

ENTREPRENEURIAL ECOSYSTEMS: RURAL, SUBURBAN, URBAN AND HIGHER EDUCATION VARIATIONS

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ABSTRACT

There is a growing argument that entrepreneurship found in rural locations significantly differs from entrepreneurship found in urban or suburban locations. We wondered if we could find differences between the entrepreneurship education program and degree offerings delivered by rural universities compared to the programs and degrees offered by non-rural universities. This paper reports on a descriptive study of one university system and the degree of similarity across the number and range of entrepreneurship courses and degree programs offered by institutions in the system as it relates to their location. Initial support for guiding questions was found, which included the higher average intensity of entrepreneurship courses and programs in rural areas than those found in urban or suburban areas.

INTRODUCTION

The world has had two major disruptive events within the last couple of decades: the financial crises of 2008 (Williams, 2008) and the COVID-19 pandemic that began in 2019 (Karabag, 2020). There were also natural disasters that affected large areas such as the fires in California in 2019 and 2020 (Rauch & Hulsink, 2023). While such disruptive crises can enable entrepreneurs to start businesses, it may also cause the shutdown of others (Rauch & Hulsink, 2023). The response of entrepreneurs and the entrepreneurial ecosystem matters (Williams & Shepherd, 2016).

Small businesses across all industries drive 44% of the United States economic activity (Kobe & Svchwin, 2018). One of the suppliers of small business owners, via initiating entrepreneurs, is the beginning of the entrepreneurial ecosystem, entrepreneurship education. Interest in entrepreneurship and the number of entrepreneurship education programs at universities has grown over the last 10 to 20 years (Ratten & Jones, 2021; Welter et al., 2019) and this trend should continue into the future (Ratten & Jones, 2021). However, given these recent upsets, we wonder if the entrepreneurship training provided by education/government partnerships fits the local area economic development/redevelopment needs.

LITERATURE REVIEW

In this literature review, we will examine the state of entrepreneurship education in general and state-sponsored education in particular. Our goal is to determine if the recent past had educational programs that were contextualized to their locations. In particular, we will examine several cases of state university entrepreneurship programs and their locations via a

categorization of rural through to urban locations and determine the degree of similarity between programs in these locations. This follows the general precepts of an event-based investigation (Hoffman & Lord, 2013); (Rauch & Hulsink, 2023).

ENTREPRENEURSHIP EDUCATION

Ratten and Jones (2021) discuss that, while it faced some resistance when it was first proposed as a university discipline, "...it is now generally understood that entrepreneurship can be taught" (p.1). However, while the number of entrepreneurship education programs is on the rise, there is still disagreement as to how we define entrepreneurship education and what should be delivered in entrepreneurship education programs. There is no ubiquitous program model, teaching method, or set of courses that entrepreneurship researchers and educators widely agree upon including in every entrepreneurship education program. Recently, the stream of research related to entrepreneurial mindset, its importance for entrepreneurs, and the potential to use that approach as the focus of entrepreneurship education has become more prevalent (Kuratko et al., 2021; Neck et al., 2014).

Following contingency theory (Betts, 2003), scholars have recognized that the local or immediate context in which entrepreneurial activities take place matters (Anderson, 2000; Welter, 2011). Research in higher education has shown that students often face setting-specific variables that may differ from those of students at institutions in seemingly similar settings (Jones et al., 2022). Research has also shown that context issues related to the proto-novice entrepreneur may influence the education needs, such as the experience of first-generation students (Jones et al., 2022) along with the existence of recent external environmental events (Rauch & Hulsink, 2023).

Most agree that entrepreneurship education needs to teach students how to apply their entrepreneurial skills across a variety of environments and contexts (Neck et al., 2014). A Google search and review of existing entrepreneurship education programs shows that there are programs with a specific focus such as health care or technology, that may reflect the geographic, economic, or expertise available at the university. Furthermore, some scholars have found the resources available in a context do impact the success of those programs (Mkala & Wanjau, 2018; Mickiewicz et al., 2017). Less is understood about the degree to which the context of entrepreneurship education should reflect contextual characteristics related to the university where it is being taught, such as the local economy or the location of the principal campus of a university.

DEVELOPMENT OF GUIDING RESEARCH QUESTIONS

Contingency theory examines the 'fit' between an organization and its environment with the assumption that organizational characteristics will be contingent on environmental conditions (Betts, 2003). We base our questions on contingency theory, and particularly the location of the university offering entrepreneurship programs as part of its portfolio of degrees. In this research, our guiding questions focus on whether a higher education institution's geographic location (rural, suburban, or urban) affects its entrepreneurial degree and course offerings.

Rural Through to Urban Contexts

The focus of this paper is to take that idea of context being important for entrepreneurship and higher education and extend those theories to an examination of how the geographic location of the university – rural, suburban, or urban – might impact entrepreneurship education at that university. Scholars have determined that different local conditions drive economies based on the degree of urbanization (Ciolek et al., 2022). Having a college degree makes a difference in times of economic hardship (Vuolo et al., 2016). We know that rural areas historically have a lower percentage of adults with at least a bachelor's degree compared to urban areas (Provasnik, et al., 2007). The lower level of educational attainment in rural counties correlates to higher rural poverty and unemployment rates (Economic Research Service Staff, 2017). These facets of education and location support the earlier call by scholars to include context when doing entrepreneurship research (Anderson, 2000; Welter et al., 2019).

Guiding Questions for Rural Through Urban Locations.

According to the Economic Research Service (2021), in 2019, the share of adults with at least a bachelor's degree was 21.0% in rural areas, significantly lower than the 34.7% attainment rate in urban areas. This may be related to the number of universities available for the limited populations found in rural areas versus urban and suburban areas.

Guiding Question 1: Are there fewer universities in rural areas than in urban or suburban areas?

As mentioned earlier, the resources available also make a difference with rural institutions tending to have fewer resources available (Rosigno et al., 2006). As stated above, fewer resources for educational programs negatively impacted the success of an individual's entrepreneurial endeavors post-education. While all organizations faced with large budget cuts due to poor economic conditions will cut back on services offered, we anticipate that rural institutions will have lower budgets that may be very sensitive to economic shocks and result in the cutting of programs (Albright, 2019). Thus, rural institutions may have small numbers of programs available over time. This leads us to our next guiding research question.

