institute

The Regional Economic Research Institute studies, analyzes and reports on the regional economy encompassing Collier, Lee, Charlotte, Hendry and Glades counties. Established in 2005, it serves as a public service and economic development unit of the Lutgert College of Business' Dean's Office and strives to connect Southwest Florida to the resources of Florida Gulf Coast University.

In its many regular and occasional publications, and custom economic research, the RERI focuses on areas such as economic development and forecasting, economic impact analysis, secondary data analysis and surveys. The RERI often partner with different economic development organizations and chambers of commerce in our region, and works closely with the Lucas Institute for Real Estate Development and Finance, the Small Business Development Center and the Southwest Florida Leadership Institute, all of which are housed in the Lutgert College of Business at FGCU, as well as the Institute for Entrepreneurship.

Project Information

This report was created by Florida Gulf Coast University's Regional Economic Research Institute for the City of Punta Gorda. This work would not have been possible without the RERI's student researchers.

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Executive Summary

Southwest Florida is a traditional touristic region in Florida. While tourism is a year-long activity in the region, there are periods of a higher level of tourism activity associated with the movement of households from the Snowbelt that relocates to the region during the winter. This study estimates the seasonal population of the City of Punta Gorda, located in Charlotte County.

We utilize four different methods to estimate the seasonal population in the City of Punta Gorda and take the average of the four methods to arrive at the final number. We utilize hotel occupancy data provided by STR and CoStar to define in-season period and to calculate the lower and upper bound of seasonal population estimate. Data for each estimate come from a variety of sources including Census Bureau, Bureau of Economic and Business Research, Charlotte County Visitors Convention Bureau, Florida Department of Revenue, Bureau of Labor Statistics, and US Reference

Key Definitions

- **Season:** months of the year with above average hotel occupancy rate.
- **Seasonal Population:** additional population in the City of Punta Gorda during season.

Main Findings

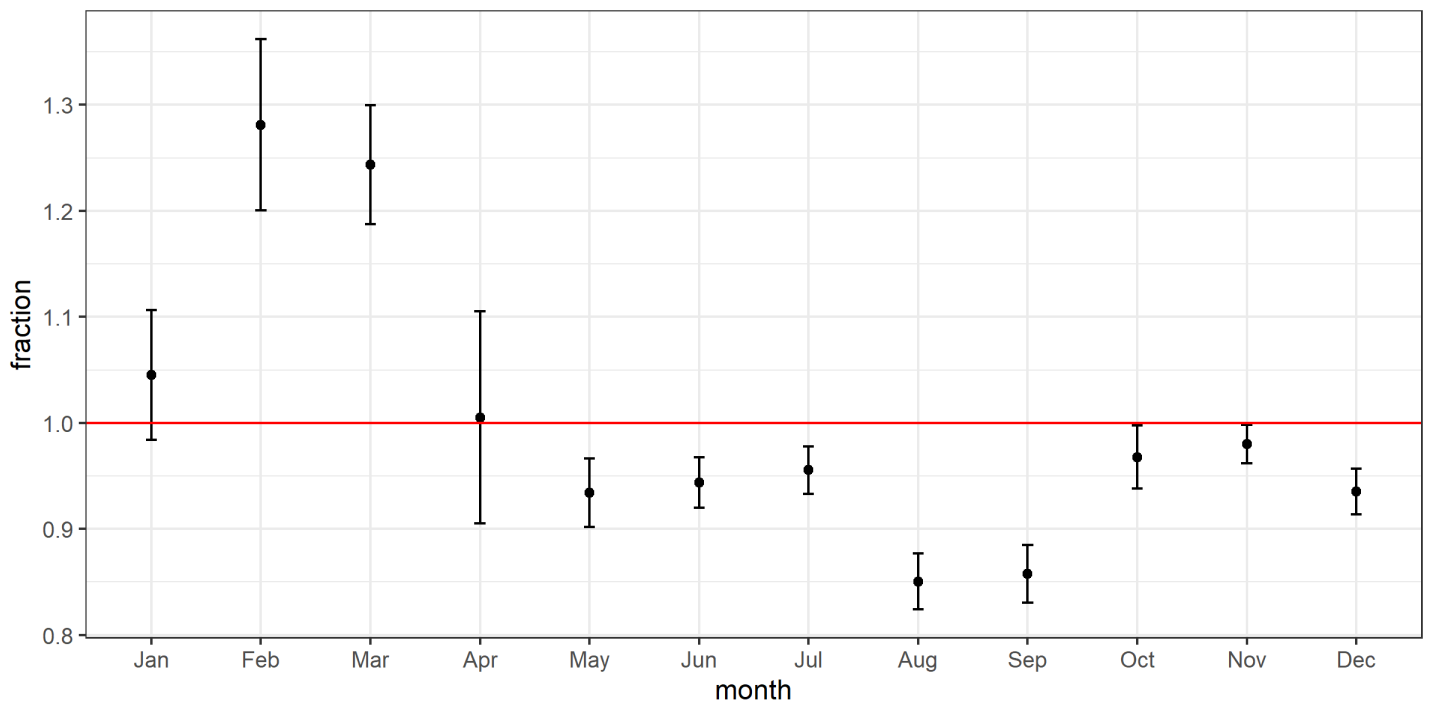
- Two definitions of seasons were used in this study to reconcile data and anecdotal evidence
 - Season (a): the period of January-April and October-December of each year
 - Season (b): the period of January-April.
- Seasonal Population ranges
 - Season (a): 2,428 to 14,476
 - Season (b): 3,313 to 13,112
- The average Seasonal Population estimate is
 - Season (a): 6,260
 - Season (b): 6,138
- Based on the average population in the study period and the average seasonal population, the Seasonal Population Multiplier (SPM) for the City of Punta Gorda is 1.32

