

# CHAPTER 1

## INTRODUCTION

An aging population is predicted to cause two economic problems — a labor force shortage and the Social Security fund exhaustion. In academia, although aging, as a demographic phenomenon and trend in many countries, has been heatedly discussed in health research, welfare benefit discussions, labor force shortage concerns, and fiscal policies, most of these researches have treated older people as a burden of the economy.

While numerous policy approaches have been discussed in the literature to deal with the above two problems, a labor force shortage and the Social Security fund exhaustion, limited attention has addressed entrepreneurship among the elderly (called “elderly entrepreneurship” throughout this book<sup>2</sup>) as a viable solution to the aging-related social and economic problems. Involving more seniors in the labor force, particularly as entrepreneurs, can possibly not only enlarge the labor force size, but also increase the Social Security Trust Fund. This would in turn have a positive impact on regional economic growth. Although some literature suggests involving seniors in the labor force, the focus of most of this line of literature does not fall on seniors who are older than average retirement ages. Instead, younger seniors who are about to retire or even younger are typically the subjects in this line of literature.

There also exists an issue on how to motivate skilled seniors to remain in or return to the labor force. Forcing them to continue working after the age they wanted to retire is not necessarily a good strategy because it could result in seniors’ reduced life satisfaction. Compared with wage-and-salary jobs, elderly entrepreneurship has its special advantages. In wage-and-salary

workplaces, there exists social discrimination against seniors; wage-and-salary jobs typically do not offer enough flexibility to meet seniors' needs and time arrangements. On the other hand, entrepreneurship can offer more flexibility, and more importantly, more control that could enhance seniors' life satisfaction. In this background, elderly entrepreneurship can potentially become a viable solution to involving seniors in the labor force. Hence, it is an interesting research question whether developing elderly entrepreneurship could be an effective way to retain seniors in the labor force.

However, entrepreneurship is typically perceived and described as a privilege and opportunity for younger people and whether the elderly population can be as entrepreneurial is in question. There is also a question as to whether elderly entrepreneurship, if it is existent and possibly even prevalent, can have a significant positive impact on regional economic growth and can help mitigate the related prognostic labor and fiscal crises, and if so, how large these impacts could be.

At the same time while demographic challenges approach us, the economic transition to the "knowledge economy" (or the "knowledge-based economy" or the "new economy") might provide some special opportunities which might help to mitigate the potential problems that are related to the aging population. The discussion on this economic transition centers on the shift from the old so-called "Fordist economy" to a "knowledge economy" and on the role of entrepreneurship in the "knowledge economy". Although entrepreneurship, particularly new-technology related entrepreneurship or innovation entrepreneurship according to Baumol (1993), is not typically associated with older people, the "knowledge economy" may offer special opportunities to the elderly<sup>3</sup>. The "knowledge economy" emphasizes the role of knowledge and brainpower. This new economy (i.e., "knowledge economy") is less physically demanding and it offers more locational flexibility that is facilitated by the information technology. Many seniors have rich accumulated knowledge and work-related skills that are particularly valuable assets in the "knowledge economy". The lower physical requirement in the "knowledge economy" makes it more possible for seniors to participate in economic activities.

At this historical juncture where an aging population and “knowledge economy” coexist, it could be extremely relevant and meaningful to explore entrepreneurship among the elderly, to explore the economic role of elderly entrepreneurship, if existent, in boosting the productivity in an aging society, and to explore the possibility and magnitude for elderly entrepreneurship to mitigate the potential aging-resulted crises. If it were found that elderly entrepreneurship has a positive role in regional economic growth, employment contribution, and the Social Security fund, encouraging elderly entrepreneurship would be extremely beneficial and critical to our aging society. This above statement is made under the assumption that developing elderly entrepreneurship will not reduce seniors’ life satisfaction. In fact, developing elderly entrepreneurship is a process of recognizing seniors’ human capital and brain power, which would elevate social respect toward seniors, reduce social discrimination against them, even increase seniors’ wealth, and eventually enhance seniors’ life satisfaction.

In this context, it would also be important to explore the factors that drive elderly entrepreneurship and therefore to derive policy implications from these findings. Thus, while the body of research and literature on this topic is very thin, elderly entrepreneurship is worth investigating. This book addresses the dynamics and the role of elderly entrepreneurship in the U.S. economy.

## 1. Definitions

This book defines three terms: elderly, entrepreneurship, and “knowledge economy”. The *elderly* are defined as those aged 62 or above. The rationale of using this definition is based on two facts: First, the average retirement age in the United States is 62 (Gendell, 2001); second, age 62 is the initial eligibility age to receive Social Security benefits in the United States.