Guiding Question 2: Do rural institutions have a lower number of entrepreneurship programs than suburban or urban institutions?

Something that arose during the COVID pandemic was the advent of almost all institutions of higher education using computer-mediated instruction (Park et al., 2023). Recent scholars found that the size of the institution positively impact a successful deployment of a distance education program (Park et al., 2023). Although we acknowledge that many distance education programs using computers existed before the pandemic, programs offering distance online programs in 2001 seems to be also consistent with their findings (U.S. News, 2001). Furthermore institutions who have a "growth" mandate (Hubbard, 1997) or a mandate to reach individuals in very low population areas (Stacey, 1994) have been engaged in distance learning

or online learning programs for over 25 years. This leads us to our next guiding research question.

Guiding Question 3: Will urban, suburban, and rural institutions have distance programs included in their portfolio of programs? At what percentage of total programs?

METHODOLOGY

We crafted these guiding questions to enable us to be specific about the context and timing needed for an event-based methodology. Because this methodology is relatively new in the entrepreneurship discipline (Rauch & Hulsink, 2023), we consider our bounded set of 16 case studies to be a preliminary study.

The Case Studies

Events have very specific boundaries that include time and place. In entrepreneurship literature, contextual factors including place are important influences on entrepreneurial mindset and behavior (Kuratko et al., 2021; Welter et al., 2019). In addition, while entrepreneurial activity is not evenly distributed geographically (Bennett, 2020; Kuratko et al., 2021), it is linked to institutions and characteristics of place (Kuratko et al., 2021). From the earlier discussion, educational programs, in general, reflect their history at a location (a time element) as much as they are the result of local spatial influences (place). Thus, using case studies that have specific time (all in the “present” with historical roots) and place (the three (urban, suburban, and rural) spatial conditions detailed above) to explore an “event” makes sense.

Context Choice: Institutional Typologies

Systems of universities typically are those associated with a particular country (Australia, UK); however, for the United States, such systems of universities are delegated to the state level (for example, California has two such systems, the California State University system and the University of California system). We will begin our study with a short description of the state of entrepreneurship education in the United States and then move to examining university systems in particular. To address this issue, in this study, we will restrict ourselves to one state sponsored university system with multiple relatively independent sites. Furthermore, we will restrict ourselves to states with multiple rural and non-rural locations. We chose a state in the top 10% of the population in the United States with a university system. We will examine the system as a whole to determine how many entrepreneurship offerings are provided and provide some demographics. Next, we shall categorize the university contexts into rural, suburban, and urban. We will then summarize the results of the descriptive study with recommendations for future research.

U. S. Institutions of Higher Education and Entrepreneurship

It is perhaps not surprising that in the United States, the larger universities with strong public recognition produce the largest number of entrepreneurs and companies. Stanford

University, a private university located in the Silicon Valley area, has the largest number of entrepreneurs, companies created, and money raised to open said companies (Dodgson & Gann, 2020). However, Stanford's set of entrepreneurship courses (Stanford has about 150 programs in entrepreneurship) is not expected to be useful in all situations as local and regional context should inform entrepreneurship education (Dodgson & Gann, 2020).

In the United States, the number of institutions in state-based university systems vary from a low of three sites in Montana (a state in the western part of the U.S. with a large geographic area and a low population and population density) to a high of 23 sites in the California State University system (California is the US state with the highest population (US Census Bureau Staff, 2017)).

Therefore, our research focused on identifying the set of entrepreneurship programs available on average in one university system and examined whether there were other variables, such as locale, that might explain different configurations of courses given that an entire university system may not be as large or well-funded as the stand-alone Stanford University.

CASE STUDY: UNIVERSITY OF NORTH CAROLINA (UNC) STATE SYSTEM

We were interested in examining a state and its university system that represented neither the highest nor lowest number of sites in a university system (we used the median number of 10 as the minimum number of separate locations to include), was not the fastest or slowest growing state population-wise and had areas of urbanization as well as rural areas.

Justification for Choice of UNC System

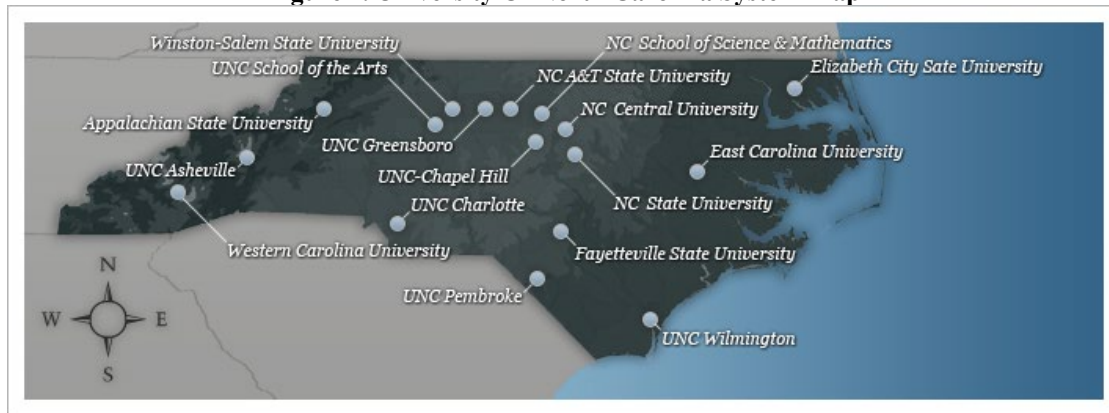
We chose to examine entrepreneurship education within the University of North Carolina system. When considering the percentage of population living in cities and towns versus in unincorporated areas, since 2019, North Carolina has 57% of its population living in urban areas and close to 43% living in rural areas (N.C. OSBM Staff, 2020). Twenty percent of North Carolina's total counties have at least 50% of their population living in urban areas (N.C. OSBM Staff, 2020). Therefore, there is a roughly equal split between urban and rural environments in North Carolina population centers. North Carolina, with an estimated growth rate since 2010 of 11.38%, was just about at the mid-point of the highest growth rate state of Utah (22.04%) (World Population Review Staff, 2022). It was also ninth in population based on estimates from the 2017 U.S. Census Bureau (World Population Review Staff, 2022). North Carolina is in the top 10 states population-wise, has recognized areas of lower population and high population, and has seen a mid-level growth rate since 2010.

