

## Demographics and entrepreneurship in Guam: Identifying “startupper” for sustainable development in a small island economy

**Fred R. Schumann** (School of Business and Public Administration, University of Guam, schumannf@triton.uog.edu, U.S.A.)

**James Ji** (School of Business and Public Administration, University of Guam, jjj@triton.uog.edu, U.S.A.)

### Abstract

*Small island economies with populations of less than one million, typically have limited export volumes with a narrow range of products and rely heavily on imported goods, which often translates into a high cost of living for residents. The island of Guam, an unincorporated territory of the United States, is the largest and most populous island in the western Pacific region of Micronesia with an estimated population of 154,000. Guam experienced some growth in small business development over the past decade but still faces high levels of imports and leakage. One of the strategies often implemented to reduce imports and capitalize on the multiplier effect is to encourage entrepreneurship and the development of local businesses. Entrepreneurship is also generally acknowledged and accepted as a driving force for improving living standards. Many areas related to startups are understudied in small island communities like Guam. A survey of entrepreneurs on the island of Guam was conducted in 2022 to identify the demographic characteristics of the island's entrepreneurial community. This paper contributes to the understanding of Guam's entrepreneurs and provides recommendations for educational and support programs targeting current and potential entrepreneurs to encourage startup ideas and economic improvement for the quality of life of island residents.*

### Keywords

*entrepreneurs, Guam, small islands, local business, demographics*

### 1. Introduction

Islands have been popular vacation destinations for the fast-growing urban populations in major metropolitan areas in the developed world. In particular, small islands, or Small Island Developing States (SIDS), have become popular among international travelers as less-crowded destinations. According to the United Nations [2011], SIDS is a distinct group of developing countries facing specific social, economic, and environmental vulnerabilities, and there are 52 such island nations around the world today.

Small islands in various parts of the world share similar negative and positive characteristics. Some of the negative characteristics include vast distances from source markets, size constraints/small domestic markets, remoteness, instability/natural disasters, important dependence, too much reliance on foreign investment and the resulting leakage of revenue, overdependence on tourism (a mono-structured economy), dependence on imports, and overburdened infrastructure, just to name a few [Gössling, 2003; Harrison, 2004; McElroy, 2006]. The shared positive characteristics in many cases may be the attractions of natural beauty and unique culture, and the relative ease of implementing domestic policy in restructuring towards service sectors, thus making tourism a viable strategy for economic growth in regions such as Micronesia.

Guam, an unincorporated territory of the United States, is the largest and most populous island in the western Pacific region of Micronesia with a population of 153,836 [US Census Bureau, 2022]. It is located in the northwest Pacific Ocean ap-

proximately 6,100 kilometers west of Hawaii, 2,400 kilometers south of Japan, and 3,020 kilometers southeast of South Korea. Guam's economy is primarily supported by tourism, along with military and government spending. The island has been known as a popular vacation spot for international visitors from Asian metropolitan areas. In the year before travel restrictions in 2020 due to COVID, Guam was the most visited of the Micronesian islands, receiving a record 1.63 million tourists in the fiscal year 2019 [Guam Daily Post, 2019]. These tourists originated mainly from the source markets of South Korea (45 %), Japan (40.8 %), the US (5.8 %), and Taiwan (1.7 %) [Guam Visitors Bureau, 2020].

With the outbreak of COVID-19 in late 2019, Guam, like small island territories or nations in the Pacific, faced various challenges within its tourism industry. In 2019, Guam's tourism industry represented 60 % of the island's annual business revenue, but at the height of the pandemic, the island saw a “complete collapse” of the industry with over a 95 % drop in visitors [Wilson, 2022], while larger destinations shifted to domestic tourists to keep businesses afloat and community members employed. Five independent Micronesian countries—Kiribati, Nauru, Palau, FSM, and RMI—each closed their international borders early in the pandemic, and subsequently remained virus-free, or recorded just a small handful of cases [McClure, 2021], while Guam with less-restrictive borders, emerged as the region's COVID-19 epicenter in the first months of the pandemic.

During the height of the pandemic, Guam's businesses relied on intrapreneurial employees to help pivot their operations to generate revenue, while new and established entrepreneurs emerged with new enterprises to fill the gaps for new products and services to serve the communities [University of Guam,

2022]. The importance of entrepreneurship in small island economies is evident to encourage the “buy-in” of residents in support of tourism [Schumann, 2021] and to maintain the nimbleness needed to respond to a fast-changing business environment, and to minimize leakage and dependence on imports. According to the UN Under-Secretary-General for Economic and Social Affairs Wu Hongbo, it is entrepreneurship and innovation in new sectors, that will boost productive activities in the world’s small island developing states [United Nations, 2015].

This study aims to fill the gap in identifying the demographic characteristics of the island’s entrepreneurial community to provide recommendations for educational and support programs targeting current and potential entrepreneurs on the island to encourage sustainable development and improve the quality of life for island residents. It will first present a brief literature review and summary of resources relating to demographics and entrepreneurship. This will be followed by the methodology to gather Guam-specific data, findings, and discussion, and the paper will conclude with a summary and recommendations.

The purpose of this study thus becomes to establish a foundation for data regarding startups on the island of Guam as to establish a further inquiry to assist such entities from a focus of support, funding, and understanding of challenges and practices of the entrepreneurial ventures and individuals operating and existing in Guam. The study seeks to provide a descriptive finding of the current landscape of the Guam startup sector with a demographic underpinning focused on the participants’ attributes, challenges and concerns, and access to support and the environment from which they operate. The focus of the study is to create an initial framework from which further startup data can be developed by which environmental factors such as sustainability elements and government regulation may be considered. The study will allow researchers to initiate further research into sources and dynamics of financing, and innovation strategies in support of the island’s economy, and potentially lead to policy measures to further support and strengthen innovation and business startups.

## 2. Literature review

The Kauffman Index of Entrepreneurship [Ewing Marion Kauffman Foundation, 2017] reports a rebound of startups in the US since the Great Recession, however, there has been a sharp decline in new businesses with employees creating jobs for people other than the entrepreneur. This has been an ongoing trend in the US since the 1980s. Similarly, the growth rate of new entrepreneurs in the US has decreased with new entrepreneurs driven primarily by “opportunity” rather than “necessity.” Regarding national trends in entrepreneurial demographics, the rate of both new female and male entrepreneurs has decreased while the number of minority entrepreneurs has increased, as older adults make up a growing segment of the US entrepreneurial population. Unfortunately, even though Guam

is a territory of the United States, the island is not represented in this report, and the trends reflected here are not indicative of what is occurring in Guam.

Research by Liang et al. [2014], in *Demographics and Entrepreneurship*, indicates that age is a major factor in entrepreneurship. With advancing age, entrepreneurship may decline but more business experience is obtained, however, an excess of older workers occupying key positions hinders the younger generation from acquiring the necessary business skills. It has been concluded that older societies have lower rates of entrepreneurship across all ages. There is undeniably an aging and shrinking workforce, and this paper explores the relationship between the different demographics and entrepreneurship. This paper argues that entrepreneurial capability depends on the “advantages of youth” and “business acumen.” The first factor focuses on the creativity of the youth, higher level of social interaction, and higher risk tolerance, and this factor is seen to decline with age. The second factor focuses on job experience, specifically experience that involves decision-making and management situations. The age structure of a country is potentially an important determinant of entrepreneurship as a young society gives way to more opportunities for young people to acquire the necessary skills for entrepreneurship.

