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JIN LEE

Texas A&M University, closer23@tamu.edu

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Recommended Citation

LEE, JIN (2017). "Hanging on Cliff: Workforce Development and Sustainability in the Face of Working Age Population Decrease in South Korea," *Adult Education Research Conference*. <https://newprairiepress.org/aerc/2017/papers/23>

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Hanging on Cliff: Workforce Development and Sustainability in the Face of Working Age Population Decrease in South Korea

Jin Lee

Texas A&M University

Abstract: To evaluate and design effective policy to mitigate, and ultimately overcome the crisis of demographic cliff, the systemic structure of labor force decrease of Korea was modeled with system dynamics method.

Keywords: workforce development, demographic cliff, labor population, system dynamics, policy evaluation

Problem Statement and Purpose of Study

Dent (2014) warned that many developed countries are facing the “demographic cliff” which is a drastic decline in productive and consuming population with aging and low birth rate. A labor shortage caused by such a drastic decrease of working population leads to a decrease of consumption, and it becomes a serious threat to economic sustainability due to the low growth rate and a long period of stagnation (Gruber & Wise, 2001). The diminutions of working population in East Asia regions are in process at express speed, and South Korea (Korea, hereafter) will be the last developed country fell into the demographic cliff, and the impact of demographic changes can be disastrous in terms of economic growth (Dent, 2014).

One of the ways to prevent or minimize the negative effect of the working population drop is benchmarking strategies effectively executed by other countries. In that sense, the case of Germany can be a useful example of how to deal with the issues of the demographic cliff. As a country that experienced and is still tackling the problems of a demographic cliff, German government has used both long-term strategies of improving the birth rate and short-term strategies for increasing the labor force by attracting immigrants, enhancing women’s and mature workers’ employment to overcome the decline of labor population (Grodén, 2015; Henninger, et al., 2008; Naegele, & Krämer, 2002).

Although Germany’s attempts to mitigate the effects of the labor shortage by population drop and to enhance economic growth are a reference to Korean policy makers, in addition to the massive retirement of baby boomers, there are additional issues in Korea to follow the strategies of German. First, Korea has low multicultural acceptability. Immigrants in Korea has experienced discrimination and racism (Watson, 2010). Gender equality is the second issue. Married women in Korea are forced to decide whether they focus on their career or have children (Won & Pascall, 2004), which is one of the main reasons of low birth rate. Last, the major career for the retired population is self-employment or firm founding, which is a high risk, and even makes their financial status worse.

To resolve the above issues in relation to the workforce in Korea, understanding the complex relationships among the antecedents and consequences of labor population decrease is required as a pre-requisite. Hence, as an attempt to explore the strategies to maintain the economic sustainability in Korea, I will first look at the problems of current policies of the Korean government, and explore the relationships among major variables based on the previous cases of the demographic cliff. Barriers to mitigate the negative effects of working population decrease will be identified and the role of adult education and workforce development

professionals will be discussed.

Background

Current Approaches of Korean Government

The Korean government has recognized the magnitude of the demographic cliff, especially in terms of labor population decrease. According to *Plan for Ageing Society and Population* (2016) issued by the Korean government, a total of 34 trillion won (approximately 30 billion U.S. dollars) to reduce the drop rate of birth and labor population. The Korean government is considering the increase of delayed marriages and unmarried people as the main cause of the low birth rate. To increase the number of married population, the Korean government suggests plans of expanding job availability, providing a public apartment, and supporting the cost of infertility treatment. The government is expecting that the estimated birth rate will increase from 1.21 (per woman) to 1.7 by 2030.

The current approach of the Korean government, however, only focuses on the long-term policy to increase the birth rate, which is similar to what Japan has done for 20 years, which has turned out to be ineffective. Furthermore, the current long-term approach of Korea will not be effective for dealing with the pressing crisis of the demographic cliff expected in 2020's. The problem of focusing on uplifting the birth rate is that this approach is basically a time-delayed. A human needs a time to growth and be educated at least for 18 years to turn into a labor force. During the period, even if the birth rate is highly increased, supplement interventions to mitigate the effects of labor force shortage should be accompanied. Consequently, Korea needs both approaches of short-term mitigating strategy and long-term birth rate increase policy.