Description of the University of North Carolina System

North Carolina has a university system of sixteen independently accredited colleges and universities, which include some Carnegie 1 research institutions (University of North Carolina Chapel Hill and North Carolina State University, among others). North Carolina includes the Appalachian Mountains which are a long recognized rural area (Appalachian Regional Commission Staff, 2021), high-tech areas (the Research Triangle of Raleigh-Durham-Chapel Hill) (Research Triangle Regional Partnership Staff, 2022), and two metropolitan areas (Charlotte-Concord-Gastonia, NC-SC and Raleigh-Cary, NC) with populations of more than a

million people (Statista Research Department, 2022). See Figure 1 for a North Carolina state map with the location of each University of North Carolina institution indicated (System, n.d.).

Figure 1. University Of North Carolina System Map



Source: (System, n.d.). <https://online.northcarolina.edu/system/themes/asp/img/map.png>

The University of North Carolina System has sixteen separate universities that operate under the UNC Board of Regents (UNC Headquarters Staff, 2022). The system has 244,500 students enrolled as of Fall 2021 (UNC Headquarters Staff, 2022). Table 1 identifies each of the sixteen UNC system universities and their enrollment. If divided equally among all the institutions, there would be an average of 15,280 students at each site, however, the individual universities range in size from an enrollment under 1,000 to almost 30,000 students.

| UNC SYSTEM SCHOOLS IN ALPHABETICAL ORDER | LOCATIONS | CURRENT TOTAL ENROLLMENT AT INSTITUTION | ENT UG CERTIFICATES & MINOR PROGRAMS (* indicated online distance program) | ENT UG DEGREE PROGRAMS (BS BSBA, BBA, BA) (* indicated online distance program) | ENT GRADUATE DEGREE PROGRAMS, CONCENTRATIONS, AND CERTIFICATES (* indicated online distance program) | # OF PROGRAMS | WEBSITE |
|--|--------------------|--|--|---|--|---------------|---|
| Appalachian State University | Boone, NC | 20,641 ¹ | | 1 Major in Mgt with a focus in Ent | | 1 | https://www.apstate.edu/ |
| East Carolina University | Greenville, NC | 28,021 ² | 1 UG Certificate | 1 BS in Ent | | 2 | https://www.ecu.edu/ |
| Elizabeth City State University | Elizabeth City, NC | 2,054 ³ | | 1 Major Mgt & Ent | | 1 | https://www.ecsu.edu/ |
| Fayetteville State University | Fayetteville, NC | 6,726 ⁴ | 1 Minor | 1 Major in Ent | | 2 | https://www.uncc.edu/ |
| North Carolina A&T State University | Greensboro, NC | 12,142 ⁵ <i>(Last Common Data Report 2019)</i> | | 1 Major in Mgt with a focus in Ent | | 1 | https://www.ncat.edu/ |

¹ (ASU Institutional Research, 2022)

² (ECU Institutional Research, 2022)

³ (Dr. Fred Okanda, Director OIERA, 2022)

⁴ (Fayetteville State University Staff, 2022)

⁵ (NCAT Institutional Research, 2019)

| Table 1 NC SYSTEM SCHOOLS, LOCATIONS, NUMBERS ENROLLED & LISTED ENTREPRENEURSHIP PROGRAMS | | | | | | | |
|--|---------------|---|--|---|--|---------------|---|
| UNC SYSTEM SCHOOLS IN ALPHABETICAL ORDER | LOCATIONS | CURRENT TOTAL ENROLLMENT AT INSTITUTION | ENT UG CERTIFICATES & MINOR PROGRAMS (* indicated online distance program) | ENT UG DEGREE PROGRAMS (BS BSBA, BBA, BA) (* indicated online distance program) | ENT GRADUATE DEGREE PROGRAMS, CONCENTRATIONS, AND CERTIFICATES (* indicated online distance program) | # OF PROGRAMS | WEBSITE |
| | | 13,322 ⁶ <i>(Current webpage for Fall 2021)</i> | | | | | |
| North Carolina Central University | Durham, NC | 7,953 ⁷ | | 1 Major in Ent | | 1 | https://www.nc-cu.edu/ |
| North Carolina State University | Raleigh, NC | 36,831 ⁸ | 1 UG Certificate; 4 Minors | 1 Major in Ent | 1 MBA with focus in Ent & Tech Commercialization | 7 | https://www.ncsu.edu/ |
| UNC Asheville | Asheville, NC | 3,233 ⁹ | | 1 Major in Mgt with a focus in Ent; 1 Interdisciplinary Studies Degree in Arts Mgt. & Ent | | 2 | https://www.unca.edu/ |
| UNC Chapel | Chapel | 31,733 ¹⁰ | 3 Certificates | | 1 MBA in | 7 | https:// |

⁶ (N. C. A & T Staff, 2022)

⁷ (NCCU Institutional Research, 2022)

⁸ (NCSU Institutional Strategy & Analyst Staff, 2022)