A review of recent literature on the personality traits of entrepreneurs [Kerr et al., 2017] analyzes the personality traits of an entrepreneur by considering the Big-5 model of personality traits (Openness, Conscientiousness, Extraversion, Agreeableness, Neuroticism), self-efficacy, innovativeness, locus of control, need for achievement, attitudes, aspirations, and goals with the primary focus on articles published after 2000. While many studies have been conducted on this topic, entrepreneurs are heterogeneous and cannot be classified under specific personality traits only. Thus, this paper only highlights the consistent empirical findings, but there is no one-size-fits-all entrepreneur model.

Karahan et al. [2019] in *Demographic Origins of the Startup Deficit* propose an explanation for the decline in the US startup rate by tracing this trend back to the slowdown in labor supply growth since the late 1970s. These conclusions were reached by using a standard model of firm dynamics and testing the mechanism using cross-state variation in labor supply growth. The paper argues that the slowdown in the US labor supply growth can explain roughly 60 percent of the declining startup rate, widespread declines across markets, and stability of average incumbent dynamics conditional on their age. Data from the US Census Bureau’s Longitudinal Business Database (LBD) is used as it covers nearly all US nonfarm private sector establishments since 1976. Firm age is used to identify startups and distinguish incumbents. The explanation of declines in the growth rate of the labor supply as the chief cause of the decline in US entrepreneurship is supported by the data provided in three different ways. First is quantitatively examining the transitional dynamics of an equilibrium model of firm dynamics calibrated to match the US economy. The second is using plau-

sibly exogenous variation in the labor supply growth. Third is using a startup rate series extended to include the period of increasing labor supply growth.

In examining the motivational factors of intending entrepreneurs, DeMartino and Barbato [2002] compare the career motivators of male and female MBA graduates from a top-tier business school seeking to become entrepreneurs. It is acknowledged that many similarities exist, yet there have been found to be differences in the motivating factors for women, such as seeking to create a balance between work and family. The paper acknowledges the special flexibility that entrepreneurship provides, which fits with many female entrepreneurs' preference for work-life balance. This trend can explain why women-owned businesses make up 40 % of all businesses and continue to start businesses at twice the rate of men (at the time of its publication in 2002).

In gender and entrepreneurial research, Henry et al. [2016] present the findings and trends of a systematic literature review of gender and entrepreneurship literature published in 18 journals over a 30-year period. Older literature studies on this topic have equated gender with sex, but more recent research has shifted to define gender as the 'social practices and representations associated with femininity or masculinity.' There have been several methodological weaknesses noted across the different studies, such as small sample sizes, over-reliance on cross-sectional designs, use of inappropriate or gender-biased measures, or the inclusion of female-male comparative studies in which women's subordinate role is consistently highlighted.

In an Indonesian study on the development of university students' entrepreneurial skills, Blesia et al. [2021], examine an entrepreneurship education model developed by the University of Cenderawasih to increase students' skills in entrepreneurship through activities such as start-up capital, intensive training, apprenticeships, and supervision from project team members. It was concluded that the students' mindsets and self-confidence were extremely influential in shaping entrepreneurial spirits, and ultimately, entrepreneurship became a compulsory teaching subject.

To answer the question, Do University Entrepreneurship Programs Promote Entrepreneurship? Eesley and Lee [2021] examine the findings of a survey of Stanford alumni on how entrepreneurship programs affect their entrepreneurial activity using an entrepreneurship-focused survey. Two major initiatives examined are the Stanford Center for Entrepreneurial Studies at the Business School and Stanford Technology Ventures Program at the Engineering School during the mid-1990s. The authors found a positive relationship between program participation and entrepreneurship activities, specifically in that the Business School initiative decreased startup failure and increased firm revenue. Thus, it was concluded that these programs may not increase entrepreneurship rates but instead increase students' confidence in identifying their entrepreneurial potential.

Fellnhöfer [2017] aims to highlight the potential of entrepreneurial role models in entrepreneurship education, especially real-life experiences with results based on a regression analysis based on 426 individuals, primarily from Austria, Finland, and Greece. Past studies done on entrepreneurial education have been criticized for lacking a rigorous theoretical framework to evaluate entrepreneurship education initiatives, neglecting the effects of entrepreneurial education and entrepreneurial role models as facilitators of entrepreneurial choices or behavior. There are three parts to the conclusion. First, the findings from this study show that Ajzen's fundamental theory of planned behavior offers a valuable framework for understanding the effects of role models in entrepreneurship education and how they affect perceptions. Second, the study shows role models affect self-efficacy, so there should be a bigger emphasis on role models to provide a realistic picture of being an entrepreneur, regardless of a focus on positive or negative aspects. Third, the study provided no recommendations regarding the most suitable course design to ensure successful entrepreneurship education.

### 3. Summary of literature findings

Some of the key takeaways from the literature include the following:

- The importance of role models to be included in the entrepreneurship program to increase self-efficacy and provide a realistic picture of the expectations of the entrepreneur's experience.
- Entrepreneurship programs may not necessarily increase entrepreneurship rates, but they have been shown to help students identify their entrepreneurial potential according to a Stanford study [Eesley and Lee, 2021].
- Male and female entrepreneurs have been found to hold similar personality traits but differ in their intentions and motivations. This suggests exploring different methods to target men and women who may want to become entrepreneurs by understanding their motivations (e.g.: flexibility, economic reasons, balance, family, etc.).
- There does not seem to be a one-size-fits-all entrepreneur model, but there are similarities between their personality traits like the Big 5.
- The age of the workforce can influence the development of entrepreneurial activities. Liang et al. [2014] mention the importance of a balanced scale of younger and older entrepreneurs (e.g.: more willing to take higher risks versus more business knowledge).

There are several aspects involved in an entrepreneurial mindset and systems involved in encouraging the growth of startups in a community. Educational efforts as well as those in the community at large are important and need to be examined holistically, taking into consideration a community's social-cultural factors. In addition, entrepreneurship in developing

countries (particularly small islands) needs further review to avoid environmental degradation and other negative impacts resulting from dependence on large-scale development, which can leave the local community with a less-than-perfect environment and additional associated problems. Due to the issues identified, it is important to identify the demographic profile of Guam's startup community to provide some insight as to how entrepreneurship can be encouraged in the community.

#### 4. Methodology

The study was geared toward startups operating on the island of Guam and was a demographic-based inquiry regarding challenges startups faced along with their current understanding and knowledge regarding support opportunities existing on the island. Additionally, knowledge of the topics of sustainable practices and circular economy was included in the study. The framework for the study was based on a cluster analysis study by Cardon et al. [2008].

By focusing directly on the island's start-ups, Guam's stakeholders can gain some insight into the challenges that these entities face, along with how to better support them. Various sections of the study provide an introductory understanding of Guam entrepreneurs and the potential gaps that may exist in the island's initiatives and support-based organizations and agencies. The study's results will allow for further development and analysis of start-ups and their issues regarding operating locally within an island nation. The researchers plan to further develop research and analysis from information gained from this initial inquiry. Some possible directions of the research include sustainable-based entrepreneurship on the island, assistance in government-backed funding initiatives, and further development of a small business and entrepreneurship ecosystem. According to Murphy [2018], the endorsement of entrepreneurship comes in the form of acceptance of it as part of overall economic growth, with a need for economies to have a mixture of innovation from small entrepreneurial ventures and established larger firms. Thus, the rationale for this study and the pursuit of data via a survey.