The measure that this book uses for *entrepreneurship* is the knowledge-based unincorporated and incorporated self-employment<sup>4</sup>. According to other studies, particularly in the elderly entrepreneurship literature,

self-employment is a best-available measure for entrepreneurship (Evans and Leighton, 1989; Blanchflower *et al.*, 2001). However, there are three drawbacks of using self-employment as a measure for entrepreneurship: first, it does not emphasize knowledge intensity and it does not address the notion of innovation; second, it tends to refer to sole proprietors and partnership owners in most datasets and thus excludes incorporated business owners or those business owners who count themselves as employees in survey data; third, using seniors' self-employment rate as a measure does not necessarily characterize establishment of the new startups by the elderly of a region. In another word, this concept reflects entrepreneurship stock, not flow.

To avoid the first drawback, only knowledge-based self-employment is used in the definition of entrepreneurship in this book. Although knowledge intensity and innovation is not always argued to be a necessary key element of entrepreneurship, it is through new technology and innovation that the value of entrepreneurship was identified in economic growth (see Schumpeter, 1950). In this case, the knowledge base of business ownership would help to delineate entrepreneurship.

To avoid the second drawback, this book includes incorporated business owners in self-employment data. Incorporated business ownership is an important part of entrepreneurship.

For the third drawback, current data does not offer information on newly established business owners who are aged 62 or above. Using the marginal increase in elderly knowledge-based self-employment over years was once considered to measure the establishment of new businesses by the elderly. However, regional change in elderly self-employment does not necessarily reflect the level of elderly startups. Firm survival and migration (and immigration) could contribute to the change as well.

The measure of entrepreneurship that is employed in this book, i.e. the knowledge-based incorporated and unincorporated self-employment, is, therefore, the best available proxy measure to entrepreneurship.

Additionally, using knowledge-based unincorporated and incorporated self-employment to measure entrepreneurship avoids some of the problems associated with other measures that are typically used in the literature. One measure, regional R&D expenditures tend to underestimate small-business entrepreneurship (Acs and Audretsch, 1990). Another measure, startups (Audretsch and Keilbach, 2004), only emphasize the first stages of a venture's development and ignore whether or not a firm survives. Although it is possible to use the available data to create a time series measure of new companies in a region by year (Acs *et al.*, 2007), which seems to in part address this issue, this measure has a high requirement on data and it requires data to have consistent measurements across all years. Most importantly, those alternative measures typically do not offer information on business owners' age, which makes it inconvenient to conduct research on elderly entrepreneurship.

In this book, the measure of entrepreneurship, instead of measuring its flow, measures its stock at a location at a certain time. Elderly entrepreneurs thus include two groups of seniors: (1) those seniors who establish new businesses after the age of 62, and (2) entrepreneurs who continue to be entrepreneurs after the age of 62.

This book also defines the “*knowledge economy*”. It is in the knowledge-based economic context that elderly entrepreneurship becomes more possible and especially valuable. The knowledge base relies on human capital and the “knowledge economy” is less physically demanding. The reliance on human capital instead of physical labor in the “knowledge economy” makes it more possible for seniors to stay in the labor force and makes seniors' cumulated insights, skills, and business ties particularly valuable.

The scale or size of the “knowledge economy” (or knowledge-base sectors) is defined by the “creative class” employment that is addressed in Florida (2004)<sup>5</sup>. The term “creative class” has a clear occupational classification<sup>6</sup> and delineates creativity, knowledge base, and innovation. Reich (1992), a previous attempt to describe the “knowledge economy”,

defined those in the knowledge-based occupations as “symbolic analysts”. According to Reich (1992), symbolic analysts solved, identified, or brokered problems by manipulating symbols or abstract images using analytical tools (such as mathematics, financial gimmicks, and legal arguments). Eventually, the work of the symbolic analysts transforms the symbols into products and services or, thus, reality. Reich’s concept was interesting, but he did not offer a clear operational definition that could provide a classification of occupations. Florida (2004) addressed this concern and provided a definition for the “creative class” under the U.S. Standard Occupation Classification System Codes (SOC). The creative class jobs include knowledge-intensive jobs, such as scientist, engineers, and other professional occupations. Although Florida’s creative class was intended to address human creativity<sup>7</sup>, his classification was conceptually quite similar to Reich’s characterization of knowledge-based occupations. Florida observe that creativity was becoming more valuable in today’s global economy and found that the creative class comprised about 30% to 40% of the current U.S. labor force. Within the last decade, this segment of the labor force had increased a great deal.