Overcoming the Demographic cliff: Lessons from Japan and Germany

The similarities and differences in the cases of Japan and Germany, the previous countries experienced the demographic cliff, give insights to analyze and model the demographic cliff and labor force decrease. Especially from the case of Japan, the assumption that increasing birth rate will result in the increase of population has been proved as false.

According to *Masuda report* issued Japanese government, 2014, although the efforts to simply increase the birth rate was successful based on the fact that the birth rate has been recovered to 1.42, compare to 1.26 in 2005, does not result in increase in the population recovery due to the decrease of women of childbearing age (Sim & Suh, 2016). Thus, due to the decline in the number of women of childbearing age, the entire population will decrease for decades despite the improved birth rate. The report said Japan's population will be stable as 9900 million by 2090.

In addition, the local area is shrinking due to the migration of young population to cities. The cities are becoming "subject to a population black hole" (Atsushi, 2015, p.5), a phenomenon that young population migrates to the cities where supports for childbirth and childcare are hard to get from local family or community, and thus, the birth rate will be continuously decreased.

Shocked by the failure of the previous endeavors for increasing population by birth rate improvement, Japanese government starts to focus on improvement of the work-life balance with the slogan of "Dynamic Engagement of All Citizens" (The Government of Japan, 2016). Additional interventions such as enhancing living conditions of low-wage and temporary workers by increasing the minimum wage, ensuring job security after parental leave, and expansion of childcare facilities will be conducted. Consequently, Japan government admitted the importance of working conditions.

Meanwhile, Germany is successfully getting out of the tunnel of the labor force decrease with the combination of both short-term and long-term policies. In addition to increasing the birth

rate, Germany launched an integrative approach in 2007 to promote gender equality by increasing the female labor force participation and the participation of male in care work with two months of “daddy months” (Henninger et al., 2008). From 1991, the employment rate of females in German has shown an incremental growth from 70.1 to 84.8 (The World Bank, 2016).

For the aging workers, since 1999, the institute of Gerontology at the University of Dortmund launched “TransALT” project, which is integrated strategies of combating age barriers in employment in small and medium-sized companies, making aging workers knowledge and skills transferring to the company. The result of the project changed the perception of employers and old age workers toward retirement (Henninger et al., 2008), and the employment of older workers has improved with the changes in government policy (Heywood & Jirjahn, 2016). Last, in January 2005, a new immigration law went into effect, which is expanding opportunities for foreign and immigrant workers especially having special skills or technological competencies (Kang, 2005). The proportion of immigrants in Germany is 9% of the entire population showing that Germany is one of the biggest immigration countries.

Method

The primary method of the present study is system dynamics (SD). Identifying the structure and dynamic patterns of a complex problem requires broader perspective on a socio-economic phenomenon. Policymakers tend not to consider the long-term effects or overlook the structural influence of policies, which often produces counterintuitive results. Developed by Forrester (1961), SD has developed as a useful tool for analyzing the behaviors of a system using the concepts of a feedback loop, delay, and closed boundary with a continuous view (Sternman, 2000). SD has been used in multiple disciplines such as administration, environmental engineering, economics, or management, particularly in the analysis and evaluation a policy.

The nature of complexity and nonlinearity of the macro socio-economic phenomena requires the model-based understandings and insights to analyze and estimate behaviors of a system. Hence, in this paper, to identify the structural problem and leveraging factors of adult education and workforce development, I used qualitative approach of SD, which is defining problems dynamically, mapping the variables with feedback loops, building a model of labor population decrease, and providing implications to policy making to mitigate the influence of the working population drop. More specifically, I used the archetype of population model in SD, and then combine relevant variables deduced from existing literature to construct the model.