#### 5. Electronic questionnaire

A survey was created electronically with the use of Google Forms. The target population for this study was a subsection of 3,556 registered businesses in Guam [U.S. Small Business Administration, 2020]. Although the number of Guam's new business licenses has increased annually, so has the number of cancellations. According to Gilbert [2022], the number of new business licenses issued in 2020 was 2,544, and 3,489 business licenses were issued in 2021, with approximately, 1,074 cancellations in 2020 and 1,088 cancellations in 2021. While the total number of startups in the last decade has not been identified, an approximate number may be an estimate of 500 to 550. Another possible measure concerning current startups on the island is the 2019 Annual Economic Survey of Guam, in which The Bureau of Statistics and Plans [2021] suggests that there

were 938 sole proprietorships in Guam from the year 2019, which could reflect the overall island's population of small businesses of which startups may be a segment. The Guam Chamber of Commerce, one of Guam's largest organizations representing the private sector, asserts that its membership is representative of 70 % of the island's Gross Island Product (Guam's measure for GDP). The Guam Chamber of Commerce [2023] has a membership of 400 business and professional individuals and firms, thus strengthening the earlier estimate for the island's startup business total of approximately 500 to 550. A 10 % sample size of 50 of the island's population of small business startups (within the last 10 years) should achieve generalized acceptability of results.

A recognition that a need exists to establish a reflection of startup enterprises operating on the island initiated this study. The authors adopted elements from a micro business survey developed by the Greater London Authority [n.d.] for the London Growth Hub and this was edited to be more suitable for Guam's US-based startups. For example, the wording of the survey was adjusted to reflect United States measurements (currency from GB pounds to US dollar), US business terms (from turnover to sales), and the inclusion of local government and nonprofit institutions, such as London Growth Hub to Guam Economic Development Authority (GEDA), University of Guam (UOG), and Guam Department of Labor. The questionnaire consisted of mainly multiple-choice questions, with a few allowing for open-ended response options such as business sector, type of support provided, and open-ended questions. The survey was divided into three sections: (i) knowledge of available support and challenges faced, (ii) business demographic information, and (iii) entrepreneur's demographic information.

The distribution of the survey occurred in three parts. Initial email requests were made to local business support entities including administrators from Guam Unique Merchandise and Arts (GUMA), the Pacific Islands Small Business Development Center Network (PISBDCN), and the Guam Chamber of Commerce. The survey was then forwarded by the administrators to their respective membership bases. According to its website, GUMA provides entrepreneurs and cultural producers support of necessary resources or business acumen in turning conceptual ideas into sustainable businesses. According to PISBDCN's website, it provides support to businesses through management, development, and feasibility of pre-ventures to individuals who are US citizens, green card holders, or citizens from the Freely Associated States of Micronesia.

From this request, 13 startups responded during a period of 2 months, from 3/15/22 to 5/15/22, and from two follow-ups after two weeks of the initial request and a month after initial communication. The second offering was to utilize an additional support agency, the Center for Island Sustainability, for a period of three months, from 6/1/22 to 9/1/22, with 19 respondents received from this request. The final request was made to the Guam Economic Development Authority (GEDA), of

which 26 responses during a four-month period, from 9/1/22 to 12/1/22 were captured. Follow-up with the last two phases included the same two-week and one-month intervals as the first initial phase. A disclaimer was included at the beginning of the survey to signal to participants to complete the survey only once, in case they happened to be a part of any of the networks in the three phases. The researchers also confirmed that there were no duplicate responses. Additionally, the survey results were reviewed by the researchers to check for any response in error. Furthermore, 6 respondents were not considered as their businesses have been operating for over a decade, resulting in a total of 52 participants for this study.

## 6. Description of variables

The researchers clustered the entrepreneurs from responses to 19 variables. The first group of variables consisted of business challenges faced, knowledge of support available, and preference for receiving business support including (1) short-term concerns, (2) long-term concerns, (3) experience in finding general business support/advice, (4) experience in finding public and support-based organization advice and support, (5) most helpful sources of business support, (6) topics on what type of advice was sought, and (6) preference of mode for receiving support. The option to select “all that apply” was incorporated for the first two variables (short-term and long-term concerns) as well as the fifth variable (sources of support) where individuals were allowed to select the top five best choices.

The second group consisted of information about the businesses considering the present stage, environmental factors, and demographics of the business including: (7) business cycle, (8) sector, (9) years of operation, and (10) revenue.

A third group consisted of demographic information about the individual entrepreneur including: (11) age, (12) race/ethnicity, (12) gender, (13) marital status, (14) education level, and (15) employment status. Employment status provided options of current work outside of their own company/start-up signaling a need for secondary income.

## 7. Analysis

Utilizing multiple response analysis, descriptive research of the first group of variables was considered. According to Edwards and Allenby [2003], the select-all method provides inductive data to theory from which analysis of multiple responses could provide the resulting theory. With regard to concerns that participants felt, such analysis was applicable. Short-term concerns were expressed as the top challenges in the next five years, while long-term concerns were defined as those respondents would impact their business in the foreseeable future after five years.

### 7.1 Short-term and long-term business concerns

The option to select all nine variables includes the cost of doing business, finding a suitable workspace, recruiting and

maintaining a skilled workforce, adapting to new technologies, acquiring new customers, dealing with uncertainty, developing an online presence, developing new management or leadership skills, and financial management allowed for an introductory understanding of challenges that startups face. In addition, a category of “other” was provided to allow participants to express any challenges or concerns that may have not been listed as an option.

Short term. An initial cross-tabulation (Table 1) to show percentages of individual concerns in the short term was done with gender being the independent variable. The most significant concern for the short-term was business costs for both female (97.1 %) and male (88.9 %) respondents. The next most significant concern for female entrepreneurs was income uncertainty, where 64.7 % of the respondents indicated such concern. For male respondents both financial management and customer acquisition were selected as a concern at the rate of 55.6 %, indicating 10 of the 18 respondents viewed these challenges as a short-term concern.

Two individual participants indicated other concerns not included in the multiple responses including “reducing single-use plastic waste” and “education/outreach for circular/sustainable products”. Due to the similarity of these responses and the infrequency with the categorized options, these responses were combined under a sustainability variable.

The researchers also applied additional cross-tabulation (Table 2) of long-term concerns (multiple responses) against gender. The same categories were also utilized for multiple responses for long-term concerns of longer than five years. Business costs remained the most significant concern for both female (97.1 %) and male (83.3 %) respondents. Income uncertainty remained the second most concern for female participants (70.6 %) for long-term challenges, showing an increase compared with responses for the short-term. For long-term challenges for male respondents, four categories (skilled workforce, new technologies, customer acquisition, and developing management and leadership skills) were identified as the second most significant challenges they considered. Although customer acquisition remained a significant concern, financial management declined in response, while a selection of three variables (skilled workforce, new technologies, and leadership development) emphasizes a potential shift from start-up to growth dynamic perspectives of the respondents, along with the uncertainty of the island’s ability to develop these aspects of support for entrepreneurs.