⁹ (UNCA Strategy & Analytics Staff, 2022)

| Table 1 NC SYSTEM SCHOOLS, LOCATIONS, NUMBERS ENROLLED & LISTED ENTREPRENEURSHIP PROGRAMS | | | | | | | |
|--|-------------------|---|--|---|--|---------------|----------------------------|
| UNC SYSTEM SCHOOLS IN ALPHABETICAL ORDER | LOCATIONS | CURRENT TOTAL ENROLLMENT AT INSTITUTION | ENT UG CERTIFICATES & MINOR PROGRAMS (* indicated online distance program) | ENT UG DEGREE PROGRAMS (BS BSBA, BBA, BA) (* indicated online distance program) | ENT GRADUATE DEGREE PROGRAMS, CONCENTRATIONS, AND CERTIFICATES (* indicated online distance program) | # OF PROGRAMS | WEBSITE |
| Hill | Hill, NC | | or enrichment concentrations ; 1 minor in Economics with focus in Ent | | Ent; 1 MBA with concentration in Ent; 1 Grad certificate* | | www.unc.edu/ |
| UNC Charlotte | Charlotte, NC | 30,448 ¹¹ | 1 UG Certificate | | 1 Grad certificate | 2 | https://www.charlotte.edu/ |
| UNC Greensboro | Greensboro, NC | 19,038 ¹² | 1 UG Certificate, 1 Cross-disciplinary Ent Minor | 1 BS in Ent*; 1 Cross-Disciplinary Ent Major Program | 1 Grad certificate | 5 | https://www.uncg.edu/ |
| UNC Pembroke | Pembroke, NC | 8,318 ¹³ | 1 UG Certificate* | 1 Major in Ent | | 2 | https://www.uncp.edu/ |
| UNC School of the Arts | Winston-Salem, NC | 1,070 ¹⁴ (Last | 1 Minor in Arts Mgt & | | | 1 | https://www.un |

¹⁰ (UNCCH Institutional Research & Assessment Staff, 2022)

¹¹ (UNCCharlotte Institutional Research, 2022)

¹² (UNCG Institutional Research, 2022)

¹³ (UNCP Institutional Analyst, 2022)

¹⁴ (NCSA Institutional Resesarch, 2021)

| Table 1 NC SYSTEM SCHOOLS, LOCATIONS, NUMBERS ENROLLED & LISTED ENTREPRENEURSHIP PROGRAMS | | | | | | | |
|--|-------------------|---|--|---|--|---------------|---|
| UNC SYSTEM SCHOOLS IN ALPHABETICAL ORDER | LOCATIONS | CURRENT TOTAL ENROLLMENT AT INSTITUTION | ENT UG CERTIFICATES & MINOR PROGRAMS (* indicated online distance program) | ENT UG DEGREE PROGRAMS (BS BSBA, BBA, BA) (* indicated online distance program) | ENT GRADUATE DEGREE PROGRAMS, CONCENTRATIONS, AND CERTIFICATES (* indicated online distance program) | # OF PROGRAMS | WEBSITE |
| (high school level) | | <i>Common Data Set 2020-2021)</i> | Ent | | | | csa.edu/ |
| UNC Wilmington | Wilmington, NC | 18,030 ¹⁵ | 1 Minor in Ent & Innovation | 1 Major in Management with focus in Ent & Business Development | 1 MBA with focus in Ent & Business Development | 3 | https://uncw.edu/ |
| Western Carolina University | Cullowhee, NC | 11,877 ¹⁶ | 1 Minor in Ent* | 1 BS in Ent; 1 Major in Innovation Leadership & Ent* | 1 Master of Ent program in Innovation Leadership & Ent*; 1 grad Certificate | 5 | https://www.wcu.edu/ |
| Winston-Salem State University | Winston-Salem, NC | <i>No CDS Report 2021-22 Available 5226</i> ¹⁷ | | Electives in Management & Marketing Only | | 0 | https://www.wssu.edu/ |

¹⁵ (UNCW Institutional Research, 2022)

¹⁶ (WCU Institutional Research, 2022)

¹⁷ (WSSU Data and Analytics, 2021)

Table 1 also includes information on the number and type of undergraduate and graduate degree programs, concentrations, and/or course offerings. We can see that across this system there are ten Bachelor of Science in Business Administration degrees where six have direct majors in Entrepreneurship¹⁸ and four have a major in Management with a concentration in Entrepreneurship. There is also a BS in Management with a concentration in Entrepreneurship, one BA in Interdisciplinary Studies with a major in Arts Management and Entrepreneurship, one BA in Cross-Disciplinary Entrepreneurship, and two Bachelor of Science Degrees in Entrepreneurship. In addition, there are the following offered as online or distance programs across four institutions: one graduate degree, one graduate certificate, two undergraduate degree, and two undergraduate minors or certificates. There are a total of 43 programs with 6 online degree or certificate programs. So, 14.3% of all programs in Entrepreneurship offered in North Carolina are offered online.

At the graduate level, across the 16 universities in the UNC system, there is one Master of Entrepreneurship degree and three MBAs with a focus on or concentration in Entrepreneurship. There are also two institutions with no entrepreneurship program offerings and only a few courses available and one with only a minor in Arts Management and Entrepreneurship available. This means that as of now, all institutions in the UNC system have at least some courses in Entrepreneurship and 87.5% have one or more programs in Entrepreneurship.

Definition and Classification of Institutional Locations

To enable consistent comparison, we began by looking at the National Center for Education Statistics (NCES) locale classification framework, a commonly used geographic indicator (Geverdt, 2019). The framework identifies four basic types of locales – Rural, Town, Suburban, and City – with three sub classifications for each type (Geverdt, 2019). Classification is determined “based upon a combination of population size and distance from the nearest metropolitan center” (Lavalley, 2018); areas with a population of 50,000 or more are defined as “Urbanized Areas”.

We reduced the NCES classifications from four general categories to three utilizing population and closeness to a metropolitan area to classify each university locale for our data analysis purposes. Our recategorization combined the NCES Rural and Town categories into one category that we labeled as “Rural.” The NCES Suburban general category definition and Suburban name were retained. The NCES City category definition was retained; however, the category was relabeled to “Urban”. The three categories we used in our analysis are defined according to the information in Table 2.

¹⁸ These degrees may be called Entrepreneurship & Innovation or other variations but for convenience here will just be referred to as entrepreneurship.

| CATEGORY | DEFINITION |
|----------|---|
| Rural | Institution is located in areas with a population of less than 50,000 and at least 40 miles away from an Urbanized Area |
| Suburban | Institution is located in or within an Urbanized Area with a population of 50,000 to 100,000 |
| Urban | Institution located in an Urbanized Area with a population of 100,000 or more |

While, these categories do not exactly correspond to the NCES or U.S. Census definitions of rural and urban areas, the definitions are close approximations and are in alignment with how other higher education research explains the differences between rural and urban universities.