Findings

A System Dynamics Model of Labor Force Decrease in Korea

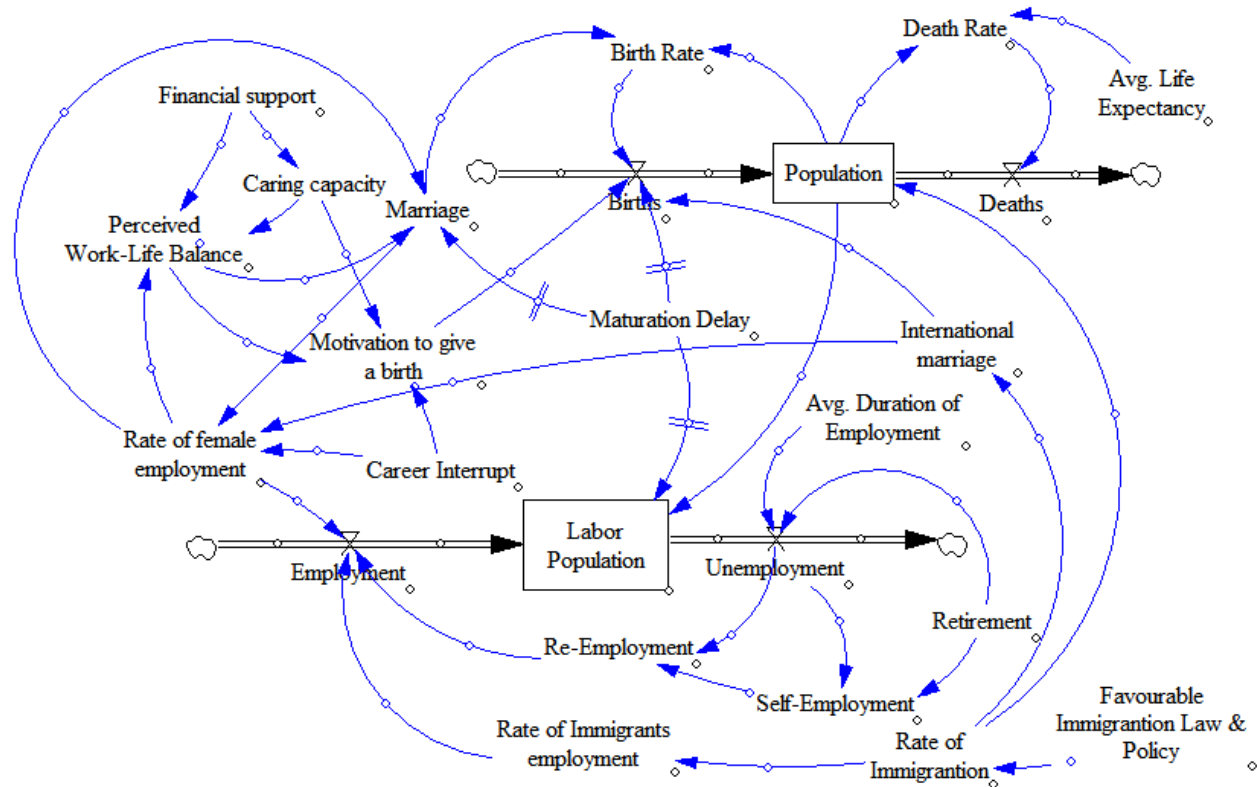
Based on the current approaches of the Korean government to resolve the labor force decrease, and the previous cases of Japan and Germany, a system dynamics model depicting antecedents and consequences of labor force decrease in Korea was suggested as below (see Figure 1). Since one of the purposes of the study is the identification of the major variables and the influences on the number of labor population, I developed a system dynamics model of labor population in Korea with selected variables from the previous research, report, and news articles. The causal loops among variables were also based upon the relationships in the selected sources.

The basic structure of the system starts with two “stock and flow” diagrams: an archetype of population and labor population. The stock and flow diagram of the population is one of the basic archetypes of system dynamics model. Generally, the number of population is decided by the number of people who born and die. The death rate is affected by the average life

span of people, including death by disease or accident. The increase of entire population increase the labor

Figure 1

A System Dynamics Model of Labor Force Decrease in Korea



population. Controlling the effect of economic boom and recession, the general labor force has a cycle of employment and unemployment based on the maturation period of people and the duration of the employment. As shown in the cases of Germany and Japan, the entry of new workforce to the job market has a delayed effect. Thus, efforts to increase the birth rate requires complementary interventions to mitigate the pressing threat of the labor force shortage.

The above model is clearly displaying the causal relationship of the motivation of work-life balance-motivation of pregnancy-birth rate, and the rate of female workers and childcare capacity can influence the intention to give a birth. In terms of aging workers, retired (or quitting a job) population flow in either self-employment or re-employment activity. In addition, the increase of immigrants by favorable policies or international marriage is another reinforcement of labor force and population increase. Last, work-life balance of people plays a key role in marriage and giving a birth, thus ultimately the increase of population.