Three respondents indicated a concern with information and support which allowed for a combined variable itemization. The responses included inconsistencies in business licensing information, development into a new cooperative/industry, and information regarding partnerships with higher education institutions and the community. The similarity of these support and information network concerns justified a combined variable categorization.



Table 1: Short-term concerns and gender crosstabulation

|                              |                 | Gender |        | Total |
|------------------------------|-----------------|--------|--------|-------|
|                              |                 | Female | Male   |       |
| Business Costs               | Count           | 33     | 16     | 49    |
|                              | % within Gender | 97.1 % | 88.9 % |       |
| Suitable Space               | Count           | 18     | 8      | 26    |
|                              | % within Gender | 52.9 % | 44.4 % |       |
| Skilled Workforce            | Count           | 11     | 8      | 19    |
|                              | % within Gender | 32.4 % | 44.4 % |       |
| New Technologies             | Count           | 3      | 7      | 10    |
|                              | % within Gender | 8.8 %  | 38.9 % |       |
| Financial Management         | Count           | 19     | 10     | 29    |
|                              | % within Gender | 55.9 % | 55.6 % |       |
| Online Presence              | Count           | 17     | 6      | 23    |
|                              | % within Gender | 50.0 % | 33.3 % |       |
| Management Leadership Skills | Count           | 5      | 6      | 11    |
|                              | % within Gender | 14.7 % | 33.3 % |       |
| Customer Acquisition         | Count           | 18     | 10     | 28    |
|                              | % within Gender | 52.9 % | 55.6 % |       |
| Income Uncertainty           | Count           | 22     | 9      | 31    |
|                              | % within Gender | 64.7 % | 50.0 % |       |
| Other: Sustainability        | Count           | 2      | 0      | 2     |
|                              | % within Gender | 5.9 %  | 0.0 %  |       |
| Total                        | Count           | 34     | 18     | 52    |

Note: Percentages and totals are based on respondents.

Table 2: Long-Term Concerns \* Gender Crosstabulation

|  |                 | Gender |        | Total |
|--|-----------------|--------|--------|-------|
|  |                 | Female | Male   |       |
| Business Costs Long Term               | Count           | 33     | 15     | 48    |
|  | % within Gender | 97.1 % | 83.3 % |       |
| Suitable Space Long Term               | Count           | 17     | 5      | 22    |
|  | % within Gender | 50.0 % | 27.8 % |       |
| Skilled Workforce Long Term            | Count           | 15     | 10     | 25    |
|  | % within Gender | 44.1 % | 55.6 % |       |
| New Technologies Long Term             | Count           | 11     | 10     | 21    |
|  | % within Gender | 32.4 % | 55.6 % |       |
| Financial Management Long Term         | Count           | 14     | 7      | 21    |
|  | % within Gender | 41.2 % | 38.9 % |       |
| Online Presence Long Term              | Count           | 7      | 4      | 11    |
|  | % within Gender | 20.6 % | 22.2 % |       |
| Management Leadership Skills Long Term | Count           | 18     | 10     | 28    |
|  | % within Gender | 52.9 % | 55.6 % |       |
| Customer Acquisition Long Term         | Count           | 22     | 10     | 32    |
|  | % within Gender | 64.7 % | 55.6 % |       |
| Income Uncertainty Long Term           | Count           | 24     | 9      | 33    |
|  | % within Gender | 70.6 % | 50.0 % |       |
| Other: Access to Information Support   | Count           | 2      | 1      | 3     |
|  | % within Gender | 5.9 %  | 5.6 %  |       |
| Total                                  | Count           | 34     | 18     | 52    |

Note: Percentages and totals are based on respondents.

**7.2 Support of business**

The next three variables consisted of support, in general, regarding business advice and information, support from governmental, non-governmental (NGOs), and non-profit agencies regarding business assistance and information, and sources of support currently identified by the respondents. As nominal-level responses were utilized for these variables, descriptive graphical representations and statistical frequencies could be identified.

General business support. Concerning support of businesses in general on the island, a five-point scale was utilized ranging from very easy to very difficult. A clear identification of responses (Figure 1) through the bar chart emphasizes support and advice that respondents feel are available through them are somewhat mixed.

Participants responded with access to business advice and information on the island of Guam, in general, to be mostly easy or difficult. Twenty participants indicated that business support has been easy, amounting to 38.5 % of the total responses. This distinction in responses does indicate that more than half of respondents do not have ease of access or knowledge of where to seek business support and advice. Ap-

proximately one-third of respondents (17) expressed difficulty in their responses, signaling some challenges with seeking business advice and support on the island.

Support from governmental agencies and NGOs. For support and advice specifically from public agencies, non-profits, or non-governmental organizations, a six-point scale was utilized. The distinction of support from a governmental and NGO perspective emphasizes the public agency and organizational resource and response that participants feel they have access to. Figure 2 illustrates the type of response and access to support that participants feel they currently have about governmental and public agencies.

Of the responses of governmental and public agency support, a small percentage of responses were indicated as helpful (28.8 % or 15 responses) and very helpful (3.8 % or 2 responses), which suggests that a small proportion of the startup entrepreneurs have gotten or feel support from public agencies. The greatest number of responses consisted of neutral support, amounting to 40.4 % of the total number of responses.

Sources of support. The sources of current support that respondents sought were identified through a select all (up to

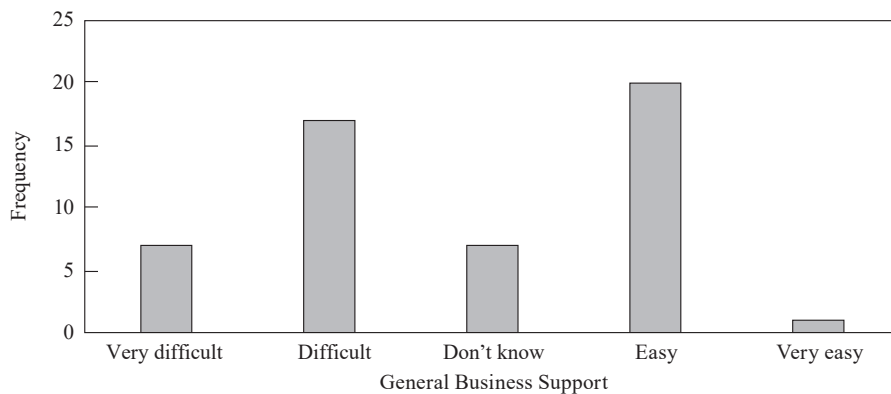


Figure 1: General support of business' bar chart  
 Note: Responses utilized a five-point scale.

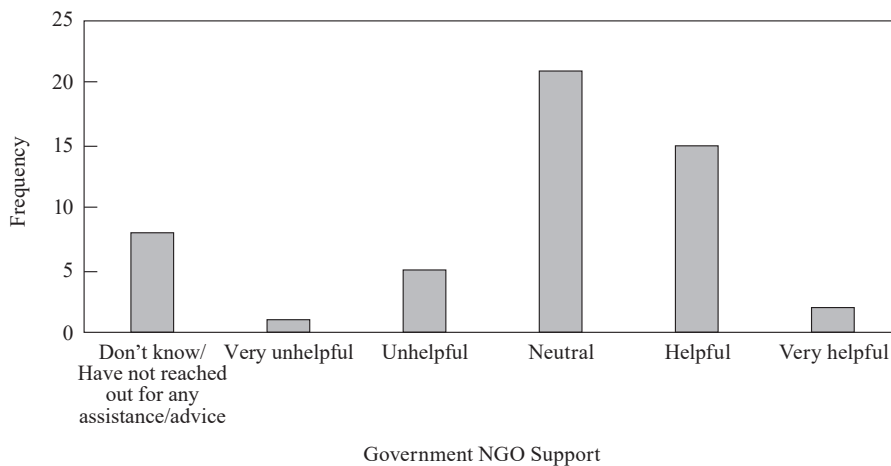


Figure 2: Support from governmental, nongovernmental (NGO), and non-profit agencies  
 Note: Frequency of responses from a six-point scale.