Distribution of Rural, Suburban, and Urban Institutional Locations. Part of our earlier discussion was that while entrepreneurial contexts, such as geography, make a difference in entrepreneurial practice and/or education (Kuratko et al., 2021; Welter, 2011; Welter et al., 2019), our research question was whether an institutions' geographical context made a difference in the type and number of entrepreneurship programs offered.

As discussed in our definition of institutional locations in Table 2, we defined rural as institutions located in towns with populations of 50,000 or less which are located more than 30 minutes from a town of more than 50,000 population in an area where the population density is low. If a town is within a small margin of these values, we will allow it to be classified as stated above. However, institutions located in towns above 50,000 will not be classified as rural. Suburban locations will be those of any size that are in or within 40 miles of towns with a population between 50,000 and 100,000. They may be in low or average population density areas. Urban locations will be those with towns of at least 100,000 in population. Information on the distance between cities utilized to determine institution category was calculated using Google Maps (Google Maps Staff, 2022).

Using City-Data (City-Data Staff, 2023) sources on the various towns along with data from the World Population Review (World Population Review Staff, 2022) we pulled information about the towns in which the various 16 institutions of the University of North Carolina System are located. This data was analyzed, and the various institutions were classified as Rural, Suburban, or Urban as shown in Table 3.

| Table 3 | | | | | | |
|---|-------------------------------------|---------------------|--|-------|----------|-------|
| LOCALE CLASSIFICATION OF UNC SYSTEM INSTITUTIONS | | | | | | |
| # | UNIVERSITY | UNIVERSITY LOCATION | UNIVERSITY LOCATION POPULATION (City Data Staff, 2023b) (DISTANCE TO LARGER TOWN AND ITS POPULATION) | RURAL | SUBURBAN | URBAN |
| R1 | Appalachian State University | Boone, NC | 18,130 (> 40 Miles to Johnson City, TN; 55,469) | X | | |
| U1 | East Carolina University | Greenville, NC | 89,852 (largest town within 40-mile radius) | | | X |
| S1 | Elizabeth City State University | Elizabeth City, NC | 18,047 (< 40 miles to Chesapeake VA; 199,184) | | X | |
| U2 | Fayetteville State University | Fayetteville, NC | 203,948 | | | X |
| U3 | North Carolina A&T State University | Greensboro, NC | 282,586 | | | X |
| U4 | North Carolina Central University | Durham, NC | 251,893 | | | X |
| U5 | North Carolina State University | Raleigh, NC | 439,896 | | | X |
| S2 | UNC Asheville | Asheville, NC | 87,882 (the largest population center within 40-mile radius) | | X | |
| S3 | UNC Chapel Hill | Chapel Hill, NC | 59,376 (< 40 miles to Raleigh, NC 439,896) | | X | |
| U6 | UNC Charlotte | Charlotte, NC | 809,958 | | | X |
| U7 | UNC Greensboro | Greensboro, NC | 282,586 | | | X |
| R2 | UNC Pembroke | Pembroke, NC | 3,011 (>40 miles to Fayetteville, NC, 211,657) | X | | |
| U8 | UNC School of the Arts | Winston-Salem, NC | 239,269 | | | X |
| U9 | UNC Wilmington | Wilmington, NC | 113,657 | | | X |

| # | UNIVERSITY | UNIVERSITY LOCATION | UNIVERSITY LOCATION POPULATION (City Data Staff, 2023b) (DISTANCE TO LARGER TOWN AND ITS POPULATION) | RURAL | SUBURBAN | URBAN |
|-----|--------------------------------|---------------------|--|-------|----------|-------|
| R3 | Western Carolina University | Cullowhee, NC | 6,228 (> 40 miles to Asheville, NC, 87,882) | X | | |
| U10 | Winston-Salem State University | Winston-Salem, NC | 239,269 | | | X |

Table 3 reveals three rural locations, three suburban locations, and ten urban locations. The most western institution, Western Carolina University (R3) is 462 miles away from the most eastern institution of Elizabeth City State University (S1) (Google Maps Staff, 2022). We will be comparing institutions on multiple variables within each institutional category and then across institutional categories. Initially, we will look at similarity of degrees. We will examine each category in the above order. We will include a discussion of the program characteristics at each institution (See Tables 4, 5 and 6).

The Rural Institutions

Three UNC institutions were categorized as rural institutions. This means that they were in locations of less than 50,000 people and were more than 40 miles from the nearest town of 50,000. The three UNC institutions classified as rural are Appalachian State University (R1), UNC Pembroke (R2) and Western Carolina University (R3).

| # | UNIVERSITY | UNIVERSITY LOCATION | UNIVERSITY LOCATION POPULATION | POPULATION DENSITY PER SQUARE MILE | PER CAPITA INDIVIDUAL ANNUAL GROSS INCOME | MEDIAN GROSS RENT PER MONTH | ENT PROGRAMS OFFERED | NUMBER OF ENT COURSE OFFERINGS |
|----|------------------------------|---------------------|--------------------------------|------------------------------------|---|-----------------------------|---|--------------------------------|
| R1 | Appalachian State University | Boone, NC | 18,130 | Average 3,368 | \$14,486 | \$993 | <ul style="list-style-type: none"> • 1 Major in Mgt with a focus in Ent | 13 |
| R2 | UNC Pembroke | Pembroke, NC | 3,011 | Low 1,259 | \$11,024 | \$589 | <ul style="list-style-type: none"> • 1 Major in Ent | 6 |
| R3 | Western Carolina University | Cullowhee, NC | 6,228 | Low 1,711 | \$8,545 | \$774 | <ul style="list-style-type: none"> • 1 BS in Ent • 1 Major in Innovation Leadership & Ent • 1 Master of Ent program in Innovation Leadership & Ent • 1 Grad Certificate | 26 |

Rural Institutions’ Location Demographics. R1 is in an area of average density of people/sq mile while R2 and R3 happened to be in areas of low population density (City-Data Staff, 2023). The rural institutions are not located close to each other in North Carolina. R1 and R3 are in the western part of North Carolina but separated by 125 miles (Google Maps Staff, 2022). R2 is in the southern part of the state closer to Freeway 95 which is a major north-south interstate freeway connecting the eastern part of North Carolina and the United States. R3 is located 125 and 284 miles from R1 and R2 respectively (Google Maps Staff, 2022).