## **2. Research Hypotheses and Data**

This book specifically examines seniors’ propensity to become entrepreneurs, the factors that contribute to this propensity, and at a macro level, the regional economic, labor, and fiscal impacts of elderly entrepreneurship. The existent literature has not address the importance of elderly entrepreneurship in the knowledge-based economic setting and in the aging demographic setting; it sheds only a partial light on the relationship between old age and entrepreneurship; it does not examine the effects of social policies and related factors on elderly occupational choice studies; it has not focused on the regional distribution of elderly entrepreneurship; it has not addressed the impact of elderly entrepreneurship on the regional economy; it has not considered elderly entrepreneurship as a possible solution to the aging-related labor and fiscal crises. This book attempts to bridge these gaps in the literature and address and even empirically test the propensity, factors, regional distribution, and economic, labor, and

fiscal roles of elderly entrepreneurship. The initial research questions to be explored in this book are:

Is entrepreneurship an effective way to retain or attract seniors back in the labor force? What are the reasons that offer the possibility and necessity for elderly entrepreneurship? What are the sectoral preferences of senior entrepreneurs and is the “knowledge economy” a fertile economic environment for the elderly to become entrepreneurs?

Then, further testable research questions that will be addressed with empirical evidences include:

- (1) Are seniors more likely to be entrepreneurs than those in younger working cohorts?
- (2) What are the social or policy-related factors that contribute to elderly entrepreneurship? How do seniors’ individual characteristics affect their propensity to become entrepreneurs?
- (3) Does elderly entrepreneurship tend to cluster with certain proximity? Are there regional disparities in elderly entrepreneurship distribution in the United States? Do regional entrepreneurship environments and knowledge base affect the regional level of elderly entrepreneurship?
- (4) Does elderly entrepreneurship have a positive impact on regional economic growth, and if so, how significant is the impact?
- (5) Does elderly entrepreneurship help to increase the labor force size and existent Social Security fund contribution?

The above research questions motivate the following hypotheses that will be addressed in the book:

- (1) Entrepreneurship is an effective way to retain or attract seniors in the labor force due to many personal reasons and social readiness that provide seniors the possibility and necessity to become entrepreneurs. The “knowledge economy” offers a fertile economic environment for seniors to become entrepreneurs.
- (2) Older age is a significant factor that positively affects a person’s probability of being an entrepreneur. There is a higher self-employment

rate in senior labor force than that among the younger labor force, particularly in the knowledge-based sectors. Seniors are more likely to be entrepreneurs than the younger persons in general.

- (3) Policy indicators, such as R&D environment, tax policies, and social tolerance level, are among the factors that affect elderly self-employment rate, as well as some personal factors.
- (4) There exist regional disparities for elderly entrepreneurship distribution in the United States. Regional entrepreneurship environment and knowledge base tend to be associated with regional elderly entrepreneurship levels.
- (5) Elderly entrepreneurship is positively related to regional economic growth. The more elderly entrepreneurs a region has in its labor force, there is an evidently higher regional economic growth rate, *ceteris paribus*.
- (6) Elderly entrepreneurship has a statistically significant and positive impact on increasing labor force size and Social Security fund contribution and hence helps alleviate prognostic aging-related labor shortage and Social Security fund exhaustion.

### **3. Methodology**

The analysis builds on utility theories, economic growth theories, and social gerontology theories and previous literature. This book uses empirical data, descriptive statistics, and tests through two binomial logit models, an extended log-linear growth model with sensitivity and spatial analysis, and a path analysis model to test the hypotheses and evidences of the theories interpreted in the book.

Data sources for the analysis in this book include the Census Public Use Microdata Samples (PUMS), Bureau of Economic Analysis (BEA), American Community Survey (ACS), and Social Security Bureau (SSB). It heavily relies on PUMS 2000 one-percent data because these data sets offer detailed individual level employment, demographic and other socioeconomic information of seniors aged over 62. BEA data is used to measure the physical capital of the metropolitan areas. ACS data is used

to measure the regional economic growth after year 2000 that is the year of most independent variable values. Using this method captures the lagged effect of the independent variables. SSB data measures the Social Security fund contribution.

The descriptive statistics calculate and compare ratios and proportions, graph and tabulate those basic statistics, and visualize relationships between key variables through scatter plots. This method is typically used in an exploratory research. In this book, descriptive statistics are heavily used when exploring elderly self-employment rates, the sectoral distribution of elderly self-employment, the relationship between age and entrepreneurship (see Chapter 6), the regional disparities of elderly entrepreneurship, and the association between regional entrepreneurship environment or regional knowledge base and elderly entrepreneurship (see Chapter 8).

The logit models are used because the dependent variable is a binary variable that measures the propensity of being entrepreneurs; logit models are used in previous empirical studies on seniors' self-employment (such as Quinn 1980; Bruce *et al.*, 2000). The modified log-linear Solow growth model extends Audretsch and Keilbach (2004) who tested the regional economic impact of entrepreneurship. This book indicates the limitations of the Audretsch and Keilbach model and extends their model with spatial and sensitivity analysis. The path analysis is an exploratory study: a logical association path is observed, but no previous empirical studies or models are found to test the labor and then fiscal impacts of elderly entrepreneurship. Spatial autocorrelation is also considered in this path analysis model.