Table 3: Cross tabulation of years of operation and support sources

|                                |                             | Years of operation |              |              | Total |
|--------------------------------|-----------------------------|--------------------|--------------|--------------|-------|
|                                |                             | < 1 year           | 1 to 3 years | 4 to 9 years |       |
| Coworking                      | Count                       | 8                  | 10           | 4            | 22    |
|                                | % within Years of Operation | 44.4 %             | 41.7 %       | 40.0 %       |       |
| SBDC                           | Count                       | 6                  | 6            | 3            | 15    |
|                                | % within Years of Operation | 33.3 %             | 25.0 %       | 30.0 %       |       |
| GUMA                           | Count                       | 6                  | 4            | 3            | 13    |
|                                | % within Years of Operation | 33.3 %             | 16.7 %       | 30.0 %       |       |
| SBA                            | Count                       | 2                  | 2            | 1            | 5     |
|                                | % within Years of Operation | 11.1 %             | 8.3 %        | 10.0 %       |       |
| G3                             | Count                       | 3                  | 1            | 1            | 5     |
|                                | % within Years of Operation | 16.7 %             | 4.2 %        | 10.0 %       |       |
| C4EI                           | Count                       | 2                  | 0            | 0            | 2     |
|                                | % within Years of Operation | 11.1 %             | 0.0 %        | 0.0 %        |       |
| CIS                            | Count                       | 0                  | 0            | 2            | 2     |
|                                | % within Years of Operation | 0.0 %              | 0.0 %        | 20.0 %       |       |
| Other Entrepreneurs            | Count                       | 14                 | 15           | 10           | 39    |
|                                | % within Years of Operation | 77.8 %             | 62.5 %       | 100.0 %      |       |
| Clients Suppliers              | Count                       | 3                  | 4            | 3            | 10    |
|                                | % within Years of Operation | 16.7 %             | 16.7 %       | 30.0 %       |       |
| Trade Associations             | Count                       | 0                  | 4            | 1            | 5     |
|                                | % within Years of Operation | 0.0 %              | 16.7 %       | 10.0 %       |       |
| Workforce Development Programs | Count                       | 0                  | 1            | 0            | 1     |
|                                | % within Years of Operation | 0.0 %              | 4.2 %        | 0.0 %        |       |
| Higher Education Institutions  | Count                       | 3                  | 1            | 0            | 4     |
|                                | % within Years of Operation | 16.7 %             | 4.2 %        | 0.0 %        |       |
| No Resources Utilized          | Count                       | 4                  | 5            | 1            | 10    |
|                                | % within Years of Operation | 22.2 %             | 20.8 %       | 10.0 %       |       |
| Total                          | Count                       | 18                 | 24           | 10           | 52    |

Note: Percentages and totals are based on respondents.

five) option method. The sources included thirteen variables including co-working/networking support sessions, Small Business Development Center (SBDC), Small Business Administration (SBA), local trade/professional associations (Guam Hotel and Restaurant Association, Guam Chamber of Commerce, Guam Women's Chamber of Commerce, etc.), other entrepreneurs, online government information, Guam Unique Merchandise and Art (GUMA), Center for Entrepreneurship and Innovation (C4EI), Center for Island Sustainability (CIS), Guam Green Growth's Makerspace and Innovation Hub (G3), clients or suppliers (attorney, accountant, auditor, consultant, or bank), workforce development program (Guam Trades Academy, Guam Department of Labor, Guam Association for Career and Technical Education), local higher education institutions (University of Guam or Guam Community College), and no use of resources listed. A cross-tabulation (Table 3) with years in operation (less than one year, one to three years, and four to nine years) was utilized for analysis.

The highest response (39 out of 52) for support sources was

the variable of other entrepreneurs. For entrepreneurs that had started their business within the last year, 77.8 % indicated this source of support, while 62.5 % of participants who started their business within one to three years selected this variable, and 100 % of participants who operated within four to nine years sought support from other entrepreneurs. Although online government information was an option, none of the respondents selected this variable when addressing sources of business support.

Another important option to identify in the support source variable was the option of none of the resources being utilized. A total of 10 responses selected this category, amounting to 19.2 % of the total number of participants. One individual indicated reaching out to an organization but not receiving support, thus a selection of no resources utilized was inputted by the researchers.

### 7.3 Demographics

Guam's population is diverse and comprises ethnicities that



include Guam’s indigenous population of CHamoru (37 %), Filipino (26 %), Caucasian (7 %), Chuukese (7 %), Korean (2 %), other Pacific Island (2 %), other Asian (2 %), Chinese (2 %), Palauan (2 %), Japanese (1 %), Pohnpeian (1 %) and other mixed ethnicities (10 %), [CIA, 2023]. Survey results show that 65.5 % of the respondents identified as Pacific Islander, and 24.1 % identified as Asian, leaving approximately 10 % in other categories. These results indicate that the majority of entrepreneurs appear to represent Guam’s population. A further breakdown of ethnicities in future surveys will provide greater demographic insight that can lead to better opportunities for successful small business development.

**7.4 Age of respondents**

Another important demographic category involves the age of entrepreneurs. Analyzing the age of respondents will allow support agencies to identify various segments of the market to determine startup makeup and address potential outreach opportunities. The use of a pie chart (Figure 3) allows for an outlook on the current makeup of Guam startups. Intervals for age included 18 to 29, 30 to 39, 40 to 49, 50 to 59, and 60 and older.

A significant proportion of responses included individuals from the 18- to 29-year-old age group, while older participants of categories, 50- to 59-year-old and 60 and older, comprised

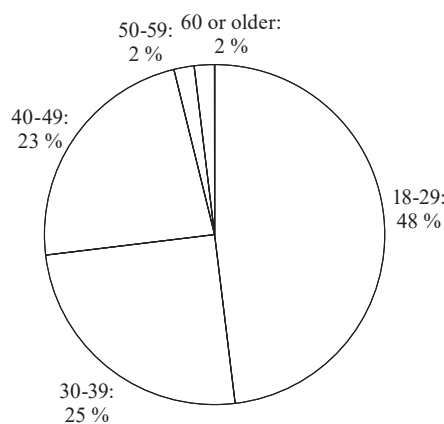


Figure 3: Age of respondents

2 % of the responses, respectively. The positive result from this measure could be that startups are being run by younger participants and that these startup owners are looking for more support for their businesses, which is a goal of this research project. The researchers considered support-based recruitment locations including SBDC, GEDA, GUMA, and G3.

Sales in revenue. Further analysis included age groups and revenue of startups. Utilizing cross-tabulation (Table 4), revenue for the year 2021 was identified as the study was conducted midway through the year 2022.