Each of these rural locations had estimated per capita income of less than \$20,000/year (City-Data Staff, 2023). R1’s location has the highest average income at \$14,486 and the highest rent at \$993/month (\$11,916/year); therefore, rent is about 82.3% of an individual’s income. R2 is at the middle level of individual income at \$11,024/year and the lowest rent at \$589/month (\$7068/year) which indicates rent equaling 64% of annual gross income. R3 is in a location with the lowest average income per individual at \$8,545/year and the middle level of rent at \$774/month (\$9288/year) which indicates that rent is at 108.7% of an individual’s gross income. All three results imply that people rent a home in groups rather than as individuals. From Table 4, R1 is in the largest town at just under 20,000 people; R2 is in the smallest town at just above 3000 people and R3 was in the middle as a town of just over 6000 people.

Rural Institutions' Entrepreneurship Programs

The degree offerings from rural institutions differed by number of degrees offered. In alphabetical order, and based on their web sites, the first rural institution, R1, offered one degree (ASU Staff, 2022). The second rural institution in the south, R2, offered one degree (UNCP Staff, 2022) while the third rural institution, R3, offered five degrees (WCU Staff, 2022). All three institutions offered AACSB-accredited Bachelor of Science in Business Administration degrees with two offering majors in entrepreneurship (R2 & R3). One offered an entrepreneurship concentration in its management major (R1). All three institutions can be considered as being in college towns since the average age of the town's population was in the low twenties and the size of the university exceeded 50% of the size of the town (see Tables 1 and 3).

The classes involved in each institution's entrepreneurship programs were pulled from the publicly available information on their websites (see Table 1). In the rural category, the institutions (R1, R2 and R3) have programs that are offered using 13 classes, 6 classes, and 21 classes, respectively. On average, they teach 52% of the same courses as another rural institution but no classes are universal across all three universities. Institutions R1 and R2 (each only having one entrepreneurship related BSBA degree program) had no classes in common. The university with the 5 degree-programs (R3) had 40% in common with the first university (R1) and 20% in common with the second university (R2). Enrollment figures from Table 1 show that R1 institution at 20,641 students is the largest rural institution. R2 is the smallest rural institution at 8,318 students. R3 is the second largest at 11,877 students. Rural Institutions offered 1.3 entrepreneurship classes on average.

The Suburban Institutions

Three UNC institutions were classified as Suburban institutions because they were in locations with populations below 100,000 but within 40 miles of an Urban Area. The three UNC institutions that were classified as Suburban in alphabetical order are Elizabeth City State University (S1), UNC Asheville (S2), and UNC Chapel Hill (S3).

| # | UNIVERSITY | UNIVERSITY LOCATION | UNIVERSITY LOCATION POPULATION | POPULATION DENSITY PER SQUARE MILE | PER CAPITA INDIVIDUAL ANNUAL GROSS INCOME | MEDIAN GROSS RENT PER MONTH | ENT PROGRAMS OFFERED | NUMBER OF ENT COURSE OFFERINGS |
|----|---------------------------------|---------------------|--------------------------------|------------------------------------|---|-----------------------------|--|--------------------------------|
| S1 | Elizabeth City State University | Elizabeth City, NC | 18,047 | Low 1,986 | \$24,292 | \$984 | <ul style="list-style-type: none"> • 1 Major Mgt & Ent | 2 |
| S2 | UNC Asheville | Asheville, NC | 87,882 | Low 2,269 | \$38,068 | \$1,150 | <ul style="list-style-type: none"> • 1 Major in Mgt with a focus in Ent • 1 Interdisciplinary Studies Degree in Arts Mgt. & Ent | 7 |
| S3 | UNC Chapel Hill | Chapel Hill, NC | 59,374 | Average 3,242 | \$43,864 | \$1,358 | <ul style="list-style-type: none"> • 3 Certificates or enrichment concentrations • 1 minor in Economics with focus in Ent • 1 MBA in Ent • 1 MBA with concentration in Ent • 1 Grad certificate | 15 |

Suburban Institutions' Location Demographics. These suburban institutions, while all classified as suburban, are in very different locations. From Table 5, we can see that S1 is located in a town of 18,047, S2 is located in an area with a population of 87,882 and is the largest town within 40 miles, while S3 is in a town with a population of 59,374, but within 40 miles of still larger towns. Thus, all three can be classified as suburban locations. S1 and S2 are in areas of low populations density in people/sq mile, with S3 in an area of average population density (City-Data Staff, 2023). Being separated by a minimum of 193 miles and a maximum of 417 miles (Google Maps Staff, 2022) the suburban institutions are not located in close proximity to each other across North Carolina.

According to Table 1, S1 is in the north-eastern part of North Carolina, S2 is in the central part of the state and is a part of the research triangle, while S3 is in the western part of the state (UNC Staff, 2022). S1 is in a North Carolina town about 30 miles from Chesapeake, VA (population: 199,184) which itself is a suburb of Norfolk, VA. S2 is in Asheville, NC (population: 87,882) which is the largest urban area within 40 miles. S3 is located in a suburb of Durham, NC (population: 251,893) and of Raleigh, NC (population: 439,896).

Each of these locations had average individual incomes that were very different using information from the City-Data website (City-Data Staff, 2023). S1 has an average annual gross income per person of about \$24,292/year, S2 has an average annual gross income per person of

\$38,068, while S3 had an annual per person income of \$43,864 (City-Data Staff, 2023). S1 had the lowest median rent of \$984/month (\$11,808/year) which indicates rent equaling 48.6% of annual individual gross income. S2 had a median gross rent of \$1,150/month (13,800) or about 36% of annual individual gross income, while S3 had the highest median rent at \$1,358/month (16,296) or about 37% of an individual's annual income. On each dimension of the location, there were vast differences among the three institutions' contexts.