#### **4. Roadmap of this Book**

This book includes eight parts and six major topics. The first part (Chapter 1) overviews this book. Then each major topic composes a part and contains at least one chapter. The first topic is on population aging. On this topic, Chapter 2 explains the crises that come with an aging population and the proposed solutions to those crises. The second

topic explains why elderly entrepreneurship is the key concept in this book. Chapter 3 theoretically interprets the possibilities and necessities for elderly entrepreneurship to retain or attract seniors in the labor force. This chapter highlights the importance of researching elderly entrepreneurship instead of just elderly labor force as a solution to the aging population. The third topic introduces current literature and theories that is related to or can be used to associate with elderly entrepreneurship, under which Chapter 4 provides a review of the empirical literature relevant to elderly entrepreneurship and Chapter 5 introduces economic and gerontology theories that underlie this book. Some gaps in the literature and previous theories are identified in those two chapters.

The following three topics address the aforementioned hypotheses and interpret the results of data analysis and empirical tests. The fourth topic addresses the possibility and situation of entrepreneurship of seniors. Under this topic, Chapter 6 explores the relationship between age and entrepreneurship and Chapter 7 examines the social and individual factors that are related to the development of elderly entrepreneurship. The next topic focuses on regional dynamics of elderly entrepreneurship. Under this topic, regional distribution of elderly entrepreneurship and the association of elderly entrepreneurship with regional entrepreneurship environment or regional knowledge base is analyzed in Chapter 8. In Chapter 9, the role of elderly entrepreneurship in regional economic growth is tested. The last topic addresses the fiscal and labor role of elderly entrepreneurship. In Chapter 10, the labor and fiscal impact of elderly entrepreneurship is tested to examine whether elderly entrepreneurship can help mitigate the potential labor shortage and Social Security fund exhaustion that are resulted from the aging population.

Finally the last part after the six topics, i.e., Chapter 11, provides a summary of the research and its conclusions. It also provides a discussion of the public policy implications and recommendations based on the empirical based findings and presents directions and topics for future research.

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## End notes

- <sup>2</sup> Elderly persons in this book are classified as people who aged 62 or over. There are two reasons of this definition: (1) 62 is the current US average retirement age; (2) 62 is the initial eligibility age of Social Security claim.
- <sup>3</sup> This book tries to define entrepreneurship as inclusive as possible. Baumol (1993) has categorized entrepreneurship into innovation entrepreneurship and business organization. Reynolds *et al.* (2005) defined necessity entrepreneurship as a start-up that occurs because of missing alternatives (e.g., out of unemployment) and define opportunity entrepreneurship as a new business that is set up to pursue an opportunity. With strong focus on the knowledge base, entrepreneurship defined in this book emphasizes the innovation aspect of it; with seniors' management skills, business organizational perspectives would be a necessary component of elderly entrepreneurship addressed in this book; for seniors who like to continue staying active in economic activities, opportunity entrepreneurship would be relevant; for seniors who need extra income but are not welcome in wage-and-salary employment, necessity entrepreneurship would be an important component.
- <sup>4</sup> As indicated earlier, this book tries to incorporate several important components of entrepreneurship that are applicable to the elderly. Those components include: innovation entrepreneurship and business organization (Baumol, 1993) and opportunity entrepreneurship and necessity entrepreneurship (Reynolds *et al.*, 2005). Innovation entrepreneurship emphasizes the innovation and high technology focus of entrepreneurship. Business organization recognizes the organizational skills as a necessary part of entrepreneurship. Opportunity entrepreneurship is defined as a new business that is set up to pursue an opportunity. Necessity entrepreneurship is defined as a start-up that occurs because of missing alternatives (e.g., out of unemployment).
- <sup>5</sup> It is necessary to note that this book only uses Florida (2004)'s occupation classification for Creative Class, which differs from his Creativity Index or Global Creativity Index. His Creativity Index (see Florida, 2004) is a composite measure that is based on four indices: the Innovation Index, High-Tech Index, Gay Index, and the Creative Class. His Global Creativity Index (see Florida, 2005) is composed of an equally weighted combination of the Talent Index, Technology Index, and the Tolerance Index.

- <sup>6</sup> Those occupations include management, business and financial operation, computer and mathematical, architecture and engineering, science, legal, education, arts and media, health care practitioners, and high level sales management occupations.
- <sup>7</sup> Among his creative classes, Florida (2004) further distinguished Super-Creative Core from other Creative Professionals. Arts, design, entertainment, sports, and media occupations were included in the Super-Creative Core; the Super-Creative Core was argued to be more creative and contributive to the economy than Creative Professionals. This book does not focus on this interpretation of creativity by Florida (2004), but his occupational classification for the Creative Class in general fits the purpose of defining knowledge-based occupations in this book.