A notable result of the analysis consisted of most startups (30 of 52) having under \$10,000 in revenue. With challenges and concerns being related to support entities, the results reveal that further development of a support ecosystem must be established. In this same category for revenue, one older participant from the 60 and older age group indicated revenue of under \$10,000. Additionally, only one of six of the 52 participants responded with significant revenue for the year 2021, emphasizing \$75,000 to \$100,000 and over \$100,000 in sales, respectively.

**7.5 Supplemental income**

A significant aspect of the success of a start-up business consists of freedom from the need for supplemental income. Assessing the ability of these individuals’ employment with additional needs for employment in addition to their startup can provide some insight into such freedom. Participants were allowed to select multiple responses from employment outside of a startup of greater than 30 hours per week, less than 30 hours a week, self-employed (start-up) for more than 30 hours, self-employed in a start-up for less than 30 hours, and retired. The analysis was conducted with a cross-frequency with gender (Table 5) to further expound the demographic breakdown of start-uppers.

More than fifty percent of male participants maintained significant employment in addition to their startup companies. On the other hand, for significant employment of more than 30 hours per week, female startups had only 14 responses (41.2 %) indicating a possibly optimistic outlook, as they may be less reliant on supplementary income in addition to their startup com-

Table 4: Revenue and age crosstabulation

|                  | Age   |       |       |       |             | Total |
|------------------|-------|-------|-------|-------|-------------|-------|
|                  | 18-29 | 30-39 | 40-49 | 50-59 | 60 or older |       |
| Under \$10,000   | 14    | 7     | 8     | 0     | 1           | 30    |
| \$10,000-24,999  | 3     | 1     | 1     | 1     | 0           | 6     |
| \$25,000-49,999  | 3     | 2     | 1     | 0     | 0           | 6     |
| \$50,000-74,999  | 2     | 0     | 1     | 0     | 0           | 3     |
| \$75,000-100,000 | 0     | 1     | 0     | 0     | 0           | 1     |
| Over \$100,000   | 3     | 2     | 1     | 0     | 0           | 6     |
| Total            | 25    | 13    | 12    | 1     | 1           | 52    |

Note: Revenue based on 2021 sales.

Table 5: Supplemental income and gender crosstabulation

|                          |                 | Gender |        | Total |
|--------------------------|-----------------|--------|--------|-------|
|                          |                 | Female | Male   |       |
| Employed > 30 hours      | Count           | 14     | 10     | 24    |
|                          | % within Gender | 41.2 % | 55.6 % |       |
| Employed < 30 hours      | Count           | 4      | 1      | 5     |
|                          | % within Gender | 11.8 % | 5.6 %  |       |
| Self-Employed > 30 hours | Count           | 7      | 5      | 12    |
|                          | % within Gender | 20.6 % | 27.8 % |       |
| Self-Employed < 30 hours | Count           | 14     | 5      | 19    |
|                          | % within Gender | 41.2 % | 27.8 % |       |
| Retired                  | Count           | 2      | 1      | 3     |
|                          | % within Gender | 5.9 %  | 5.6 %  |       |
| Total                    | Count           | 34     | 18     | 52    |

Note: Percentages and totals are based on respondents.

panies. Adding to this, the same number of female responses were exhibited for hours operating their startups with more than 30 hours per week concentrating on their startups. Male responses declined to five responses for this category, equaling a 27.8 % total.

### 7.6 Gender and industry

An important outlook of the startup industry may signal the direction of the island's overall business focus. Examining the industry type the individuals chose for their busi-

ness, may provide some insight into the market trends and strategic and economic direction the island may be heading toward. In addition, focusing on gender dynamics of industry selection for startup businesses may present further awareness of the decisions and preferences of startup individuals. Participants were given an opportunity to identify the specific industry sectors of their businesses including construction, education, entertainment, financial services, food and beverage, health care, hospitality and tourism, media, real estate, retail, technology, professional services,

Table 6: Gender and industry sector crosstabulation

|                         |                 | Gender  |         | Total   |
|-------------------------|-----------------|---------|---------|---------|
|                         |                 | Female  | Male    |         |
| Construction            | Count           | 0       | 2       | 2       |
|                         | % within Gender | 0.0 %   | 11.1 %  | 3.8 %   |
| Retail                  | Count           | 20      | 3       | 23      |
|                         | % within Gender | 58.8 %  | 16.7 %  | 44.2 %  |
| Social Entrepreneurship | Count           | 6       | 1       | 7       |
|                         | % within Gender | 17.6 %  | 5.6 %   | 13.5 %  |
| Professional Services   | Count           | 6       | 5       | 11      |
|                         | % within Gender | 17.6 %  | 27.8 %  | 21.2 %  |
| Food and Beverage       | Count           | 1       | 3       | 4       |
|                         | % within Gender | 2.9 %   | 16.7 %  | 7.7 %   |
| Financial Services      | Count           | 1       | 0       | 1       |
|                         | % within Gender | 2.9 %   | 0.0 %   | 1.9 %   |
| Media                   | Count           | 0       | 1       | 1       |
|                         | % within Gender | 0.0 %   | 5.6 %   | 1.9 %   |
| Technology              | Count           | 0       | 3       | 3       |
|                         | % within Gender | 0.0 %   | 16.7 %  | 5.8 %   |
| Total                   | Count           | 34      | 18      | 52      |
|                         | % within Gender | 100.0 % | 100.0 % | 100.0 % |

social entrepreneurship, and others. A cross-tabulation of gender and industry (Table 6) was conducted to understand the demographics of startups.

The majority of the startups are classified as retail operations concerning the industry sector identification, totaling 44.2 % of responses. Four responses of “other” were reclassified to professional services based on their specified inputted industries including plant nursery, graphic design & social arts, art and creative services, health, and family activities and events, as well as one response of health and beauty being considered as retail. The largest number of female startups indicated 58.8 % of female participants were in the retail industry. The largest sector of male entrepreneurs consisted of the professional services sector equaling 27.8 % of the male participants.

## 8. Findings and Discussion

From the study’s analysis, some emergent findings were illustrated regarding the major points of emphasis of the questionnaire’s focus. For the entrepreneurs’ concerns in the short term, the cost of doing business in Guam remained the most significant challenge as 87.9 % of all respondents selected this option. Acquiring new customers and entering new markets, dealing with income uncertainty, and financial management are the next highest concerns at 55.2 % to 58.6 %. The cost of living in Guam does not seem a priority to most, which seems contrary to the rising costs of groceries, housing, and medical bills. This may also tie in with worker retention. Many are concerned about the financial well-being of their business but less about the circular economy and sustainability of their practices in the long term. Reducing single-use plastic and Education/outreach for sustainable products rank at the lowest of entrepreneurs’ concerns at only 1.7 %.