Methodology & Data

We utilize four different methods to estimate the seasonal population in the City of Punta Gorda and take the average of the four methods to arrive at the final number. Using hotel occupancy data, we are able to determine the in-season variation to provide bounds of the population within the season and to determine the season period. In this section we describe how we establish our estimates.

The first step in our estimations is to determine the in-season and out-of-season period in the City of Punta Gorda. Due to the lack of detailed traffic count data, we relied on hotel occupancy data, instead, which were obtained from STR and CoStar. From the occupancy rate, we develop the occupancy fraction, occupancy rate to average yearly occupancy rate ratio. Values greater than one indicates that occupancy rate is higher in that month compared to the yearly average and values less than one indicating that occupancy rate is lower in that month compared to the yearly average.

Figure 1 – Average Monthly Fraction 2013-2022



Source: STR CoStar.

Figure 1 shows the results from the analysis for each month, along with a 90 percent confidence interval. Based on the average monthly fraction there is no clear seasonality pattern in the city of Punta Gorda. While January through April there is a clear above average ratio, this is not true for the end-of-year period. If we take into account the confidence interval, October and November fall close in line with above average occupancy rate ratio.

We proceed our analysis with two definitions of season: (a) the period of January-April and October-December of each year, and (b) the period of January-April. The second step in our estimations is to calculate the average seasonal population based on the numbers from 2016 to 2022. Four estimates are produced using different datasets described in the chart below. Unfortunately, the Charlotte County Visitors Convention Bureau is only available from 2019 onwards. The chart below provides the definition, source and frequency of all variables used to develop each of the four seasonal population estimate.

Name	Source	Definition	Frequency
THU	Census ACS 5-Year Estimates	Total Housing Units in Punta Gorda	Yearly
SHU	Census ACS 5-Year Estimates	Seasonal, Recreational, or Occasional Use Housing Units	Yearly
POP	Bureau of Economic and Business Research	Estimated Punta Gorda Population	Yearly
PSZ	Charlotte County Visitors Convention Bureau	Average Visitation Party Size	Quarterly
TQV	Charlotte County Visitors Convention Bureau	Total Visitation	Quarterly
BVS	Charlotte County Visitors Convention Bureau	Percent of Visitors Staying in Punta Gorda	Quarterly
FGS	Florida Department of Revenue	Food and Beverage Gross Sales	Monthly
FTS	Florida Department of Revenue	Food and Beverage Taxable Sales	Monthly
FHE	Consumer Expenditure Survey	Food at Home Expenditure	Yearly
CPI	Bureau of Labor Statistics	Food and Beverage Consumer Price Index	Monthly
BSS	US Reference	Share of Charlotte County Supermarkets in Punta Gorda	-

Estimate 1 is calculated based on the food gross sales and permanent population. This result gives us the excess population during season, assuming the tourists spending pattern in food is similar to the permanent population.

$$TSP_t = \left[\frac{(\sum_{s=1} FGS_t * CPI_t * BSS_t / N)}{(\sum_{s=0} FGS_t * CPI_t * BSS_t / (12 - N))} - 1 \right] * POP_t$$

$$E1 = \sum_{t=2016}^{2022} (TSP_t - POP_t) / 7$$

where t represents the year, $s = 1$ for in-season month and $s = 0$ for out-of-season month

Estimate 2 is calculated based on food sales, average expenditure on food at home, and average visitor party size.

$$ACU_t = [(FGS_t - FTS_t) * CPI_t] / FHE_t$$

$$E2 = \sum_{t=2016}^{2021} \left\{ \left[\left(\sum_{s=1} ACU_t / N \right) - \left(\sum_{s=0} ACU_t / (12 - N) \right) \right] * PSZ_t \right\} / 4$$

Estimate 3 is calculated based on Charlotte County VCB total visitation and gives us the excess visitors during season.

$$E3 = \sum_{t=2019}^{2022} \left\{ \left[\left(\sum_{q=1} TQV_t / N \right) - \left(\sum_{q=0} TQV_t / (12 - N) \right) \right] * BVS_t \right\} / 4$$

where $q = 1$ for quarters 1 and 4 which are considered in-season, and $q = 0$ for quarters 2 and 3, which are considered out-of-season.