Suburban Institutions' Entrepreneurship Programs. The degree offerings of suburban institutions differed by number of degrees offered. In using the locations numbering, and based on their web sites, the first suburban institution (S1) offered one entrepreneurship bachelor's degree (ECSU Staff, 2022). S2 offers one management bachelor's degree with an emphasis in entrepreneurship as well as major and minor programs in arts management and entrepreneurship. S2 had seven entrepreneurship courses with four of them being special topics which implies that they are not offered routinely. S3 did not offer a bachelor's degree in entrepreneurship but offered two different MBA programs and a minor in economics with a concentration in entrepreneurship and an "enrichment" concentration in entrepreneurship for any of its undergraduate program (UNC Staff, 2022). S3's "enrichment" concentrations in the undergraduate area enable the offering of 15 different undergraduate classes while the one degree from S1 only offers two elective entrepreneurship courses. This disparity appears to be linked to the number of students at each institution with S1 only having 2,054 students and S3 having over 15 times as many students at 31,733. There is only one class topic in common, global entrepreneurship. Suburban institutions offer 8 entrepreneurship courses on average.

The Urban Institutions

Ten UNC institutions were categorized as urban institutions. This means that they were in locations with a population of at least 100,000 people or a population of at least 50,000 and the largest town for a radius of 40 miles. The ten UNC institutions classified as Urban in alphabetical order are Eastern Carolina University (U1), Fayetteville State University (U2),

| Table 6 URBAN UNC SYSTEM INSTITUTION SUMMARY DATA (City-Data Staff, 2023) | | | | | | | | |
|--|-------------------------------------|---------------------|--------------------------------|------------------------------------|---|-----------------------------|--|--------------------------------|
| # | UNIVERSITY | UNIVERSITY LOCATION | UNIVERSITY LOCATION POPULATION | POPULATION DENSITY PER SQUARE MILE | PER CAPITA INDIVIDUAL ANNUAL GROSS INCOME | MEDIAN GROSS RENT PER MONTH | ENTREPRENEURSHIP PROGRAMS OFFERED | NUMBER OF ENT COURSE OFFERINGS |
| U1 | East Carolina University | Greenville, NC | 89,852 | Average 3,652 | \$29,097 | \$844 | <ul style="list-style-type: none"> • 1 UG Certificate • 1 BS in Ent 2 PROGRAMS | 11 |
| U2 | Fayetteville State University | Fayetteville, NC | 203,948 | Average 3,602 | \$27,983 | \$1,065 | <ul style="list-style-type: none"> • 1 Minor; • 1 Major in Ent 2 PROGRAMS | 10 |
| U3 | North Carolina A&T State University | Greensboro, NC | 289,586 | Average 2,834 | \$32,208 | \$1,003 | <ul style="list-style-type: none"> • 1 Major in Mgt with a focus in Ent 1 PROGRAM | 6 |
| U4 | North Carolina Central University | Durham, NC | 251,893 | Average 2,948 | \$42,469 | \$1,182 | <ul style="list-style-type: none"> • 1 Major in Ent 1 PROGRAM | 6 |
| U5 | North Carolina State University | Raleigh, NC | 439,896 | Average 4,137 | \$44,001 | \$1,256 | <ul style="list-style-type: none"> • 1 UG Certificate • 4 Minors • 1 Major in Ent • 1 MBA with focus in Ent & Tech Commercialization 7 PROGRAMS | 11 |
| U6 | UNC Charlotte | Charlotte, NC | 809,958 | Average 3,656 | \$44,593 | \$1,301 | <ul style="list-style-type: none"> • 1 UG Certificate • 1 Grad Certificate 2 PROGRAMS | 2 |

| | | | | | | | | |
|-----|--------------------------------|-------------------|---------|---------------|----------|---------|--|----|
| U7 | UNC Greensboro | Greensboro, NC | 282,586 | Average 2,834 | \$32,208 | \$1,003 | <ul style="list-style-type: none"> • 1 UG Certificate • 1 Cross-disciplinary Ent Minor • 1 BS in Ent • 1 Cross-Disciplinary Ent Major • 1 Grad Certificate 5 PROGRAMS | 36 |
| U8 | UNC School of the Arts | Winston-Salem, NC | 239,269 | Low 2,278 | \$34,025 | \$877 | <ul style="list-style-type: none"> • 1 Minor in Arts Mgt & Ent 1 PROGRAM | 1 |
| U9 | UNC Wilmington | Wilmington, NC | 113,657 | Average 3,018 | \$46,223 | \$1,142 | <ul style="list-style-type: none"> • 1 Minor in Ent & Innovation • 1 Major in Management focus in Ent & Business Development • 1 MBA with focus in Ent & Business Development 3 PROGRAMS | 12 |
| U10 | Winston-Salem State University | Winston-Salem, NC | 239,269 | Low 2,278 | \$34,025 | \$877 | <ul style="list-style-type: none"> • Electives in Management & Marketing Only 0 PROGRAMS | 3 |

North Carolina A&T State University (U3), North Carolina Central University (U4), North Carolina State University (U5), UNC-Charlotte (U6), UNC-Greensboro (U7), UNC-School of the Arts (U8), UNC Wilmington (U9), and Winston-Salem State University (U10).

Urban Institutions' Location Demographics. The urban institutions are located in cities of varying sizes, as seen in Table 6. U1 is in a city with a population of 89,852 (it is the largest town in a 40-mile radius therefore qualifies as urban) and U9 is in a city of 113,657 population. Six institutions have populations that range between 203,948 and 289,586. U5 is located in a city with a population of 439,897 and U6 is located in the most populous city of Charlotte at 809,958. Eight institutions are located in areas with an average population density with U8 and U10 (both in Winston-Salem) considered to be in a low population density area. The ten urban institutions are located primarily in the central and eastern regions of NC. The far western region of NC, reflecting approximately 20% of NC's geographic area, includes two rural and one suburban institution with no institutions designated as urban. The western-most university, Western Carolina University (R3) is 186 miles and 196 miles distant from the western-most urban universities of UNC Charlotte (U7) and UNC School of the Arts (U8) respectively (Google Maps Staff, 2022). The distance between urban institutions ranges from being located in the same city

(U3 and U7 in Greensboro; U8 and U10 in Winston-Salem) to a distance of approximately 230 miles.