In terms of support, more than one-third of the respondents (39.7 %) felt that it was easy to find support and advice for their small businesses in Guam while 32.8 % felt that it was difficult. Only a small percentage of entrepreneurs (3.4 %) found it very easy to find support and advice compared to the 12.1 % of those who found it very difficult. For governmental and public agency support, the lack of access to governmental and NGO support remained a significant challenge for startups. Only 34.5 % of total respondents felt that the support from public agencies, non-profits, or non-governmental organizations was helpful or very helpful. 10.3 % of the respondents found the support and advice to be unhelpful or very unhelpful. In terms of sources of support, the individuals relied on other entrepreneurs to seek assistance and information. 72 % of all respondents chose Other Entrepreneurs to be the most helpful in providing support and advice as compared to all the other services. Co-working communities and networking events was ranked as the 2nd most helpful option at 43.1 %. Additionally, it appears that the majority of entrepreneurs rely more on other entrepreneurs with more experience and each other for advice rather than government agencies or organizations. It appears

that business owners rely more on individuals or clients/ suppliers like attorneys, auditors, bankers, and consultants to improve their business’s efficiency and provide suggestions. 15.5 % have not used any of these resources. Only one of the respondents gave criticism that the SBDC was not helpful. A logical assumption can be made that the industry and infrastructure surrounding start-ups can improve, as the network of entrepreneurs is the most significant avenue for information and business support.

The majority of respondents (43.1 %) are within the age range of 18-29 followed by 30-39 (24.1 %) and 40-49 (20.7 %). According to the CIA [2021] World Factbook, 52.73 % of Guam’s population is made up of individuals from 15-54 years old. Those aged 50 or older made up only 12.1 % of the respondents. Many of the entrepreneurs responded that their approximate sales revenue for 2021 was less than \$10,000. This is aligned with a study of 2.7 million startups which emphasized the older the individual, the more successful the startup. Farrell [2022] emphasized that although 60-year-olds are three times more likely to succeed in their startup endeavors than their 30-year-old counterparts, only one-quarter of new entrepreneurs are aged 55 to 64 years old.

The relationship between the trend of sales/ revenue and the age they have been in operation, a direction to consider is if startups’ sales/ revenue of these businesses be compared to the industry standard of growth. With the use of support and challenges previously identified, these individuals may continue to seek outlets for assistance or may become negatively affected as startups become distressed with no revenue. The significant of respondents were from the age 18- to 29-year-old group most of these entrepreneurs indicated a revenue for the year 2021 to be less than \$10,000. Only three respondents were aged 50 years and older, with one of the individuals emphasizing a sales revenue of over \$100,000. A possible consideration could be for support agencies to concentrate on promoting startups for older segments of the population.

A significant number of entrepreneurs (46.2 %) still retain their primary occupation which may signal a need for the participants to have a main source of income or a need to have secondary sources of income. This need may have stemmed from the COVID-19 pandemic where island residents experienced layoffs and furloughs, as businesses closed. Jones (2020) posited that the demographic group that was most significantly impacted by the pandemic was CHamoru women under 40. For the female respondents of this, 27 of the 35 participants identified themselves as Pacific Islanders, thus a possible generality can be made that due to the change in economic situations for individuals, a decision to start a business to supplement that loss may have been considered.

Most women-owned startups from the study operate in the retail industry, with 20 participants (58.8 %) selecting this sector to describe their startup business. For women respondents, the second highest sector was between two industries, social entrepreneurship, and the professional services industry, with

17.6 % of female-owned startups being from these classifications. The professional services industry was the most significant category for male respondents, with three sectors (retail, food and beverage, and technology) being tied (at 16.7 %) for the second largest male-owned startup industries.

## 10. Conclusion and recommendations

For a small island that depends heavily on tourism and needs to consider sustainability issues such as waste management and self-reliance, a review of current data concerning small businesses and small business development is critical. More importantly, data concerning the people who are involved in starting up small business enterprises can help encourage the success of small business development in destinations like Guam. This paper presents emergent findings about entrepreneurs' concerns, their perceived level of support, and key information about the demographics of Guam's entrepreneurs, primarily focusing on age, sex, and ethnicity. Further research on the relationship between ethnicity/culture among the Asian and Pacific Islander groups and perceived stimuli and barriers to small business development will help encourage the growth of Guam's startup population.

The limitations of the study are clear with only fifty-two completed surveys, albeit from a relatively small workforce population on the island of Guam. However, no established database currently exists for Guam's start-up population and very little data has been available concerning their activities. Reliance on support agencies for data has proven to be a challenge due to strict federal and local government guidelines and confidentiality policies. The demographic framework of the island's startups has shown a need for the island to establish additional methods of financing and innovation strategy knowledge and infrastructure. For both short-term and long-term costs, the cost of doing business in Guam was a resounding 87.9 % as a challenge to the startup operations. In addition, 63.88 % and 60.8 % of long-term challenges were both in line with the financial operations of the business and dealing with income uncertainty and acquisition of new customer concerns.

A need for knowledge of financial dynamics and sources for the island seems to exist to further support the island's startup community. Additionally, the development of infrastructure does support entrepreneurship as stakeholder arrangement of institutional, resource, and propriety (technology) events can produce supportive and positive forces to successful start-up ventures [Van de Ven, 1993]. With responses of difficulty of governmental information and support as part of the findings highlighted in this study, the research provides evidence that policy measures and government support may be required for startups to achieve greater levels of success and sustainability. Approximately 1/3rd of respondents felt adequate information and support provided by NGOs and public agencies. Furthermore, by providing this study as an initial source of data, a focus on further assistance and information by such public, and

non-profit entities may signal a need for the public sector to establish both infrastructure and measures to fuel innovation and entrepreneurial ventures in the island. The authors plan to continue in efforts to collect data and report findings that will lead to greater small business opportunities for residents in small island economies. By doing so, these small businesses can be a force to encourage sustainable development and improve the quality of life for island residents.

## References

- Blesia, J. U., Iek, M., Ratang, W., Westim Ratang, and Huta-julu, H. (2021). Developing an entrepreneurship model to increase students' entrepreneurial skills: An action research project in a higher education institution in Indonesia. *Systemic Practice and Action Research*, Vol. 34, 53-70.
- Bosma, N., Hill, S., Ionescu-Somers, A., Kelley, D., Guerrero, M., and Schott, T. (2021). Global entrepreneurship monitor: 2020/2021 global report (Retrieved January 14, 2022 from <https://www.gemconsortium.org/>).
- Bureau of Statistics and Plans (2021). The 2019 annual economic survey of Guam. Government of Guam (Retrieved January 21, 2023 from <https://bsp.guam.gov/annual-economic-survey/>).
- Cardon, M., Shinnar, R., Eisenman, M., and Rogoff, E. (2011). Segmenting the population of entrepreneurs: A cluster analysis study. *Journal of Developmental Entrepreneurship*, Vol. 13. 10.1142/S1084946708001009.
- Central Intelligence Agency (2021). The world factbook: Guam (Retrieved February 20, 2023 from <https://www.cia.gov/the-world-factbook/about/archives/2022/countries/guam/>).
- Cook, R. A., Hsu, H. C., and Taylor, L. L. (2018). *Tourism: The business of hospitality and travel, 6th Edition*. Pearson.
- DeMartino, R. and Barbato, R. (2002). An analysis of the motivational factors of intending entrepreneurs. *Journal of Small Business Strategy*, Vol. 13, No. 2, 26-36.
- Edwards, Y. D. and Allenby, G. M. (2003). Multivariate analysis of multiple response data. *Journal of Marketing Research*, Vol. 40, No. 3, 321-334.
- Eesley, C. E. and Lee, Y. S. (2021). Do university entrepreneurship programs promote entrepreneurship? *Strategic Management Journal*, Vol. 42, No. 4, 833-861.
- Ewing Marion Kauffman Foundation (2017). 2017 Kauffman index of startup activity. The Kaufman Index (Retrieved January 14, 2022 from [https://www.kauffman.org/wp-content/uploads/2019/09/2017\\_Kauffman\\_Index\\_Startup\\_Activity\\_Metro\\_Report\\_Final.pdf](https://www.kauffman.org/wp-content/uploads/2019/09/2017_Kauffman_Index_Startup_Activity_Metro_Report_Final.pdf)).
- Fairlie, R., Desai, S., and Hermann, A. J. (2019). 2018 National report on early-stage entrepreneurship. Kauffman Indicators of Entrepreneurship (Retrieved January 16, 2022 from <https://indicators.kauffman.org/reports>).
- Farrell, C. (2022). The advantages of older entrepreneurs. Forbes (Retrieved March 21, 2023 from <https://www.forbes.com/sites/nextavenue/2022/09/09/the-advantages-of-older-entrepr>