Estimate 4 is calculated based on the available housing units and average visitor party size and gives the number of people if all the housing units were occupied by the average party size.

$$E4 = \sum_{t=2019}^{2022} (SHU_t * PSZ_t) / 4$$

Results

The results are presented in Table 1 and Table 2. Each table presents estimates calculated using the previously described four methodologies. Table 1 considers the in-season period as January-April and October-December of each year, Table 2 considers the in-season period as January-April. It is important to note that the flow of seasonal visitors to Punta Gorda is not uniform. This variation is clearly visible in Figure 1 which illustrates the swings in occupancy rate throughout the year. Season starts slowly around October and November and has its peak February and March, cooling down in April.

The variations in occupancy rate directly affect seasonal changes in population, and can be utilized in the estimation of lower and upper bounds for the number of visitors which is likely of value to policy makers. These bounds provide the basis for adjusting population estimates downwards in Early October/November when season is starting or in April when it is winding down, as well as the basis for adjusting the estimates upward to reflect the upper bound of seasonal population, the level experienced in February when visitation is at its peak.

Table 1 – Seasonal Population Estimates (a)

	Estimate 1	Estimate 2	Estimate 3	Estimate 4	Average Estimate*
Lower Bound	1,195	3,329	4,678	2,759	2,428
Estimate	3,083	8,583	12,062	7,115	6,260
Upper Bound	7,128	19,847	27,894	16,452	14,476

Note: Season is defined as January-April and October-December of each year. Lower and Upper Bound are calculated based on the occupancy rate data from Figure 1. For the purposes of these calculations we exclude the month of December which has numbers closer to off-season averages. Average Estimate considers Estimates 1, 2 and 4 only.

The average seasonal population is estimated as 6,260 people when defining season as January-April and October-December of each year, and 6,138 people when defining season as January-April of each year. Compared to the Bureau of Economic and Business Research Population estimate for 2022 these represent around 31% current Punta Gorda permanent population (19,930). From Table 1, the population estimate ranges from 2,428 (12%) to 14,476 (73%) people. From Table 2, the population estimate ranges from 3,313 (17%) to 13,112 (66%) people.

Table 2 – Seasonal Population Estimates (b)

	Estimate 1	Estimate 2	Estimate 3	Estimate 4	Average Estimate*
Lower Bound	1,334	4,765	773	3,840	3,313
Estimate	2,471	8,829	1,433	7,115	6,138
Upper Bound	5,279	18,860	3,061	15,198	13,112

Note: Season is defined as January-April. Lower and Upper Bound are calculated based on the occupancy rate data from Figure 1. Average Estimate considers Estimates 1, 2 and 4 only.

The variation in the estimates presented in Table 1 and Table 2 are worthy of discussion. Method 1 provides the lowest of all estimates in Table 1, and also a lower estimate in Table 2. This is a result of the underlying assumption of similarity in spending patterns between permanent residents and seasonal visitors. The fact that seasonal visitors will consume a higher proportion of meals in restaurants than permanent residents produces a downward bias in this estimate. Method 3 provides the highest estimate in Table 1 and the lowest estimate in Table 2. This may be explained by the fact that VCB data only covers data from 2019 onwards, thus looking primarily at post-Covid-19 data when seasonality behavior has been less prevalent. Therefore, because of the

post-Covid-19 focus and the volatility in Estimate 3, we don't include it on the calculations of the Average Estimate.¹

In both cases the estimate produced by Method 4 is also impacted by its underlying assumptions -- the 100 percent occupancy of all housing units at the average party size. Also, we are limited by the data on average party size. Lastly, Method 2 provide consistent estimates across the two tables. While no estimation method is perfect, considering the relative merits of the four methodologies employed, it is likely that the average estimate presented in Table 1 and in Table 2 represents the best possible overall estimate of seasonal population. Thus, the seasonal population estimate in Punta Gorda is 6,199. This number should be interpreted as average number of seasonal visitors in Punta Gorda, which will fluctuate from month to month following the pattern illustrated in Figure 1.

Using the 6,199 number as the overall estimate of seasonal population based on the four methodologies employed and the underlying economic relationships that existed during the data period, one can back out an implied Seasonal Population Multiplier (SPM). As a result, the data indicate that a SPM of 1.32 is appropriate for Punta Gorda. For instance, for a permanent population of 19,469 as per 2020 Census, the Total Population in Season is estimated at 25,699. However, a multiplier determined in this manner will only be accurate as long as the underlying economic relationships that existed during the data period remain constant. Therefore, as long as it is reasonable to assume that these underlying economic relationships continue to hold applying this SPM to the permanent population of Punta Gorda should provide a reasonable estimate of average seasonal population.

¹ Note that the interested reader can with the information contained in this report calculate the different average estimates and ranges including Estimate 3 in the calculations.



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