Furthermore, there was a wide range of income and rental costs across institutions as seen in Table 6. Individual annual income ranged from \$27,983 to \$46,223 while median gross monthly rent ranged from \$844 to \$1,301. U2 had the lowest individual income of \$27,983 with median rent of \$844 or 36% of income. U9 had the highest individual income at \$46,223 with median rent of \$1,142 or 29.6% of income. The highest income was closest to U9 while the highest rent was closest to U6.

Urban Institutions' Entrepreneurship Programs. The number of entrepreneurship programs and courses offered by urban institutions also varied greatly from zero to seven programs and one to thirty-six courses. The population of the city where an institution was located did not appear to impact its number of program or course offerings. U1 in a city with the lowest urban population of 89,852 (the largest town in a 40-mile radius) offered two programs and 11 courses while U6, located in the city with the highest population of 809,958, offered two certificate programs and two courses. U10 offered no programs and three courses in a city with population of 239,269 while U5 offered seven programs and eleven courses in a city of 439,896. U7 in a city with a population of 282,586 had five programs and 36 courses—16 of which were unique to that institution only. There was an average of 9.8 courses for the urban institutions.

Distance Entrepreneurship Programs

Three institutions, one each from the urban, suburban, and rural locale categories, offer the option of a 100% distance program in entrepreneurship (UNC System, 2023). The rural institution (R3) is the only institution offering more than one distance program with both an undergraduate (BSBA) and graduate (ME) degree in Innovation Leadership and Entrepreneurship. The other two institutions offer one program each with U7 offering a distance bachelor's (BS) in Entrepreneurship degree and S3 providing a post baccalaureate certificate (PB) in Entrepreneurship and Strategy. UNC institutions have increasingly been offering online courses or hybrid programs at both the undergraduate and graduate level; therefore, individual online entrepreneurship courses are accessible. However, currently only these four programs offer complete degrees or certificates in a 100% online distance format.

Recall from the discussion on the number of courses offered by each type of Higher Education Institution that Rural areas offered on average 11 courses; Suburban areas offered on average 8 courses and Urban areas offered on average 9 courses. From that we could see that rural areas had significantly more course offerings in entrepreneurship than the urban or suburban areas as it was more than a standard deviation higher in its course offerings. When the programs offered are considered, the rural area institutions offer 2.33 programs on average; the suburban area institutions offer 3.33 programs on average and the urban area institutions offer 2.4 entrepreneurship programs on average. This has no real pattern. When those institutions from areas with high professional and scientific contributions to jobs in their areas are removed (this exception was also one used earlier), then we see that rural offerings of 2.33 on average remain the same, suburban offerings drop to 1.5 programs, and urban offerings drop to 1.8 programs. The Rural program offerings are one standard deviation above the average program offerings and the other two are within one standard deviation of the average. We conclude that whether measuring by courses offered or by programs, the rural area institutions have more

entrepreneurial offerings than average while suburban and urban areas are usually within the average number of entrepreneurial offerings.

DISCUSSION

Fragmented views of a discipline are not just a frustration for the advancement of scholarly work but also are an issue for the development of curricula for the disciplines as well (Daenekindt & Huisman, 2020). In a relatively new and rapidly growing discipline such as entrepreneurship education (Ratten & Jones, 2021), this can be especially problematic (Neck et al., 2014). Given the call for entrepreneurship programs to be contextualized, it is very important that work is done that holds as much of the context steady so that other contingent factors can be more readily discerned. We reported today on such a case study. We held the higher institution system, and the general influence of the state constant and looked at other locational contingency factors.

The emerging entrepreneurship discipline has certainly shown great variation in general when examining what it means to be an entrepreneur (Black, 1998) and what is needed for new ventures to start (Razmdoost et al., 2020). While the past 20 years saw great growth in entrepreneurship programs, during the midst of the Covid-19 pandemic the World Economic Forum posted an online article calling for more university support for student entrepreneurs (Dodgson & Gann, 2020) to help in the post-Covid-19 pandemic economic recovery. Loss of jobs leading to necessity entrepreneurship on its own is insufficient; opportunities need to be pursued and new ventures developed (Acs, 2006).

Our research was framed by three guiding questions. The first called for us to examine the pattern of university offerings by urbanization categories. We wondered if there were fewer university in rural areas versus suburban or urban areas. We found that there were the same number as in suburban areas (3 in each area) and a much smaller number than in urban areas (11 in urban areas). The second guiding question looked at the offering of entrepreneurship programs across these categories. In North Carolina's state sponsored higher education system, there are few entrepreneurship-only degree programs at both the undergraduate and graduate levels in general. Most entrepreneurship education courses are delivered in the form of a concentration under another degree program such as business and in particular business management. Universities offering entrepreneurship certificate or degree programs may at the same time only offer one or two entrepreneurship discipline courses. However, contrary to our questions' implication, the rural areas had higher numbers of entrepreneurship courses and on average programs per institution. We also found that 14.3% of the programs offered in North Carolina are offered online but that is from only one-fourth of the institutions in North Carolina. Two of those four institutions are based in rural locations. We found that state sponsored institutions did contextualize their offerings to the economic needs of their locations. Rural institutions had a significantly higher than average number of entrepreneurship courses and degree programs including both residential and online programs.

LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

This case study was limited as it compared a small sample of schools located within one public university system. Jones et. al. (2022), highlighted that identifying a university as rural, suburban, or urban based on its geographic location may lead to assumptions that all members of

a geographic category will have similar characteristics. We were very conservative in our definitions for rural, suburban, and urban universities taking a macro-level approach utilizing only these three categories instead of the twelve possible categories available in the NCES classification system.

This study has opened several potential avenues for further exploration of the impact of context on entrepreneurship education both based on location and on other variables. For example, will larger institutions offer a greater number of entrepreneurship programs or courses than smaller institutions? Will whether a program is delivered face-to-face or online mitigate the contextual factor of university location? Are rural universities with online programs serving urban as well as rural students and what is the impact of that on program and course contextual factors? Finally, will institutions in regions known for “science or technology” have a greater number of entrepreneurship programs or courses?

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