- eneurs/?sh=586b78e31547).
- Fellnhofer K. (2017). Entrepreneurship education revisited: Perceived entrepreneurial role models increase perceived behavioural control. *International Journal of Learning and Change*, Vol. 9, No. 3, 260-283.
- Gilbert, H. E. (2022). Guam's new businesses soar in pandemic: 300 to 400 business license applications a month. Pacific Daily News (Retrieved March 23, 2023 from [https://www.guampdn.com/news/guams-new-businesses-soar-in-pandemic-300-to-400-business-license-applications-a-month/article\\_4c5e1ef6-34a9-11ed-841c-5332af5a7cf2.html](https://www.guampdn.com/news/guams-new-businesses-soar-in-pandemic-300-to-400-business-license-applications-a-month/article_4c5e1ef6-34a9-11ed-841c-5332af5a7cf2.html)).
- Gössling, S. (ed.) (2003). *Tourism and development in tropical islands: Political ecology perspectives*. Cheltenham: Edward Elgar Publishing.
- Greater London Authority (n.d.) Micro business survey questionnaire (Retrieved January 14, 2022 from <https://www.london.gov.uk/media/13249/download>).
- Guam Chamber of Commerce (2023). Who are we? About Us (Retrieved May 5, 2023 from <https://www.guamchamber.com.gu/about-us/>).
- Guam Daily Post (2019). Tourist arrivals reach record level of 1.63M (Retrieved February 25, 2022 from [https://www.post-guam.com/news/local/tourist-arrivals-reach-record-level-of-m/article\\_bb38302c-f3ee-11e9-9128-6ffbe767bb00.html](https://www.post-guam.com/news/local/tourist-arrivals-reach-record-level-of-m/article_bb38302c-f3ee-11e9-9128-6ffbe767bb00.html)).
- Guam Visitors Bureau (2020). Guam visitors bureau annual report 2019 (Retrieved October 29, 2022 from <https://annualreport.guamvisitorsbureau.com/>).
- Harrison, D. (2004). Tourism in Pacific islands. *The Journal of Pacific Studies*. Vol. 26, No. 1-2, 1-28.
- Henry, C., Foss, L., and Ahl, H. (2016). Gender and entrepreneurship research: A review of methodological approaches. *International Small Business Journal*, Vol. 34, No. 3, 217-241.
- Jones, R. (2021). The impact of Covid-19 on Guam residents and business. UOG Regional Center for Public Policy (Retrieved April 10, 2023 from [https://guamrecovery.com/wp-content/uploads/2021/05/RCPP\\_2021-Guam-Recovery-Research-Project\\_Residential-and-Business\\_Publish32243.pdf](https://guamrecovery.com/wp-content/uploads/2021/05/RCPP_2021-Guam-Recovery-Research-Project_Residential-and-Business_Publish32243.pdf)).
- Karahan, F. Pugsley, B., and Sahin, A. (2019). Demographic origins of the startup deficit. *Center for Economic Studies*, 19-21.
- Kerr, S. K., Kerr, W. R., and Xu, T. (2017). Personality traits of entrepreneurs: A review of recent literature. Harvard Business School, Working Paper, 18-047 (Retrieved January 16, 2022 from [https://www.hbs.edu/ris/Publication%20Files/18-047\\_b0074a64-5428-479b-8c83-16f2a0e97eb6.pdf](https://www.hbs.edu/ris/Publication%20Files/18-047_b0074a64-5428-479b-8c83-16f2a0e97eb6.pdf)).
- Kim, H. Y. (2017). Statistical notes for clinical researchers: Chi-squared test and Fisher's exact test. *Restorative Dentistry & Endodontics*, Vol. 42, No. 2, 152-155.
- Liang, J., Hui, W., and Lazea, E. P. (2014). Demographics and entrepreneurship. Working Paper 20506. National Bureau of Economic Research (Retrieved January 16, 2022 from <http://www.nber.org/papers/w20506>).
- McClure, H. (2021). COVID-19: The Pacific Response—Trendlines from Micronesia. Australia Pacific Security College (Retrieved January 22, 2023 from <https://pacificsecurity.net/covid-19-the-pacific-response-trendlines-from-micronesia/>).
- McElroy, J. L. (2006). Small island tourist economies across the life cycle. *Asia Pacific Viewpoint*, Vol. 47, No. 1, 61-77.
- Murphy, R. P. (2018). The connection between entrepreneurship and economic prosperity: Theory and evidence. In S. Globberman and J. Clemens (eds.), *Demographics and entrepreneurship: Mitigating the effects of an aging population* (pp. 1-41). Fraser Institute.
- Schumann, F. R. (2021). Monitoring changes in resident attitudes toward tourism development in small island destinations: What comes next in a post-COVID world? *Journal of Global Tourism Research*, Vol. 6, No. 1, 61-66.
- United Nations (2011). Small island developing states: Small islands big(er) stakes. Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLS).
- United Nations (2015). Entrepreneurship and innovation essential for growth of small island developing states: UN official. UN Sustainable Development Goals (Retrieved February 1, 2023 from <https://www.un.org/sustainabledevelopment/blog/2015/05/innovation-small-island-developing-states/>).
- University of Guam (2022). Making waves: Small island, big impact. PMBA Case Studies Report. School of Business and Public Administration, Center for Entrepreneurship and Innovation (Retrieved March 4, 2023 from <https://www.uog.edu/publications/c4ei/MakingWavesSmallIslandBigImpact140>).
- U.S. Census Bureau (2022). 2020 island areas censuses data on demographic, social, economic and housing characteristics now available for Guam (Retrieved October 29, 2022 from <https://www.census.gov/newsroom/press-releases/2022/2020-island-areas-guam.html>).
- U.S. Small Business Administration (2020). 2020 small business profile: Guam. Office of Advocacy (Retrieved April 19, 2023 from <https://advocacy.sba.gov/wp-content/uploads/2020/06/2020-Small-Business-Economic-Profile-GU.pdf>).
- Van De Ven, H. (1993). The development of infrastructure for entrepreneurship. *Journal of Business Venturing*. Vol. 8, No. 3, 211-230.
- Wilson, A. (2022). Guam's tourism tide is rising again following 'complete collapse' during pandemic (Retrieved January 22, 2023 from <https://www.stripes.com/theaters/asia-pacific/2022-12-15/guam-tourism-tumon-bay-covid-8427194.html>).


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