Mitigating the Effects of Demographic cliff: Role of Adult Education and Workforce Development

As stated in the cases of German and Japan, and the labor force model of Korea, three major variables has been identified and reviewed: female employment rate, immigrant employment, and re-employment of aging workers. These three variables have the relatively short-term effect of mitigation of the labor force shortage, and, at the same time, are positively

associated with the work-life balance of Korean people, which ultimately influences birth rate. Unlike Germany, however, these three key variables are facing fundamental issues chronically and culturally embedded in Korean society.

Gender issue: Career discontinuity of female workers and work-life balance

One of the major problems in Korean workforce is the imbalance of hire rate between male and female workers. Actually, this phenomenon is not only Korea's case but also a worldwide problem. To achieve the gender equality in work and life, two streams of efforts should be made. First, supportive policies for resolving the career discontinuity of female workers should be conducted. The hiring a baby caregiver or using a child-care facility can improve the probability to continue to work after a baby birth (Lim & Youn, 2011). Thus, to maintain the high-quality workforce, supporting childcare and sharing households, and freely use of parental leave are required. The improved female hire rate and career continuity will result in higher birth rate. With the government-level supportive policy, education and training for a change of awareness of leaders in company and males should be done by adult education and workforce development professionals.

In relation to the gender issue, scholars in adult education should pay attention to males. Current approaches on gender equality have concentrated on women's social status or role. However, male workers also suffer from patriarchal, male chauvinism culture and social structure. A genuine work-life balance and gender equality will be achieved by understanding both genders.

Immigrants issue: Low Multicultural Acceptability and Unskilled Labors

In relation to immigrant workers, two major themes can be suggested. Most of all, the low multicultural acceptability and racism make foreigners and immigrants difficult to live and work in Korea (Watson, 2010). Although approximately 3% of the entire labor force are migrated workers, the majority of them has come from southeastern Asian countries and has illegal immigrant status. They are mainly working in the manufacturing industry where unskilled workers can be hired. The working conditions and basic human right of the migrated labors are extremely inferior. Another wave of immigration is being done by international marriage. Female from developing countries has been married Korean male in the rural areas, where more hierarchical and patriarchal than urban areas. Hence, the internationally married female has the double issues of cultural bias, and working and living as a woman in Korea, where the myth of homogeneous ethnicity, patriarchal and masculinized properties are embedded in the culture. Thus, they are experiencing difficulties in social adjustment and career development. These two phenomena can be a serious barrier to entry of immigrant workers. To resolve these problems, a community-based education should be provided in a rural area to improve multicultural acceptability and education and training for executives in small and medium enterprises. Once the living and working condition of immigrant workers are improved, more highly skilled workers will flow in Korea.

Aging Population in Labor

Utilizing "know-how" of experienced workers is inevitable in upcoming years. With the prolonged lifespan with more healthy and young physical status, the retirement age should be changed and is being changed. As shown in "TransALT" project case of Germany, developing ways to successfully transfer the valuable knowledge and skills of mature workers can be another engine for economic growth. In addition to the job training for re-employment of an aging population, another theme for adult education experts is transformation in older generation's perspective toward the role in daily life. Korea has a patriarchal culture, so male has a lot of responsibility for supporting their family. For this reason of traditional gender-role identity, many retired males experience difficulties in the conversation or sharing households with the family

members, which often leads the increase of suicide rate. Thus, in addition to the education and training for new skill acquisition, learning how to adjust a new role and lifestyle is another crucial assignment for improving work-life balance.

Conclusions and Implications

The research findings provide the issues and possible solutions in the era of a demographic cliff in Korea. The system dynamics model of labor force decrease in Korea revealed the structural factors and causal loops among the variables in the system. the negative effect of labor shortage can be minimized or slow down by accepting migrant workers, more female and aging worker employment. To achieve the long-term goal of the increase of population, Korea has to solve the issues in relation to the leveraging factors. The role of adult education and workforce development professionals is particularly important in this area. To overcome the upcoming labor force crisis in Korea, gender equality, work-life balance, workplace flexibility, and cultural diversity should be addressed as the pre-requisites.

The present study has the following implication. With a system dynamics perspective, this study shed light on the complex and dynamic nature of the labor force decrease system. Different from “laundry list thinking of linearity”, the system’s continuous, dynamic, and counterintuitive property highlighted. Professionals in workforce development can use and develop diverse system dynamics model to evaluate a system or policy.

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* This paper was shortened due to page limitations. Additional information will be provided upon request.

[dx.doi.org/10.1300/J031v13n01_05](https://doi.org/10.1300/J031v13n01_05)